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Dear reader!

We are extremely excited to present to you the ISE KAZGUU Student Research Review which is a yearly research journal published by the International School of Economics at M. Narikbayev KAZGUU University.

Our journal is intended to highlight the best research studies prepared by our graduate and undergraduate students for their final thesis defence. These research works have been chosen and recommended for publication by the review commission after careful examination.

The research presented in this edition covers a wide variety of topics in the field of Economics, Finance, Accounting, Business Management and Marketing. Most of the papers aim to solve practical problems of the Kazakhstani economy, businesses, and society from a scientific point of view using rigorous research methods. By publishing this journal, we seek to stimulate discussion on those important contemporary issues and contribute to building the ISE KAZGUU research community and, in a wider sense, a research culture in our country.

I hope you will enjoy reading our journal and we encourage you to share it with potentially interested stakeholders!

Dr. Saule Kemelbayeva,

Dean of the International School of Economics
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What are the Main Obstacles for Businesses in Kazakhstan, and how do Firms' Characteristics Affect the Probability of Facing them?

Tomiris Abylkassimova, Aru Akhmetova, Assiya Kenzhetayeva, Adel Zhakeshova

Abstract

Conducive business environment significantly contributes to the economic growth of any country. Governments constantly work towards creating a favorable business environment by enhancing business strategies, improving technologies and simplifying business processes. However, businesses are still forced to fight with a variety of obstacles on their path.

A purpose of this paper is to explicate how firms' characteristics affect the probability to face any potential barrier in Kazakhstan. The regression built during this research is a way to analyze the likelihood of occurrence of particular barriers based on firms' characteristics. Evidence is reported from the 2019 World Bank Enterprise Survey and is being used as a secondary data for building a model. The model draws attention to the obstacles from the characteristics angle while the lessons learnt may serve as a ground for future research dedicated to analyzing business related aspects.

Introduction

Improvement of the economic situation in the country largely depends on the development of entrepreneurship, which according to OECD (1998) is central to the functioning of a market economy. New business formation was a rare phenomenon in the 1900s (Howard & Van, 1999). However, the contemporary competitive and well-saturated market is a result of improving business strategies, newly invented technologies, and huge investments, respectively. Moreover, entrepreneurial activity itself creates workplaces, which can reduce unemployment, saturate the market with goods and services, contribute to the creation of competition, generate innovations, increase taxable incomes for the government, and contribute to economic growth and development. That is why economies around the world are keen to make reforms to ease the process of doing business (Jabeen, Ali & Yusuf, 2021), but still different problems arise. There are numerous factors that impede the development and growth of businesses around the world such as uneducated labor force, competition with the informal sector, limited access to finance, and land, tax rates, tax administration, corruption, and political instability that companies can face. Obstacles may vary depending on the country where the firm is registered. For instance, the main barriers to companies identified in Russia and Bulgaria are limited access to land and finance (Pissarides, Singer & Svejnar, 2003) while in Ghana companies have very limited access to finance and electricity (Mohammed & Bunyaminu, 2021). Tax laws, legal issues and non-availability of resources are the most considerable obstacles in running a business in India (Jabeen, Ali & Yusuf, 2021).

Along with region, barriers may differ based on characteristics of the company. It is uncommon to think that larger firms face big problems while smaller ones meet small problems. According to Beck (2007), small and medium sized firms have a higher probability to face limited access to finance than larger firms. Chavis, Klapper and Love (2010) claim that for firms that operate less than 3 years in the market the main constraint is access to finance. Thus, various firms face different obstacles.

Therefore, it is important to understand which obstacles companies face while doing business and which companies, based on their characteristics, are more likely to face those obstacles. This is the idea behind this study that aims to answer these questions with regard to Kazakhstan. To achieve our objective the data of the Enterprise Survey conducted by the World Bank in Kazakhstan in 2019 was used. With this data, we seek to reveal the differences between firms for which those problems are the most harmful.

We start with reviewing and discussing the literature regarding obstacles to firms' operations and the World Bank Enterprise Survey. Then we build the probit model using the data provided by the World Bank to analyze

a likelihood of experiencing the obstacles listed by the companies surveyed by the World Bank, as described in the "Research Methodology" section. Finally, we interpret and discuss the obtained results.

Literature Review

The key source of this paper is the Enterprise Surveys conducted by the World Bank (2019). The ES found that firms in Kazakhstan experience three main obstacles to their activities; these are the practice of the informal sector, tax rates, and low-skilled workforce (World Bank, 2019). Within the ES, a rich data on participating companies' characteristics was collected, such as company size, company age, location, sector. This data was used to estimate whether those firms' characteristics somehow affect a likelihood of facing the reported problem.

In addition, it is a vast amount of literature that indicates different obstacles firms face.

Firstly, hindered access to finance. Louis & Macamo (2011) assume that the impact of financial barriers is more perceived in comparison with social and other external obstacles. The absence of financial problems at the beginning of the business path promises successful continuation. Companies have troubles with providing finance to operate the business, especially small and medium sized businesses face this problem. According to Krasniqi (2007), credit policies and collateral requirements prevent small and medium-sized firms from obtaining credit from banks, as they are likely to lend larger companies, whose ability to provide collateral is higher.

Secondly, Anderson (2012) mentions access to land as a serious obstacle all around the world.

The quality of infrastructure in a country directly affects the ability of a business to function. This includes permanent access to electricity, water and telecommunications. Frequent interruptions can disrupt production, increase costs, and thus slow down a company's growth.

Thirdly, uneducated or unqualified employees can be a problem to business. Following Shah

(2013), the main problem for many companies is the shortage of skilled workers and core competency, especially in technical and specialized jobs. Companies that have a skilled and educated workforce are more likely to be efficient (Hewitt & Wield, 1992).

Fourth, La Porta and Shleifer (2008) state that approximately 50% of economic activities in developing countries relate to the informal sector, which means that the informal sector is a serious threat to businesses. According to the Enterprise Survey it is highly important for businesses to be officially registered for their long-term path. Unregistered companies might have an advantage over officially registered ones that comply with existing rules, policies and regulations. Through tax evasion schemes, they provide themselves with higher revenues that can be used for business purposes; moreover, they congest infrastructure and other public services generating a free-rider problem in the economy (Slonimczyk, 2014).

In addition, Wang (2016) analyzed whether the characteristics of small and medium sized firms in developing countries affect the probability of facing the obstacles. By the results obtained, the likelihood of facing the problems for older and larger companies in the developing countries is smaller compared to younger and smaller companies. Our research will test whether these results are also relevant for Kazakhstan.

Data

This paper uses the cross-sectional data provided by the World Bank in 2019 about companies located in Kazakhstan. 1446 companies in total from different sectors and regions participated in the survey. The questions were about the difficulties they experience while running their businesses and the general company characteristics in order to acquire a more complete picture of the business. Based on the collected data the entities have following characteristics that will be used in our research:

Figure 1. Firms' size
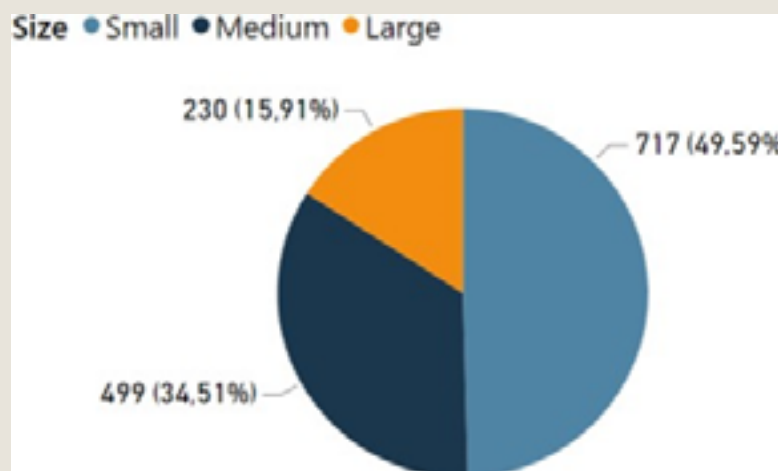
Number of employees that officially work in the company defines its size. According to the World Bank small entities have from 5 to 19 employees, medium entities have from 20 to 99 employees, while in large companies more than 100 workers are employed. As can be seen on Figure 1, 717 small, 499 medium and 230 large entities participated in the survey.

Figure 2. Age distribution

Figure 3. Firms' location

Also, other important characteristics used in our research are the location, age, growth rate and top managers' experience. Figure 2 and 3 show age distribution and the number of companies in each region respectively.

Figure 4. Main obstacles to firms in %

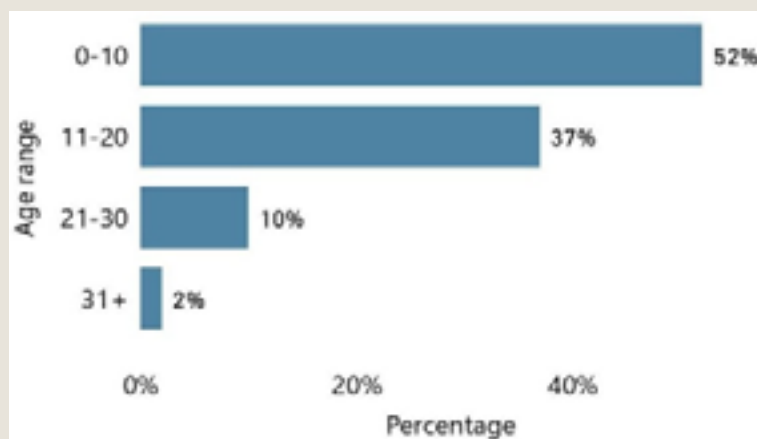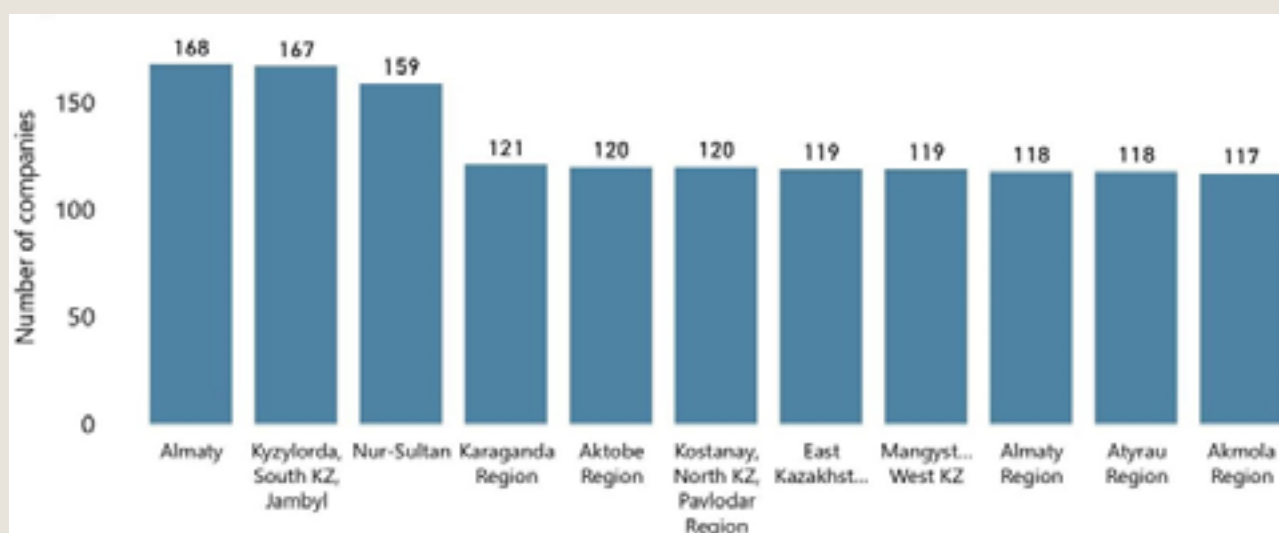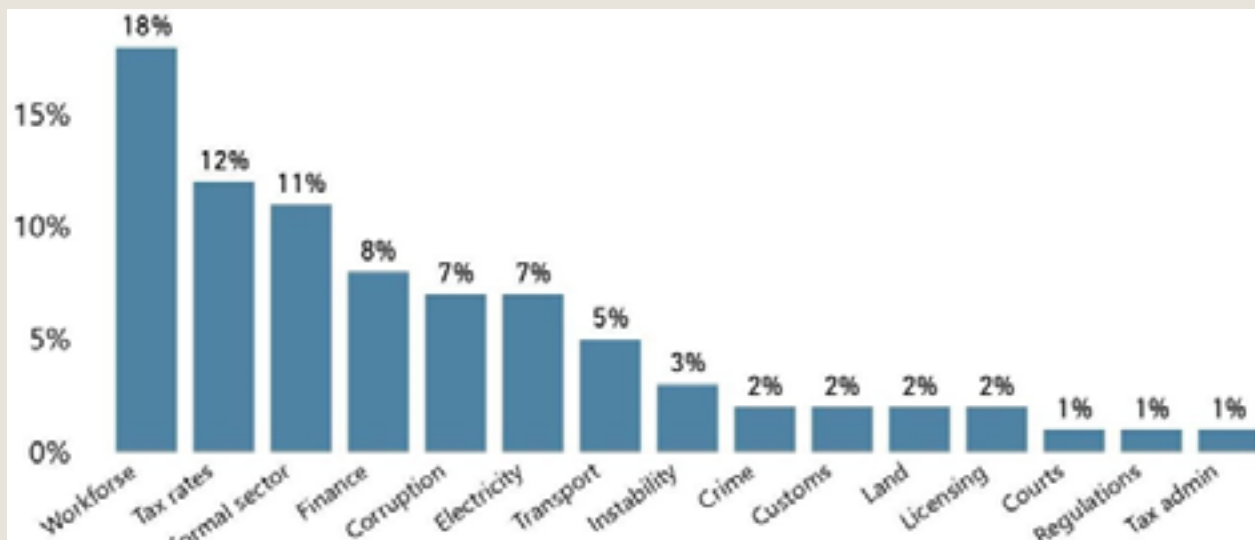As a result of a survey conducted by the World Bank, 15 main obstacles for enterprises were identified. The companies rated each obstacle according to a scale from 0 to 4 which corresponds with answering from "no obstacle" to "very severe obstacle". Figure 4 represents the main obstacles for the entities in percentage.

It can be seen that major obstacles that the companies face the most are inadequately educated workforce, competition with the informal sector and tax rates. That is why those three problems are chosen for our model as dependent variables.

Research Methodology

In this research the maximum likelihood method is used in order to test the probability of facing main obstacles depending on the characteristics of firms. The probit model for our study is:

Obstacle = β0 + β1*Region + β2* Size + β3* Age +β4*Experience + β5*Growth + e

This model is applied for all three main obstacles identified before.

Obstacle - main obstacle to current operations, dependent variable. As it was mentioned earlier, obstacles are ranked from 0 to 4. To suit the model, this variable isconverted into a dummy variable, where "0", "1", "2" are taken as minor obstacles and converted to "0", while "3" and "4" are grouped as major obstacles and identified as "1".

e - error term.

Characteristics are taken as independent variables and converted to binary variables to find the probability of encountering main obstacles:

Region - location of an entity. Regions are grouped into five groups: "western" (Aktobe, Atyrau, Mangystau and West Kazakhstan regions), "southern" (Kyzylorda, South Kazakhstan, Jambyl and Almaty regions), "northern" (Kostanay, North Kazakhstan and Pavlodar regions), "central" (Akmola,

East Kazakhstan and Karaganda regions), "metropolis" (Nur-Sultan and Almaty).

Size - size of a firm based on the number of employees. Size is divided into three groups: small, medium and large.

Age- age is calculated starting from the year of official registration of the entity. Age is grouped by the range of ten years ("1-10", "11-20", "21-30" and remaining is grouped as "30+").

Experience - this variable represents the working experience of top management of the company; we control for this variable to understand how the management's experience affects the probability of having the problems. The experience is converted to binary variables and grouped in the same manner as the variable "Age".

Growth - the last characteristic taken for the model is growth rate. This variable shows how annual sales growth affects the likelihood of occurrence of the problem. Growth rate is

categorized as "Fast Growth Rate", "Moderate Growth Rate" and "Slow Growth Rate".

In the "Results and discussion" section the models estimating the likelihood of an obstacle to occur based on the firms' characteristics are presented and interpreted.

Results and discussion

In Table 1, the results of the probit model for three main obstacles (competition with the informal sector, inadequately educated labor force, tax rates) are shown. The table reports average marginal effects computed with the "mabina" command in R after estimating three probit models. Average marginal effects should be interpreted as elasticities or a percentage change in a dependent variable as a result of the change in an independent variable by one unit.

We will provide interpretations for each explanatory variable in a separate subsection.

Table 1. Regressions' results

Dependent variables			
	Workforce	Informal Sector	Tax Rates
Central regions	0.318***	0.165***	0.068**
	(0.134)	(0.137)	(0.143)
Northern regions	0.120**	0.120***	0.080**
	(0.168)	(0.184)	(0.207)
Southern regions	0.243***	0.131***	0.069**
	(0.131)	(0.139)	(0.147)
Western regions	0.144***	0.128***	0.136***
	(0.124)	(0.134)	(0.170)
Large companies	0.086	0.110**	0.014
	(0.162)	(0.186)	(0.200)
Medium companies	-0.005	0.078***	-0.008
	(0.101)	(0.112)	(0.119)
Age (1-10)	-0.051	-0.016	-0.059**
	(0.105)	(0.113)	(0.128)
Age (21-30)	-0.040	-0.078*	-0.090**
	(0.151)	(0.157)	(0.176)
Age (30+)	-0.030	-0.004	-0.263***
	(0.304)	(0.354)	(0.311)
Experience (11-20)	-0.143***	-0.056*	-0.078***
	(0.105)	(0.114)	(0.125)
Experience (21-30)	-0.150**	-0.134**	-0.006
	(0.160)	(0.167)	(0.200)
Experience (30+)	-0.100	-0.098	-0.023
	(0.212)	(0.228)	(0.249)
Fast Growth Rate	-0.048	-0.125***	-0.001
	(0.118)	(0.124)	(0.148)
Slow Growth Rate	0.058	0.052	-0.007
	(0.100)	(0.115)	(0.121)
Observations	991	971	970
Note:		*p<0.1; >**p<0.05; >***p<0.01	

Region

Region is the first explanatory variable. 14 country provinces (oblasts) are grouped in five larger geographical regions: "western", "southern", "northern", "central", "metropolis". Reference group for

the variable "region" is the metropolis, which includes Nur-Sultan and Almaty.

As it can be seen, most of the region coefficients are positive and statistically significant, which means that no matter in which region the company is located, there is anyway a probability of encountering those obstacles in a greater extent than in Nur-Sultan and Almaty. There is, however, heterogeneity across the other regions as well, for instance, the entities in central Kazakhstan are more likely to face the problem of an uneducated labor force compared to Nur-Sultan and Almaty (32%).

This can be explained by the amount and the quality of university education. As in Nur-Sultan and Almaty there are a higher number of students and graduates from top universities than in Central Kazakhstan. According to IAC (2017) the number of students in Nur-Sultan and Almaty in total is 183 661 in 2017, while in the Central Kazakhstan the number is 81 404. This could also be driven by internal migration since the current and the former capital cities being the best-paid destinations and possibly most attractive cities to live in, pull the most educated people from across the country.

Differences across cities might in turn be driven by the regions' industrial structures. For example, the central part of the country is more industrialized than the northern and the southern and therefore likely requires a more educated workforce.

Also, competition with the informal sectors is statistically significant for all independent variables, and in any of the regions, the probability of facing this problem is higher by more than 10% compared to Nur-Sultan and Almaty. That means that in those regions there are more companies that are not officially registered and avoid taxes, which deems reasonable, as regulations are likely more strict in metropolises. On the other hand, companies of Nur-Sultan and Almaty might be wealthier and therefore might suffer from competition with the informal sector to a lesser extent.

The relationship between tax rates and regions is also positive and statistically significant for each group. However, in Western regions, the likelihood of facing the obstacle is higher compared to Metropolis by about 14% which is higher than in other regions. This can be explained by better tax regulations or better economic conditions contributing to higher economic performance in those cities compared to the rest of the country.

Size

The next variable of interest is the size of the company.

According to the World Bank's Enterprise Survey (2019), the size of the company is determined by the aggregate indicator of permanent and temporary employees. Small firms include 5 – 19 workers, medium firms 20 – 99 workers, while large 100 and more. As a reference we used small sized firms to compare larger firms with small ones.

Among the models, only the informal sector model produces statistically significant coefficients, while the relationship between workforce and a company size and tax rates and a company size are statistically insignificant.

The probability of encountering the problem of unfair competition with the informal sector is 7.8% greater for the medium-size firms and 11% greater for the large firms compared to the small firms.

The statistically significant result for the informal sector model seems counter-intuitive. The informal sector companies are predominantly small companies, and, on the other hand, in the formal sector, smaller companies should be more negatively affected by the competition with the informal sector; however, our result is completely opposite: the larger is the company the larger is the likelihood to list the informal sector as an obstacle for doing business. An alternative explanation for this phenomenon might be the fact that larger firms pay greater taxes and because of that, they might feel more disappointed by unfair competition with the informal sector (Mohammed and Bunyaminu, 2021).

Age

Next, we interpret the probability of experiencing one of the main obstacles to doing business depending on the age of a company.

The age is determined by the length of time, in years, that the companies have been in operating condition. As a reference group we used firms with the age between 11-20 years to compare them with the groups of less than 10 years, between 21-30 and more than 30 years.

According to the table, all variables of age of

firms have negative results, which means that they have low probability to face these obstacles. However, only tax rates variable in 3 types of ages are statistically significant, which means that the group of more than 30 years has the lowest probability, and the reference group has the highest probability. In general, older firms are found to be less prone to be negatively affected by the tax rates. This is consistent with the expectations and explained by the fact that the impact on this probability depends on the experience and durability of the company itself. Since older firms successfully navigate the environment by their ability (The World Bank, 2019).

Experience of Top Managers

The next characteristic to be considered is the number of years of top management working experience in the sector.

The selected characteristic was divided into four groups: companies with up to and including 10 years of top management experience, 11 to 20 years inclusive, 21 to 30 years inclusive, and more than 30 years of experience in the sector. The top management with 10 years of experience and below was selected as a reference group against which the figures of other groups will be compared.

According to the model, coefficients of the variables related to top manager's experience in general are significant with regard to all listed obstacles. However, when the variables are considered individually, the results become statistically insignificant in analyzing the probability of encountering these obstacles by companies, whose top manager's experience in the sector exceeds 30 years. In

addition, the results are also statistically insignificant for businesses, whose top management's working experience in the same sector exceeds 20 years when it comes to the perception of tax rates as a barrier to operating a business.

By comparing the reference group with others, it can be seen from the table that companies whose top managers have less years of experience are more likely to face all of the obstacles presented than those with more work experience. In particular, the possibility of dealing with the obstacle in the form of an inadequately educated workforce is 14% lower for companies with top management with 11 to 20 years of experience and 15% lower for those with 21 to 30 years of experience compared to the reference group. According to the table,

there is no significant difference (6%) in the likelihood of an obstacle, such as competition with the informal sector, between companies whose top managers have less than 10 years of experience inclusive and companies whose top managers have 11 to 20 years of experience. However, the results are almost doubled compared to the group with 21 to 30 years of top managers' working experience. In other words, the probability of encountering this obstacle decreased by 13% compared to the reference group. Also, as it can be seen from the model, there is only one statistically significant coefficient for the dependent variable, which is the obstacle in the form of tax rates, and the independent variable, which is the group of companies, whose top management has 11 to 20 years of experience. Compared to the reference group, this group is less likely to perceive tax rates as a problem by 8%. This can be explained by experienced top managers' ability to take advantage of tax shields by restructuring the capital structure of the firm (Matemilola et al., 2018).

In this way, obtained results may indicate that with each year of experience in the sector, the manager's knowledge and expertise in overcoming listed obstacles, such as inadequately educated workforce, competition with the informal sector, tax rates, increases, that they are no longer perceived as significant obstacles for doing the business.

Growth of Sales

Finally, we look at how the annual sales growth of companies affects the probability of encountering the obstacles listed. This characteristic was presented in percentage terms which represent businesses' expected annual change in total sales next year, and for probit model percentages were grouped into 3 categories. Businesses, whose growth is expected to be lower than 16 % were classified as slow growth companies, from 16% to 45% inclusive were allocated to moderate growth companies, and the last group is fast growth companies with more than 45% expected raise in annual sales.

Businesses with moderate growth were selected as a reference group for this probit model, which means that the figures of other groups will be compared against this group.

According to the table, results of the probit model are statistically insignificant for analyzing slow growth companies with regard to all listed obstacles, and fast growth companies for obstacles, such as inadequately educated

workforce and tax rates.

As it can be seen, a group with high-growing companies is presented as statistically significant when it comes to the problem of competition with the informal sector of the economy. In particular, companies with less sales growth have a 13% higher probability to face this obstacle, than firms with high sales growth. In this way, the results indicate that the possibility of encountering an obstacle in the form of competition with the informal sector becomes lower as the growth rate of companies increases.

Conclusion

One of the pillars of a country's economic development is the entrepreneurial process (Schumpeter, 1911). Therefore, it is important to maintain a business environment. Even though all companies around the world face different obstacles from year to year. Based on a result of a research, major obstacles that the companies face the most in Kazakhstan are inadequately educated workforce, competition with the informal sector and tax rates. Our research focused on whether some firm features can explain the probability of encountering these most frequent problems businesses in Kazakhstan face. This might help to understand the nature of such obstacles and what companies should be given priority in government measures and policies addressing those obstacles.

The results obtained from the probit models suggest certain patterns that deserve attention.

Companies located in Nur-Sultan and Almaty have fewer problems compared to other regions. Moreover, it can be concluded that older firms with more experienced top managers that have a higher sales growth rate are less likely to face the obstacles. In addition, larger companies have higher probability to mention a competition with the informal sector as one of the main obstacles for doing business, which is a rather unexpected result. A possible explanation for it is that they pay higher taxes, more heavily contribute to the production of public goods and, therefore, freeriding costs are higher for them. Thus, the government actions aimed at mitigating those obstacles should predominantly target younger, less experienced companies located outside of Nur-Sultan and Almaty, as well as strive to reduce unfair competition with the informal sector.

With our study, we managed to understand the nature of the obstacles limiting the performance of the companies in Kazakhstan with the data collected by the World Bank. The results obtained are well-justified. The study is relatively novel for the context of Kazakhstan and useful as it allows to draw rigorous and policy applicable conclusions.

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The impact of economic factors on housing prices. Case of Almaty city.

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Abstract

The real estate market in Kazakhstan is the sector that shows a noticeable increase in prices each year. This research work tries to identify which factors influence price changes. The analysis was carried out within the city of Almaty, based on the 6 chosen factors: volume of mortgage loans issued, average nominal income, USD/KZT exchange rate, price change in the construction sector, population, and the number of unemployed people. The work aims to distinguish the influence of the selected factors on the price per square meter, whether a middle-income family in Kazakhstan can afford an apartment in Almaty, and try to explain how prices are formed in the real estate market.

The methodology of a project was chosen to be a quantitative research method and data for the analysis were collected from official statistical platforms. The regression model was tested using the ordinary least squares (OLS) method by using the STATA program. Based on the results of the analysis, 3 models were created for the period from 2011 to 2021.

The first model showed that the number of unemployed people has a negligible effect on price growth, and in the second model, only prices in the construction sector and the USD/KZT exchange rate had a significant impact on price changes. With regards to the third model, the only independent variable included turned out to not have sufficient goodness of fit. The volume of mortgage loans and the number of unemployed people did not have a significant impact on the growth of housing prices in any of the models, while the average nominal income and population turned out to be significant only in the first model.

Introduction

Housing expenses compose a big part of the total household spending, being one of the major indicators of wealth around the world. Household wealth, from its side, is influenced by the real estate market and its prices and could have a significant impact on consumer demand.

The real estate market is one of the vital sectors of the Kazakhstani market as a whole. The reason is that owning an apartment for personal use or investing in apartments as a commercial business type is pretty common among the country's citizens. That is why one of the "hottest" topics in economics, statistics, and finance is "Which factors affect the price of the real estate?". An article by Tengrinews.kz, one of the leading news portals in Kazakhstan, stated that "apartments on the secondary market are almost 1.5 times more expensive than new buildings as of January 2022. In just one year the cost of such apartments has grown by 30%. For instance, a single-room flat in Yesil district of Nur-Sultan instead of the usual 15 million KZT now costs at least 20 million KZT". Adil Sergazinov, a real estate agent in one of the biggest companies in Almaty, argued that "In 2021, there was a big jump due to UAPF (Pension Fund). Sellers on the secondary market raised the price, and this move created a big stir. The latest prices of 2021 will remain for the next quarter". Ermek Musrepov, President of the Kazakhstani Federation of real estate commented that "The price per square meter in Kazakhstan does not correspond to the nominal income of the population". In addition, he pointed out that accidents in January hit Small and Medium Enterprises (SMEs) hard, and that this is the segment of the population that can make a huge influence on the activity

of the real estate market. Mr. Musrepov gave a strict direction: "In order to make apartments affordable for citizens, it is necessary to use domestic materials in construction, meaning to open new factories and produce local goods. Those projects are needed to be developed in all regions".

Trends in the real estate market strongly depend on consumer demand and on the actual level of monetary income of the population. Unfortunately, the dynamics of the real income of Kazakhstanis do not show positive changes, which is why there can be seen a lack of necessary demand. Additionally, the whole market in Kazakhstan is strongly dependent on the National Bank. Every time the National Bank decides to raise the annual base rate, it directly affects mortgage rates, which, as a result, leads to an increase in prices in the real estate market.

In recent years, major changes have taken place around the world that have directly affected all areas of the economy. Thus, the real estate market in Kazakhstan, in particular, started to transform rapidly back in 2020 during the global pandemic, when people have started to lose their income really fast and experienced major shocks due to the mandatory restrictions, followed by a series of big events. One of them was a change in the rules for withdrawing pension savings for housing which led to a sharp jump. A strong excitement in the real estate market took place and the majority of people who managed to accumulate some amount of money started to purchase houses and apartments, which pushed housing prices to the expected growth. Additionally, the real estate market was influenced and is still experiencing changes by the January uprisings, as well as hostilities between Russia and Ukraine. In modern realities, the situation is changing very quickly, thus, there are some fears regarding a repeat of the 2008 mortgage crisis due to the fact that an increase in Kazakhstan's house prices may lead to the creation of a house pries bubble directly affecting the economy.

To conduct the study, Almaty city, the largest town in Kazakhstan which sets a trend for prices in the whole country, was chosen. Focusing on only one city helps to narrow down the scale of the analyzed market, and at the same time not to miss much out of sight, due to the fact that at the moment the population of this city is about 2 million people, which is more than 10% of the total population of Kazakhstan. Considering the fact that over the past 15 years the number of residents has increased by 50%, it is an excellent market with a continuous demand for real estate to base research on. Another point is that in the real estate market of the southern capital secondary housing transactions are not inferior to primary ones, which is important for obtaining realistic results. Official data from the website of the National Bank and Bureau of National Statistics of Kazakhstan has been gathered from 2011 to 2021 and will be analyzed both quarterly and monthly further in more detail, making the time period the only changing variable in the calculations for obtaining the most accurate outcomes. The motivation behind choosing exactly that period of time is explained by the attempt to observe the effect of the 2008 crisis on Kazakhstan and its economy. Tables and graphics will be derived, and the meaning behind them will be discussed later on.

Lastly, there are a few expectations about the outcomes of the work. In general, demand for apartments in Almaty city is high, which stimulates the growth of prices. One of the possible causes of high demand is population growth. Hence, a strong influence of that factor is expected to be obtained after conducting an analysis. On the other side, an unemployment rate is considered to have little effect on housing prices. However, the reason for including it is the fact that the unemployment rate is one of the main economic factors which should not be excluded from the research work. In addition, it is expected to get a good fitness of the model regarding all the variables chosen after conducting an analysis.

Analysis of the Almaty household market

Kazakhstan's real estate market, like any other market, has its own characteristics related not only to economic factors but also to state policy and specifics of the mentality of the population. The average price in the city of Almaty per square meter on January 1, 2020, was 417,400 tenge, while the average nominal income of an Almaty resident on the same date was only 162,547 tenge.

Figure 1. Growth dynamics of the average nominal income for the period from 2011 to 2021
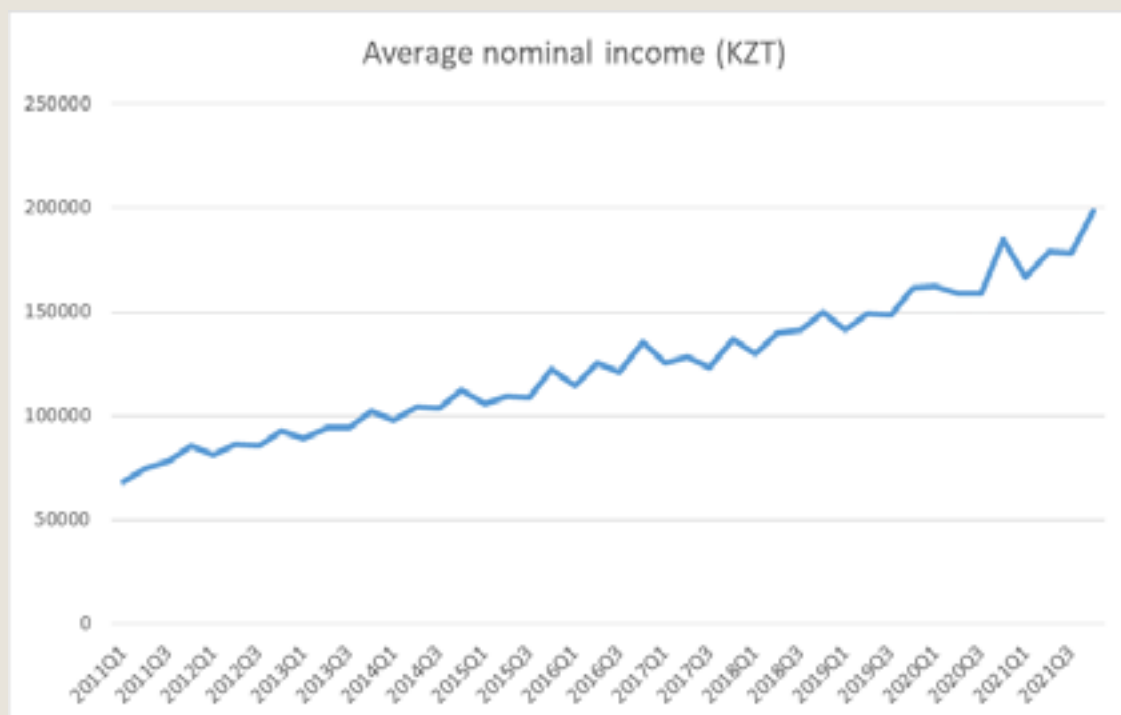
Thus, it may be concluded that it is almost impossible for an average resident of the town to buy a home without a mortgage program. In this connection, the state sponsors a number of mortgage programs that significantly help citizens to afford their own apartments, such as:

Table 1. State-sponsored mortgage programs

Program name	Interest rate	Initial payment	Maturity date
Umai	13,5%	15%	up to 25 years
7-20-25	7%	20%	up to 25 years
Secondary housing	from 3,5% to 8,5%	50%	up to 25 years
Your home	from 3,5% to 7%	20%	up to 25 years
Nurly Zher / 5-20-25	5%	20%	up to 25 years
Bakytty otbasy	2%	10%	up to 18 years
Zhas otbasy	6%	50%	up to 9 years

Under the influence of state housing programs, the weighted average interest rates on mortgage loans remain attractive to borrowers and stay at a level below the base rate of the National Bank. The weighted average mortgage rate in August 2021 was 7.9% (in December 2020 - 7.5%). In recent years, there has been an impressive increase in the portfolio of mortgage loans, which as of September 1, 2021 amounted to 2.8 trillion tenge, or 17% of loans to the economy.

One of the most popular mortgage programs is a "7-20-25" social program from the Kazakhstan Sustainability Fund. Its main characteristics are: 7% interest rate, the size of the down payment from 20% of the cost of housing, and up to 25-year maturity. When buying a house on these terms, the maximum value of real estate should be 15, 20 or 25 million tenge, depending on the region of residence. An important condition for participating in the "7-20-25" social program is for the borrower to not own any real estate and not have any other mortgages. In addition, citizens can take out a mortgage under this state program only for the purchase of primary housing.

"Zhas otbasy" , or "Young family" from Otbasy Bank, with an annual interest rate of 6%, from 6 up to 9 years maturity, and an amount of up to 100 million tenge. The requirements oblige families to have a deposit of 50% of the cost of housing. However, a one-time deposit of the amount is allowed. Based on the name of the program family should actually be young, namely, the marriage should not be more than 5 years old. Under this program, unlike "7-20-25", families can use a mortgage to purchase a land plot, build and repair a house, as well as to buy a house regardless of the year of commissioning.

After all, considering the fact that there is a variety of programs and options with different conditions, it becomes more affordable for Kazakhstani citizens to purchase a house. With regards to demand, formerly, its growth for state mortgage programs has been observed, and at some point the problem of demand greatly exceeding supply took place. However, currently, the trend for mortgage lending is rather decreasing, which is explained by banks by continuously rising prices in the real estate market.

Nevertheless, one of the fundamental reasons for the growth in demand for real estate was the retirement savings withdrawal program, which in some way negatively affected the real estate market, as prices rose dramatically. Comparing house prices in 2020 and from January to November 2021, during these two time periods new buildings have risen in price by almost 20%. Prices for secondary housing increased by 34% making it even more difficult for citizens to afford a house. The current situation is not profitable for the National Bank which wants to "curb" inflation either. In this regard, such measures as curtailing public housing programs were taken from the government's side. For instance, in 2021, the market mortgage product of the Eurasian Bank "Baspana Hit" program was suspended. Now the state is trying to monitor the situation on the market, including the withdrawal of pension surpluses that citizens continue to use. The number of citizens who directly bought housing at the expense of pension savings (without a mortgage), as of December 9, 2021, amounted to 174 thousand people. When adding the number of mortgage loans issued in 11 months of 2021 (about 90 thousand loans), the total demand for housing last year amounts to about 264 thousand. This is 2.6 times more than the annual commissioning of apartments in apartment buildings (2020) and twice as many current ads for apartments on the site Krisha.kz. Suppliers are trying to compensate for the high demand for real estate by increasing the number of housing commissioned, since if there were 2.4 million in 2020, then in 2021 the number of square meters increased to 2.6 million, which shows an increase of 8%.

In 2021, according to the estimates of the head of the Kazakhstan Real Estate Federation Ermek Musrepov, prices for primary real estate increased by 15%, secondary – by 10%. At the moment, the situation on in the residential real estate market in terms of the ratio of housing quality to its value characterizes the market as developing. The price is too high, and the quality leaves much to be desired. This is reflected in the structure of the distribution of housing class in the total volume of the market. In 2021, economy-class apartments were in high demand. This also applies to affordable housing, which is being built under state programs. Now about 60% of the market is represented by economy class apartments, 20% - by comfort class, and 20% are divided between elite and business class objects. With regards to Almaty city, the suburban area of Nauryzbay, Zhetysu, Turksib, and Medeu districts is more in demand for the purchase of economy class housing in Almaty. For example, the construction of economy class housing near the Kuldzhinskaya highway is actively underway. And comfort-class apartments were in demand in Almaly and Bostandyk districts, where houses are located closer to the old center.

Purpose of the study

There are several aims of this study:

Firstly, to understand the effect (positive/negative) of six main variables, namely volume of mortgage loans issued, average nominal income, USD/KZT exchange rate, price change in the construction sector, population and number of unemployed people on the real estate price per square meter in Almaty city, and its' extents.

Secondly, to learn whether a middle income family living in Kazakhstan can afford an apartment in Almaty city considering the factors

studied in this research: whether it is difficult or not, and if so, to what extent.

Additionally, this paper will try to explain how prices in Almaty real estate market are set by analyzing the factors from which it is mainly composed as well as learning about other influencing powers.

Figure 2. Factors affecting real estate Price.
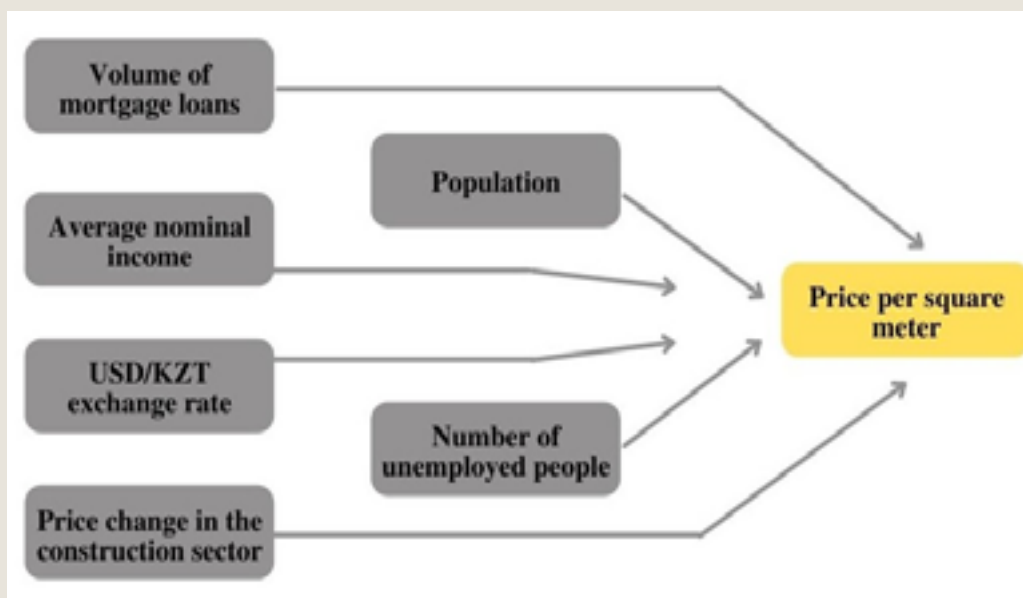
The main thesis hypotheses are:

1)   All factors, except the number of unemployed people, have a positive influence on the price of an apartment in Almaty city. The effect of unemployment on price formation is likely to be negative.

2)   Price change in the construction sector affects the price of an apartment the most. The higher prices for the building materials are, the higher the apartment prices rise.

3)   Number of unemployed people affects the price of an apartment the least. Fluctuations in the unemployment rate will insignificantly influence house prices.

Research questions of the study:

1.   Does the volume of mortgage loans issued have a positive impact on the growth of the price per square meter of an apartment in Almaty city?

2.   Does the average nominal monetary income have a positive impact on the growth of the price per square meter of an apartment in Almaty city?

3.   How positively does the USD/KZT

exchange rate affect the growth of the price per square meter of an apartment in Almaty city?

4.   How positively does the change in prices in the construction sector affect the growth of the price per square meter of an apartment in Almaty city?

5.   Does the population growth have a positive impact on the growth of the price per square meter of an apartment in Almaty city?

6.   Does the increase in the number of unemployed people have a negative impact on the growth of the price per square meter of an apartment in Almaty city?

The motivation behind choosing this research topic is the fact that the real estate sector holds huge importance for both Kazakhstani GDP and growth, and for its citizens. Since the economy depends on the banking sector and SMEs/individuals with real estate, the financial and economic stability of the country directly depends on the situation in the market. An in-depth investigation of the main factors influencing real estate prices could be practical from the side of risk management and forecasting the future state of the economy, since they influence the overall performance of the financial system.

Theoretical background

This work is based on the neoclassical theory. The basis of the research of neoclassical economic theory is the behavior of people who, being producers or consumers of goods and services, seek to reduce their costs and

try to receive the greatest possible income. The neoclassical theory allows to ignore such external indirect factors as brand awareness and other irrational customer behavior. The neoclassical concept indicates that housing prices are determined by the law of supply and demand. Thus, all the influencing factors of supply and demand affect housing prices. On the demand side, there are some main factors including mortgage rates, household income, population, and unemployment rate. And on the supply side, such determinants as the cost of land and building materials and the number of square meters built can be specified.

It should also be noted that of the above factors there are both macroeconomic, that is, those that function on the scale of the entire economy (mortgage rates, household income, population, unemployment rates, and exchange rate), and microeconomic, those that function in the context of the enterprise (costs for building materials, number of square meters built). Nevertheless, it was decided to take the factor of prices for building materials as one of the subjects of study, due to the fact that it can also be considered an industry factor. Moreover, for most enterprises in the field of construction, the cost of construction materials is one of the most fundamental factors in pricing, in addition to natural demand (Abraham & Hendershot, 1966). If this factor has not been included, then the picture presented would be a one-sided view of the influence of macroeconomic factors on demand. Additionally, formed on the specifics of the Kazakhstani market, it should be noted that the results obtained from the influence of the dollar exchange rate against the tenge would be considered as an impact not only on demand, but also on supply. Since about 39,5% of building materials are imported annually for construction purposes to the territory of the Republic of Kazakhstan. Based on this, it becomes clear that the dollar is also a factor increasing construction costs, which, in turn, may lead to higher apartment prices. Nevertheless, due to the direct impact of the change in the exchange rate on the income of the population in dollar terms, a decrease in natural demand is expected and, therefore, the price on the market, in theory, should be balanced over a certain period of time.

Based on the foregoing, it is not possible to track all possible relationships between factors and their direct or indirect influence on each other. However, it is recognized that most of the studied factors are closely related, and the direct influence of some of them on each other is not denied.

Literature Review

Mortgage loans

The strong confirmation of the interconnection between housing prices and the volume of mortgage loans issued in different markets is already present in the existing literature. It should be noted that even though the chosen factor in the research is the volume of mortgage loans issued, one of the most commonly used economic factors is the mortgage rate. Thus, due to the lack of resources, data on mortgage rates, and previous examinations written considering specifically the chosen factor, the literature review was written on the mortgage rate variable.

Mortgage rate has an impact on the real estate market for a variety of reasons. They influence the value of the real estate by calculating how much individuals will be obligated to pay in interest if they borrow money to buy a house. Low interest rates often encourage property demand, stimulating prices to go up, whilst high interest rates have the reverse effect (Investopedia, November 2021). According to Adelino et al. (2012), the more accessible mortgage the more significant house prices increase is, since loan limit becomes an instrument for lower cost of financing.

Moving to the analysis of the correlation by markets, Munro and Tu (1996) explored national house prices in the UK utilizing a Johansen co-integrated error correction model and discovered that

household income, real mortgage rates, and construction completions all have a substantial influence on the UK housing market.

McGibany and Nourzad, in a 2004 research, used sophisticated nonstructural estimate methods to show the relevance of mortgage rates in the US housing market. The study was primarily focused on the influence of changes in mortgage rates on the sales price of properties sold. The results demonstrate an convincing long term association among the two variables and prove that they are co-integrated.

Similar results have been achieved by Tu (2000) through the usage of econometric modeling approaches, whose findings proved that the most important predictors of the Australian national housing market are real weekly wages of each worker, nominal mortgage rates, unemployment rates, and house building activities.

More recent research of housing prices' determinants was conducted by Zhang, Hua & Zhao (2012), who made an investigation in China throughout 1999-2010. Combining the NARMAX and VECM approaches, linear as well as non-linear outputs have been identified. The study's findings suggest that mortgage rates, producer prices, and actual effective exchange rate are the most crucial elements.

Acknowledging the fact that home sales usually require external sources of financing, and thus mortgage conditions, including rate, affect the overall house price pattern, Tsatsaronis & Zhu (2004) analyzed the main factors driving the dynamics of those prices. The authors investigated progressive interactions between variables using a Vector Auto Regression (VAR) model in which all of the variables are considered endogenous. And, as a result, the influence of the mortgage rate, in the long run, has been proved once again.

Average nominal monetary income (tenge)

The next independent variable of the research is the Average nominal monetary income. An article by Palumbo et al. (members of Federal Reserve Board and Central Bank of Ireland) in 2002 examined that Real Consumption, Income and Wealth significantly influence each other. However, when considering such durable (long-life) goods as housing/apartments results can deteriorate, because the Permanent Income Hypothesis (PIH) test is used for nondurable goods consumption and that can be improved only by using nominal income measures, not real income data. Thus, it was chosen to analyze the relationship between Nominal Income and Consumption rate, so that the change in the price of real estate will be measured keeping into account supply and demand movements.

In another paper written by Diacon and Maha (2014) authors examined a large sample formed from 79 countries divided into 3 categories: low-, middle-, and high-income. As the main output of the study, a stronger association between income and consumption was revealed in low- and high-income countries, while the relationship between consumption, income, and GDP is more robust for low and middle-income countries. This is due to the fact that the way a person spends their resources directly depends on what income they receive. The higher the income level, the higher the incentive for consumption among the population due to the increase in financial opportunities. Meaning high-income countries commit more resources to investments and are more specialized in R&D. Consequently, Kazakhstan is on the list of middle-income countries according to World Bank (middle-income countries are those which have GNI by Atlas method between $1 026 and $12 475. Kazakhstan's GNI in 2020 was $8 710.) And it may be considered that despite the fact that apartments are luxury goods, when income rises, people start to buy new flats. When there is a strong demand, the power is on the suppliers' side and the price of real estate will increase. Such a scenario was observed in 2014 by the Federal Reserve Bank of Cleveland (USA).

USD/KZT exchange rate

The proof of correlation between housing prices and the exchange rate has been found during previous examinations by researchers around the world. According to relevant studies, when the exchange rate rises, real estate values climb inevitably. For instance, Miller, Sklarz & Real (1988) studied the interrelation of Hawaiian real estate prices and the fluctuation of the Japanese yen to the US dollar exchange rate. It was discovered that a change in the exchange rate of only 10% led to a 27% change in property prices. Not so high impact was recorded in the city of Billingham in 1999. A group of scientists led by Benson et al. (1999) compared the general price indices for 10 years. And they came to the curious conclusion that a 10% change in the exchange rate with a delay of 3 months is reflected in a significant gain of 7.7% for the American market.

Lipscomb, Harvey, & Hunt (2003) argued that exchange rate appreciation is only a consequence of rising property prices. However, during the study, their assumption was not confirmed. Since the increase in the exchange rate led to an even greater increase in real property prices.

Atabayeva, Amirkulova & Syzdykova (2018)

found that with all factors remaining constant, the increase in property prices by an average of 552 KZT per m2 is due to a 1 tenge per dollar increase in Kazakhstan. In other words, the increase in dollar per 1 tenge leads to an increase in house prices by 552 tenge per square meters. As of March 2, 2022 krisha.kz showed that the prices of houses in the secondary market in Almaty grew by 0,11%.

Price change in the construction sector

According to researchers, during construction, the main role goes to building materials, since they make a huge contribution to the implementation of all plans (Akanni et al., 2014). Isaac et al. (2010) & Millington (2000) pointed out that the promotion of real estate is a significantly capital-intensive work, and the construction process itself is very demanding and self-motivated, which is why the result should not become unnecessary in the end of the work due to its cost. Since construction often begins without certain guarantees for sales, the construction site, regardless of any unforeseen circumstances, tries not to stop the already launched process, including due to rising prices for construction materials.

Abraham and Hendershot (1966) previously conducted an analysis by region, namely, by the value of the real estate in the United States and their relationship to all housing construction statistics. As a result, they came to the conclusion that construction costs play an important role in forecasting real estate prices. Judd and Winkler (2002) in their work wrote that the increase in the cost of real estate largely depends not only on the earnings of the population, interest rates, but also on the rise in prices for the construction itself.

However, it should not be overlooked that researchers such as Glaezer, Gyourko, and Raven (2005) wrote in their work that the final test of the hypothesis about the factors influencing the price of real estate is that it is worth returning to the part of the costs that are not related to the physical costs of construction. They were inclined to believe that the change in prices for building materials is not something that greatly affects the final cost that is assigned when selling, the decisive part of the cost of housing is the cost of land and paperwork.

Population

Demographic factors such as population play an important role in real estate price fluctuations. On one hand, Mankiw and Weil (1989) discovered that changes in birth rates cause major and predict the occurrence in housing demand over time, which in turn significantly affects real estate prices. And changes in demand for housing have a substantial influence on housing prices. According to Mudler (2006), housing and population have symbiotic relationship. Growth in population lead to changes in housing demand. Population growth, especially expansion in the percentage of households, leads to an increase in housing demand, while population declines can make the opposite.

On the other hand, Ontake & Shintake (1996) using Japanese data discovered that demographics have no significant influence on the determination of house prices by repeating Mankiw and Weil's study. They came to the conclusion that property prices are price elastic and that demographic changes have only a short-term impact on house prices. DiPasquale and Wheaton (1994), analogously, duplicated the study and discovered that real per-capita income was a significant determinant of real estate demand. They concluded that the price elasticity of housing supply would neutralize negative shocks such as demographic changes and real estate demand in the long run. Considering the above two sides, this study will try to identify the influence of the growth in the number of people on the real estate market in Kazakhstan.

Number of unemployed people

Lastly, Peek and Wilcox (1991), in their article on the formation of the relationship between supply and demand in the real estate market of the United States observe the fact that the unemployment rate is one of many factors affecting the cost of housing. According to their research, prices in the real estate market after the crisis of the 1980s managed to stabilize largely due to a decrease in unemployment and interest rates.

In the study of the unemployment rate in Australia, Abelson, Joyeux, Milunovich, and Chung (2005) found that in the long term, an increase in unemployment by 10% leads to a

decrease in the value of prices in the real estate market by 2% percent.

Bahmani-Oskooee & Ghodsi (2018) conducted a study where they found that despite the fact that the 2008 crisis was caused by falling housing prices, which in turn led to an increase in unemployment, it was the improvement in the unemployment situation that helped 37 out of 51 states recover from the crisis and stabilize housing prices.

Methodology

This section will introduce the research design, data collection & sampling procedures, chosen data analysis tools of the study and interpretation to the results got from the analysis, as well as results of the tests conducted after statistical analysis in more detail.

Research design

Based on the aim of the research work, to obtain data that will lead to the necessary conclusions on this thesis and answer the main questions, the methodology of the project was chosen to be a quantitative research method.

Traditionally, quantitative research has the exact format of the data used in the work and sources for obtaining it. The collected data is processed the same way according to already established and generally accepted procedures, as a result of which an analysis of reliable data is received, which is subject to comprehensive statistical processing. Variables in quantitative studies are measured using tools, as a result of which the collected data are analyzed using statistical processes.

To obtain results on the determinants of the real estate price considered in this study, the following actions were performed from the quantitative approach side:

• Collection of numerical and statistical data from official sources, including the Bureau of National statistics – Statgov.kz, its information-analytical system – Taldau.stat. gov.kz, Krisha.kz, and the National Bank of Kazakhstan website

• The regression model was tested using the OLS method by using the STATA program

• Building of figures and tables on the received results to make a visual interpretation

Data collection & sampling procedures

There are a few major housing price data sources available in Kazakhstan: Krisha.kz, Homsters.kz, Korter.kz and Etagi.com. In this particular study, data determining the market price per square meter of real estate was taken from Krisha.kz, a platform popular in the market of Kazakhstan, for the purchase of any type of real estate in the primary and secondary markets, in any "corner" of the country. The reason for choosing this source is that, statistically, it provides daily data, which makes the modeling work feasible. Secondly, it covers all major cities' housing prices in Kazakhstan. Thirdly, the time series cover a chosen 11-year period.

For the analysis quarterly resale house price data for the city of Almaty over the period of January 2011 up to December 2021 was used. To avoid significant biases produced by integrating apartments that have recently been built, which are usually of better quality and in more attractive areas, the study mainly focuses on resale data. Moreover, to eliminate other biases, the material of the house (panel, monolete, or brick) and number of the rooms (single, 2, 3, 4, or more), which can be found on Krisha.kz, were not considered.

Regarding the variables of the quantitative study, the dependent variable of house price per square meter was taken, and six potential predictors of housing price growth were chosen. In order to make the price model more accurate, factors from both the demand and supply sides were considered. Those variables are the volume of mortgage loans issued, average nominal income, USD/KZT exchange rate, price change in the construction sector, population, and number of unemployed people.

At the beginning of the work, there were a few tries to enlarge the sample size and include all regions of the Republic of Kazakhstan, which would have also had quarter-based values and change in a 11-year time horizon from 2011 to 2021. As a result, there was a variance in billions since sample size consisted of more than 100 observations. That is why the construction of any logical hypotheses was not possible and did not succeed. For that reason, data was collected once again, this time including Almaty city and values for 11 years only. That way sample size consisted of 44 observations maximum and the only changing variable became time (excluding

geographic variables).

Data analysis

To analyze the data collected the Ordinary Least Squares (OLS) regression method, which examines the relationship between independent and dependent variables, has been used. The sum of squared vertical distances among the discovered results within the dataset and the responses anticipated with the aid of using the linear approximation is minimized under this method. In a linear regression model, the response variable is a linear function of the regressors:

$$Y = X_0 + aX_1 + bX_2 + cX_3 + ... + e$$

where:

y – response variable (apartment price per square meter)

a, b, c – vectors of unknown parameters

x_0 – column vector of the dependent variable

x_1, x_2, x_3 ... - column vectors of all the explanatory variables (volume of mortgage loans issued, average nominal income, USD/KZT exchange rate, price change in the construction sector, population, and number of unemployed people)

e – representation of random possible errors

This regression model has been chosen for the research for a couple of reasons. Firstly, for its simplicity and reliability. One of the differences of the OLS model is the number of observations. Comparing to other approaches where it can increase infinitely, OLS method usually supposes a fixed number. Thus, considering the time and data constraints of the work, it would have been irrational to use other methods. Secondly, this model allows to have a correlation between regressors, which was recognized as a fact in the beginning of the work, meaning the method suits to the paper's main ideas and assumptions.

Interpretation of the results

Before running regression models, the correlation test that analyzes the interrelationship between all variables has been conducted. As the result, a correlation matrix was obtained, on which it may be clearly seen that all six variables have a positive correlation with an average price per square meter. Price change in the construction sector has a very strong correlation with the dependent variable, which means that if raw materials' price increases, it will positively affect the price of apartments. The volume of mortgage loans issued on the other side has a moderate, almost weak relationship with all other factors. With regards to nominal income, it has a very strong correlation with population and exchange rate. Now, when correlation between variables has been identified, the significance of all parameters can be tested.

Table 2. Correlation matrix

	Income	Popula~n	Unempl~t	UsdKzt	Pricec~s	Mortgage	Pricesqm
Income	1.0000						
Population	0.9596	1.0000					
Unemployment	0.8840	0.9405	1.0000				
UsdKzt	0.8331	0.8668	0.9207	1.0000			
Pricecons	0.8168	0.7885	0.7504	0.5807	1.0000		
Mortgage	0.6987	0.6364	0.4220	0.4155	0.4538	1.0000	
Pricesqm	0.7541	0.6909	0.6840	0.6362	0.8729	0.3932	1.0000

Where:
- Income – Average nominal monetary income in Almaty
- Population – Population of Almaty
- Unemployment – Number of unemployed people
- UsdKzt – USD/KZT exchange rate
- Pricecons – Price change in the construction sector
- Mortgage – Volume of mortgage loans issued

To investigate which factors influence the real estate market prices the data for 6 independent variables has been collected and divided into 3 groups representing 3 models in order to achieve the most accurate results. The first model includes quarterly data from 2011 to 2021 for 5 independent variables: average nominal income, USD/KZT exchange rate, price change in the construction sector, population, and the number of unemployed people, and measures its effect on the dependent variable: price per square meter. The total number of observations in the first model is equal to 44. The volume of mortgage loans issued has been excluded from the first model due to the absence of the needed information and appropriate statistics from the side of official resources since the quarterly statistics are only available starting from 2015. The second model includes all 6 independent variables, however, the time period is shortened to 7 years including quarterly data from 2015 to 2021 and to 28 observations. And the third model analyzes the effect of the volume of mortgage loans issued on the price per square meter, taking the monthly data from 2018 to 2021, in order to get as much number of observations as possible, considering the lack of official statistics. The number of observations in the third model is 44, since data from September to December 2021 for mortgage loans is not available yet.

Table 3. OLS Regression Model 1

Source	SS	df	MS		Number of obs	=	44
					F(5, 38)	=	80.17
Model	1.45335739	5	.290671477		Prob > F	=	0.0000
Residual	.137776324	38	.003625693		R-squared	=	0.9134
					Adj R-squared	=	0.9020
Total	1.59113371	43	.03700311		Root MSE	=	.06021

pricesqm	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
income	.5531442	.1574338	3.51	0.001	.2344362	.8718523
population	-1.792111	.5455282	-3.29	0.002	-2.896475	-.6877465
unemployment	.4739639	.5230226	0.91	0.371	-.58484	1.532768
usdkzt	.1928831	.0940301	2.05	0.047	.0025291	.3832372
pricecons	1.648032	.2886422	5.71	0.000	1.063707	2.232358
_cons	18.06591	6.285019	2.87	0.007	5.342558	30.78927

After running all the collected data divided into three models in Stata – StataCorp created statistical software program for data management, visualization, statistics, and automated reporting, an R-squared value, a coefficient representing goodness of fit, of 91.34%, 85.76%, and 53.69% for three models respectively was obtained. That demonstrates that the regression model fits the observed data by the following percentages, meaning the data is reliable and it is possible to conclude proper results.

Table 4. OLS Regression Model 2

Source	SS	df	MS		Number of obs	=	28
					F(6, 21)	=	21.08
Model	.451866537	6	.075311089		Prob > F	=	0.0000
Residual	.075023717	21	.003572558		R-squared	=	0.8576
					Adj R-squared	=	0.8169
Total	.526890254	27	.019514454		Root MSE	=	.05977

pricesqm	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
income	.1592545	.3259372	0.49	0.630	-.518569	.8370779
population	-1.360632	.9654307	-1.41	0.173	-3.368355	.6470906
unemployment	-1.123715	1.101187	-1.02	0.319	-3.41376	1.166329
usdkzt	.4482186	.1499207	2.99	0.007	.1364415	.7599957
pricecons	2.890411	.4977479	5.81	0.000	1.855287	3.925534
mortgage	.0051596	.0244237	0.21	0.835	-.0456322	.0559514
_cons	26.33114	7.774295	3.39	0.003	10.16361	42.49867

The volume of mortgage loans issued quarterly (mln tenge) for the period between 2015 and 2021 was taken from the National Bank of Kazakhstan website's Monetary and Banking Statistics. And the monthly data (bln tenge) from 2018 to 2021 was collected from the First Credit Bureau's Analytical Digest. In the second model results, a linear regression coefficient (k) for the mortgage is equal to 0.0052. The positive value means a positive relationship between the two variables, thus, for a unit increase in mortgage loans, the dependent variable will increase by 0.0052. The next important index is P>|t|, the p-value associated with the t-statistics, and the probability of obtaining the coefficient described earlier that is significantly different from zero. The achieved result of a p-value equal to 0.835 means that this variable does not explain the reason for the price change per square meter of Almaty apartments and thus is not significant. When analyzing the 4-year impact of mortgage loans, values change to k=0.19 and p=0.000, making the variable the most significant. However, the significance of the variable should be ignored due to the fact that there is only one variable included in the analyzed model, meaning, it automatically becomes the most important. Thus, attention should be paid to the R-squared value, which shows that the volume of mortgage loans issued in fact does not fit the model well, and therefore does not explain the reason for price per square meter changes.

Table 5. OLS Regression Model 3

Source	SS	df	MS			
				Number of obs	=	44
				F(1, 42)	=	48.68
Model	.383430388	1	.383430388	Prob > F	=	0.0000
Residual	.330781763	42	.007875756	R-squared	=	0.5369
				Adj R-squared	=	0.5258
Total	.714212151	43	.016609585	Root MSE	=	.08875

pricesqm	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
mortgage	.1903879	.0272861	6.98	0.000	.1353222	.2454536
_cons	12.08267	.1196063	101.02	0.000	11.84129	12.32404

Average nominal income data represented in the "Per capita nominal monetary income of the population" statistics is retrieved from the Taldau.stat.gov.kz website. According to the first model, which includes quarterly data from 2011 to 2021, nominal average income has k=0.55 and is statistically significant at the 0.05 level (p=0.001). The coefficient is positive, which indicates that an increase in nominal income size is in direct ratio with the growth in price per square meter. According to the second OLS model, average nominal income over the period of 7 years from 2015 to 2021 shows a smaller impact on price growth per square meter compared to the first analysis. In the second model nominal income's coefficient becomes equal to 0.159 and is not really significant statistically due to p-value equaling to 0.630.

Information about the exchange rate of the Kazakh tenge against the US dollar was taken from the official website of the National Bank of the Republic of Kazakhstan. Since the rate tends to fluctuate almost daily, for analysis it was necessary to take the actual rate for each first day of the quarter month. In this regard, it is fair to note that some sharp exchange rate fluctuations are not reflected in the months in which they actually took place. In the first model results, the linear regression coefficient for the exchange rate is 0.193. A positive value means a small, but the positive impact of the independent change in the exchange rate on the dependent variable of price per square meter. With a conditional appreciation of 10%, the price per square meter will increase by 1.9%. A p-value result of 0.047 indicates that in the long run (11 years) the exchange rate is statistically significant. When analyzing the second model, it is clear that in the medium term of 7 years the coefficient increases to 0.448. In addition, the variable becomes one of the most statistically significant ones, since the indicator decreases to a level of 0.007, meaning the exchange rate explains the change in real estate prices.

Data on prices for building materials were taken from Taldau.stat.gov.kz, namely, the "Price indices for purchased building materials" statistics, and have been converted to the numerical values due to the absence of any other reliable data. According to the results of the first analysis, the impact of prices from the construction sector on the cost per square meter in Almaty city (coef.=1.648, p=.000) is the most significant, and has a positive relationship indicated by the positive coefficient, meaning that in the period of 11 years, the higher the prices of building materials, the higher the housing prices. In the results of the second analysis, for the period from 2015 to 2021, the impact of prices in the construction sector (coef.=2.89,p=.000) remains as significant as in the first one, and the coefficient reveals an even more positive influence on prices per square meter, which shows that over the selected 7 years, price growth in this sector has an even greater impact on the increase in the cost of housing in Almaty city.

The population of Almaty data comes from the National bureau statistics website, "Population at the beginning of the year" section. The effect of Population size in Almaty (k=-1.792, p=0.002) turns out to be significant and to have a reverse relationship, indicating that the growth of the Almaty population will probably lead to lower prices per square meter. In the result of the second analysis, the population is not significant at the 0.05 level (p=0.173). The coefficient of the population for 7 years also has a negative impact (k=-1.36) on price per square meter.

Unemployment data is taken from the Taldau.stat.gov.kz website in the "Unemployed population aged 15 and over" section. According to the results of the first model, the impact of unemployment on the cost per square meter in Almaty with a positive coefficient equal to 0.47 is insignificant (p=0.371). When analyzing the 7-year effect, the values change to k=-1.124 and p=0.319, which makes the variable slightly more significant, but not significant enough to have an effect.

In order to make a research statistically correct, the Breusch-Pagan Test has been conducted. The following table represents an output for the test for heteroscedasticity. P-value equals to 0.2498, which is more than significance value of 0.05. Such result indicates that heteroscedasticity is not present in the regression model, which means the analysis results is valid.

Table 6. Breusch-Pagan test for heteroscedasticity

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
        Ho: Constant variance
        Variables: fitted values of lnsqm

    chi2(1)       =        1.32
    Prob > chi2   =      0.2498
```

As a result of the analysis conducted, the first hypothesis that all factors besides the number of unemployed people will have a positive effect is rejected. In fact, not only an increase in unemployment but also in population could negatively affect the dependent variable.

The second hypothesis regarding the greatest influence of price change in the construction sector on the cost of housing is accepted. All of the analyzed models' results showed the highest significance of that factor.

The third hypothesis, according to which changes in the unemployent rate will have the least impact on housing prices, is accepted. In the first model, based on 11 years of data, unemployment is indeed the least important influencing factor, but in the second model, it is replaced by the population.

Conclusion and Recommendations

In this research paper, in order to explain the formation of prices in the real estate market of Almaty, the influence of such economic factors as the volume of mortgage loans issued (tenge), average nominal income (tenge), the USD/KZT exchange rate (tenge), price change in the construction sector (percentage), population and number of unemployed on housing prices in Almaty were analyzed.

In total, as a result of the analysis, 3 models were created, the data for which were taken for the time period of 2011-2021, including Almaty

city only. The number of observations was 44 for 11 years on a quarterly base for 5 variables, 28 for 7 years a quarterly base for 6 variables, and 44 for 4 years monthly base for 1 variable. The statistical part of the paper is based on the regression model (OLS), Correlation testing and Breusch-Pagan testing.

Models show that the data is collected quite well. Residuals are within the sophisticated range, and R squared proves the goodness of the model's fit, showing a value of more than 53% in all three models. That means it is possible to make reasonable conclusions based on the results. Out of 6 independent factors, the effect of 4 of them (price change in the construction sector, average nominal income, USD/KZT exchange rate, volume of mortgage loans issued) on the increase in real estate prices is positive, while the effect of other 2 (population, number of unemployed people) turned out to be negative. Almost all of the variables besides unemployment are individually significant in the first, and in the second model, only 2 variables are statistically important (price change in the construction sector and USD/KZT exchange rate). All other variables are positively correlated and have a positive influence on the price of real estate. To be highly confident, it would be better to try to collect data on mortgage loans and unemployed people again.

Out of three hypotheses that were formed on the basis of the work after analyzing the market of other countries, two were accepted, and only one was rejected. Not the least role in this was played by the fact that when analyzing the market, it was clearly seen that an Almaty citizen with an average income would not be able to afford to purchase housing alone at the expense of their own savings.

To sum up the experience of authors after working on the research paper, the following recommendations may be drawn up. Work on the review of two models in the context of 7 and 11 years has shown that the more data is considered in the model, the more relevant the model is for work. In the future, when considering a similar topic by researchers, it is suggested to take a bigger sample size.

It should also be noted that this work cannot be considered in the context of the whole Republic, since each region and city is different. In the case of this paper, the city of Almaty is the largest city in Kazakhstan, fully built-up and densely populated, which makes it difficult to build new buildings within the city. And this is an important factor that makes prices in the city of Almaty much higher than the average prices in the Republic. In this connection, in further works, it is recommended to consider the influence of factors on the market of Kazakhstan as a whole and not only on the separate city.

While writing this paper, there was a difficulty in the analysis of the literature review, since there were very few works written on the similar topic directly related to the market of the Republic of Kazakhstan and the authors had to rely on works analyzing markets of other countries. Thus, it is fair to note that each state has its own background, which directly affects how the state's economy can respond to certain changes in economic factors.

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Social Mobility in Kazakhstan

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Abstract

This study examines self-assessed intergenerational social mobility in Kazakhstan with the EBRD "Life in Transition" survey data collected in 2016. We test perceived social mobility with the answers of the survey respondents to two questions: "Do we live better than our parents?" and "Will our children live better than we do?" The importance and relevance of these issues are determined by how people perceive their economic and social status at the moment, and how they are set up for the future. The study found that the majority of respondents in Kazakhstan positively assess social mobility.

Social mobility between people may depend on a person's personal character, giftedness, and genetics. Considering these factors, during the analysis, we found that none of the observed characteristics collected with the survey (with only a few exemptions) explains the perception of social mobility in Kazakhstan. We conclude that more research or richer datasets are needed to understand which factors determine perceived social mobility.

Introduction

Social mobility refers to the shift in an individual's social status from one status to another. The shift can either be higher, lower, inter-generational, or intra-generational, and it cannot necessarily be determined if the change is for good or bad. In our study, we want to reveal the direction and magnitude of satisfaction across generations with their quality of life.

The topic under consideration is one of the most relevant today. The Message of the First President of our country to the people of Kazakhstan pays special attention to social mobility and economic modernization in Kazakhstan: "The new stage of the Kazakhstan way is new tasks of strengthening the economy, improving the well-being of the people. It is vital for Kazakhstan to find the optimal balance between economic success and the provision of public goods. In the modern world, this is a fundamental issue of socioeconomic modernization. This is the main vector of Kazakhstan's development in the next decade" (N.Nazarbayev, 2012, January 27).
 The goals and objectives are these works are defined as follows: define the concepts and essence of social mobility; characterise mobility as a form of population reproduction; describe the general picture of social mobility in Kazakhstan.

This study will help to understand the average level of satisfaction of people by their social status and might be helpful in drawing a conclusion for the government in:

-understanding the progress of the country in terms of social mobility;

-improvement of social policy.

Social mobility comes in different forms and types that differ from each other only for the purposes of analysis.

1. Horizontal mobility.

This form of meaning is manifested when a person's religious position or political views are changed without changing the vertical position. Suppose a person has changed his occupation, but his social status has remained the same.

Example: an auditor with good experience in the Big 4 company, moved to work as a professor at KAZGUU University according to his background.

2. Vertical mobility

This form is described when the social status of a person changes significantly. When a person goes from poor to rich and vice versa. Vertical mobility can be upward or downward. It is logically clear that when a person, progresses and moves to the highest status in society, this is considered an ascent. When a person regresses to a low position, this is downward mobility.

3. Upward and downward mobility.

As noted above, upward mobility occurs with progress, such as getting a position in a job that is higher or conferring a rank to government employees. An example of downward mobility is the CEOs of companies that went bankrupt on the same day due to recent events in the world like the coronavirus.

5. Intergenerational mobility

Intergenerational mobility occurs when social position changes from one generation to the next. The change can be up or down. For example, the father was an ordinary farmer, but he was able to educate his child and he became an exemplary employee.

Such social changes provide the next generation to change their thinking, image and quality of

life in the community.

6. Intragenerational mobility occurs between family members in one generation, in one period of time. Most often, it can be the same family when their children occupy different positions in society or when a student starts his career as an assistant to the chief accountant, but after some time he becomes the chief accountant himself.

Our study consists in part of all of the above forms of mobility, with particular attention paid to intergenerational social mobility in Kazakhstan, which is the basis of our article. Secondary data was used for this research, and regression estimated with the maximum likelihood method was used to analyse the survey data.

Intergenerational mobility reflects the ratio of the position that children have reached to the positions held by their parents. When comparing indicators that reflect the characteristics of social positions inherent in different generations (sons and fathers, daughters and mothers), sociology also has ideas about the direction of the changes presented within society. In the event that most people throughout their lives remain in the status that was assigned to them by birthright, it is customary to talk about the traditional type of social structure or about a stagnant social order. If a person is given the opportunity to achieve, through his own efforts, higher status indicators, this is evidence of an open type of general mobility within generations that is characterized by the ratio of positions that the same person occupies at different stages of his own life, during which he can both acquire and lose a certain status, in one case occupying more privileged positions, and in others - losing them, strive for ups or downs. In an open society dominated by democratic regimes and a market economy, a person throughout his life can both win certain positions and lose them due to failures. He can also "start all over again". A closed or totalitarian society, when a person loses his status, is characterized by the fact that in the future a person cannot count on restoring his former positions.

In general, for the transformation, development and analysis of the progress of society, this concept is necessary for every developing state, including Kazakhstan, the above factors will improve in parallel if you are aware of the country's rate, because every citizen rather wants improvement and growth.

Literature review

Intergenerational sociology began to be studied in order to trace the political and economic progress in countries, and the main goal was to identify its impact on changes in the social structure in the process of generational change. One such study was Karl Mannheim's The Problem of Generations, where the problem of generations is described as a significant topic that deserves careful study. According to Mannheim (1928), this science is an invaluable guide to understanding the structure of social and intellectual movements. The significance of this science becomes clear if we try to get a more accurate idea of the accelerated pace of social change that is characteristic of modern times (20 p.). He also put forward one hypothesis about social mobility between generations. In other words, he wanted to make it clear that the rate of change in a society is related to life expectancy. More precisely, if the lifespan of society were shortened or accelerated, the rate of progress would change accordingly. (Mannheim, 1928, p. 9).

It is important to understand what influences intergenerational social mobility. Causa and Johansson (2009) define social mobility as the change in the socio-economic status of parents and the status of their children that they will receive when they become adults. To measure this status, factors such as income, education, occupation, or social class must be taken into account. The studies comparing generational income involved father-son couples. Income must often be measured by household income as it is a factor influencing people's standard of living (Orsetta and Asa, 2009, 9p.).

The World Economic Forum in 2020 presented the first global index of social mobility (Global Social Mobility Index). Social mobility is understood as the ability of the current generation of citizens of the country to live better than the previous one. Low social mobility limits a person's opportunities, which remain tied to his socioeconomic status at birth: those born into poor and poorly educated families remain poor and poorly educated. Human capital is the driving force behind economic growth, and anything that contributes

to inequality of opportunity and impedes the realization of talent also holds back the development of the economy, the authors of the report note.

The new index is designed to enable country policymakers to identify areas for the development of social mobility and human capital, the authors explain. The rating includes 82 countries. The social mobility index is calculated on the basis of ten socioeconomic parameters: quality of healthcare, access to education, quality and equity of education, opportunities for lifelong learning, access to technology, employment opportunities, fair wages, working conditions, social security, efficiency and openness of public institutions.

The top ten lines of the rating are occupied by European countries, where the level of social mobility is maximum. Denmark is first (with a score of 85.2 out of 100), followed by Norway (83.6), Finland (83.6), Sweden (83.5), Iceland (82.7), the Netherlands (82. 4), Switzerland (82.1), Austria (80.1), Belgium (80.1) and Luxembourg (79.8). Kazakhstan took 38th place with 64.8 points, ahead of such countries as Russia (39th place, 64.7 points) and China (45th place, 61.5 points).

3. Research Methodology: variety of models to estimate social mobility in Kazakhstan

In our paper, we want to test, firstly, what personal characteristics determine the probability of being more successful than the parents (when parents were your age), and secondly, what personal characteristics determine the probability to believe that your children will be more successful than you (Figure 1 answers "c" and "f"). To empirically test these statements, we use the answers of the respondents to the following two questions and develop two different models.

Figure 1. Source: European Bank for Reconstruction and Development (EBRD) LiTS III (2016).

We start with the first question and develop a separate model for it. To determine what factors affect the fact that the survey respondents believe that they live better lives than their parents, we will use the maximum likelihood method, which finds an optimal way to fit the distribution to the data. For example, we might expect the probability of being more successful being greater for people who live in an urban area or have higher wages and so on. For each respondent, we have data on their region, residence, gender, age, education, sector of the economy where they work and wage. We will use the Probit model that guarantees us that predicted probabilities are in the interval [0,1] since they make the probabilities that are sigmoidal or "s-shaped". The probit model employs the maximum likelihood methodology. We estimated 5 models, adding step-by-step explanatory variables.

The empirical model is expressed with the following equation:

Pr(being more successful than parents = 1 | X) = $\beta_0 + \beta_1 wage + \beta_3 schooling + \beta_4 age + \beta_5 gender + \beta_6 region + \beta_7 residence + \beta_8 sector + \varepsilon$

- Where wage - denotes a respondent's wage;
- schooling - denotes his or her education expressed in the years of schooling necessary to attain this level of education in consistency with the most studies in Labour Economics (Mincer, 1974);

- age - denotes age of respondents;
- gender - denotes gender of respondents;
- region - denotes a region where a respondents lives; we combine 16 country's provinces and Astana (Nur-Sultan) and Almaty into five geographical regions: West (Atyrauskaya, West-Kazakhstanskaya, Mangistauskaya, Aktyubinskaya provinces), South (South-Kazakhstanskaya, Kyzylordinskaya, Jambylskaya, Almatinskaya provinces), North (Kostanayskaya, North-Kazakhstanskaya, Pavlodarskaya provinces), Central (Akmolinskaya, Karagandinskaya, E-Kazakhstanskaya provinces) or Metropolis (cities of Astana and Almaty);
- residence - denotes urban or rural residence;
- sector - denotes industry of employment;
- $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$ - are the parameters which we estimate
- ε- is the error term.

The second part of our study is aimed at revealing what objective characteristics affect the expectations of the parents-respondents that their children will live better than themselves. Similarly, we can expect that children's success may be influenced by their parents' age, education and wages. To answer this question, we ran similar probit regression:

$$\Pr(\text{live better than parents} = 1 \mid X) = \beta_0 + \beta_1 Wage + \beta_3 Schooling + \beta_4 age + \beta_5 gender + \beta_6 region + \beta_7 residence + \beta_8 sector) + \varepsilon$$

Results and discussions

The study employs the secondary data collected by the European Bank for Reconstruction and Development (EBRD) with the Life in Transition III Survey. In collaboration with World Bank in 2016, the Life in Transition (LiTS) III Survey demonstrated burgeoning levels of life satisfaction across the former communist bloc countries. In this wave of the survey, EBRD surveys respondents from 51,000 households in 34 countries, predominantly "transition countries" in Eastern and Central Europe and Central Asia, and also for comparison of some more developed western countries. LiTS III carried out between late 2015 and the beginning of 2016, includes information and questions on diverse economic and social topics. The survey instrument suggests 9 modules, which initially gather data on the characteristics of the family,

living space and consumer habits. The other modules collect information on asset ownership, work history and so on. There are two types of respondents: primary and secondary who are of the opposite gender to the first one. In total 1,500 interviews were conducted in each country. LiTS III was conducted face to face using Computer-assisted personal interviewing (CAPI), where CAPI selected randomly primary and secondary respondents. From the data analysis, we can say that in 2016 average level of people's life satisfaction rose in transition countries and now they are more optimistic about the future.

For the purpose of our paper, the data on Kazakhstan has been considered. R software was used for data processing and analysing. LiTS III is based on interviews with a duration of no more than one hour. 1,500 interviews were expected to be conducted per country, about 20 households. The households' addresses were found randomly. For the first visit, the interviewers had a goal to explain the purpose of the survey and its structure, as well as to write the composition of the family. When the answers to all the questions and modules were completed, the interview was considered completed. After dropping the data of other countries, we have a remaining 1505 observations (respondents) from Kazakhstan.

For our study, we are interested in Section 4 which is called attitudes and values. The section asks the respondents the following question: "To what extent do you agree with the following statements?" The statement important to us is: "I have done better in life than my parents." Answer options: strongly agree, agree, neither disagree nor agree, disagree and strongly disagree. We created a binary response to the present question combining the responses "strongly agree" and "agree" into the category "agree" and the responses "disagree" and "strongly disagree" into a category "disagree". We dropped the respondents who answered "neither disagree nor agree" from the analysis because we know nothing about their opinion on the issue from their answers. With this question, we received the following data: 924 respondents "agree" and 246 "disagree". Thus, the majority of respondents believe that they live a better life than their parents. The given information is used for the estimations.

The optimism of the respondents regarding their lives in comparison with the lives of their parents can be explained by the historical events taking place in our country in the 20-21st century. Firstly, the country gained its independence and went through dramatic reforms toward market economy and liberalisation. During approximately half of this reform period, the country experienced fast economic growth due to the fast growth of world commodity prices. There was a significant improvement in the economic situation and the educational system of the country, which also affected social mobility and the development of the population. There was a significant migration of people from the countryside to the cities that gave impetus to the growth of education attainments, quality of life and life satisfaction, and the growth of social mobility.

246 respondents who answered negatively to this thesis may have a low social status in society. For example, they can be unemployed, as in any state, there is unemployment in Kazakhstan. However, the fact that we are dealing with a systemic view (there is little work in Kazakhstan) can be confirmed by the following figures: about half of the population surveyed believes that in the event of a job loss, it will not be possible to find an equivalent job at all or with great difficulty. Only 7% of respondents were sure that they could do it easily. (By the way, the growth of xenophobic sentiments is connected with the prevailing stable idea that there is little work in Kazakhstan). As for the housing issue, 55% of the population needs either new or improved old housing. On the one hand, this is the problem that drives a person to move, on the other hand, it is a difficulty and even impossibility of obtaining housing in a new place of residence that hinders his migration impulse, and, therefore, the possibilities of mobility.

The next essential statement with the same options is: "Children who are born now will have a better life than my generation". Likewise, we generated a binary response to the question. Interviewees answered 1050 that they "agree" with the second statement and 153 "disagree". This finding confirms that people are highly positive regarding social mobility, and this, possibly, should be explained by the fact that compared to other post-Soviet countries, things are going much better in Kazakhstan, thus most of our respondents were tuned in to a positive wave of events in the future.

Now, with our models, we test if there is a statistically significant difference between people answering positively or negatively to these questions allowing us to assess their perceptions of inter-generational social mobility. In other words, we want to understand whether people's characteristics explain the probability they are optimistic or pessimistic about social mobility.

Table 2 shows the results of the first regression. The only statistically significant variable is the west region residency. People, who live in the Western region, are less likely to believe that they live better lives than their parents in comparison with the residents of the cities of Almaty and Astana. Also, urban residency is statistically significant in the second model meaning that people living in the urban areas tend to believe that their life is better than parents in comparison with rural area residents, however, the coefficient is not statistically significant in the model controlling for the sector of employment. Thus, the sector of employment is more important than the residency, however, none of the sectors of employment is statistically different from the reference sector "Agriculture, Forestry, and Fishing". The wage and age of the respondents are neither statistically nor economically significant; schooling is economically significant (the magnitude of the coefficient is rather large) but not statistically significant either. Negative signs for these three variables (wage, years of schooling and age) are counterintuitive and unexpected: in Kazakhstan, people who are older, have higher wages and higher levels of education tend to believe that they live worse lives than their parents; thus, generally, they share a pessimistic view in their life in comparison with their parents' lives. However, the coefficients are not statistically significant and this could be because of the small sample size or because this observation is not systematic.

Table 2: Probit models for first question

	Dependent variable:				
	401c				
	(1)	(2)	(3)	(4)	(5)
wage	-0	-0	-0	-0	-0
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
schooling	-0,053	-0,055	-0,052	-0,049	-0,027
	(0.043)	(0.043)	(0.044)	(0.044)	(0.047)
age	-0,008	-0,009	-0,008	-0,008	-0,01
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
genderMale		-0,079	-0,078	-0,068	-0,14
		(0.137)	(0.140)	(0.141)	(0.150)
region_groupedcentral			-0,077	0,04	0,114
			(0.218)	(0.227)	(0.233)
region_groupednorth			-0,218	-0,141	-0,1
			(0.262)	(0.265)	(0.273)
region_groupedsouth			-0,07	0,129	0,149
			(0.210)	(0.235)	(0.244)
region_groupedwest			-0.761***	-0.654**	-0.629**
			(0.272)	(0.278)	(0.286)
residenceUrban				0.285*	0,263
				(0.154)	(0.160)
sectorConstruction					0,346
					(0.451)
sectorFinance, Insurance, and Real Estate					-0,335
					(0.718)
sectorManufacturing					0,004
					(0.472)
sectorMining					-0,511
					(0.733)
sectorNonclassifiable Establishments					-0,144
					(0.448)
sectorPublic Administration					-0,427
					(0.429)
sectorRetail Trade					-0,019
					(0.465)
sectorServices					-0,029
					(0.409)
sectorTransportation and Public Utilities					0,079
					(0.453)
sectorWholesale Trade					-0,122
					(0.533)
Constant	0,331	0,395	0,503	0,221	0,089
	(0.553)	(0.563)	(0.625)	(0.644)	(0.754)
Observations	464	464	464	464	464
Log Likelihood	-239,63	-239,46	-233,76	-232,06	-227,54
Akaike Inf. Crit.	487,256	488,928	485,515	484,123	495,07
Note:	*p**p***p<0.01				

Table 3 shows the regressions' results for the second question assessing the views regarding the respondents' children's lives in comparison with their own lives. From the table, we can see that only the north has a positive and high statistical significance which means people in North Kazakhstan tend to believe that their children will live better. The rest of the coefficients are not significant.

In conclusion, based on our results, we can say that neither age nor wages or education affect self-assessed social mobility. But it is worth remembering that our data is subjective (respondents' answers), thus, it does not reflect actual social mobility but rather people's perception of social mobility.

Table 3: Probit models for second question

	Dependent variable:				
	401f				
	(1)	(2)	(3)	(4)	(5)
wage	-0	-0	-0	-0	-0
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
schooling	-0,039	-0,039	-0,035	-0,035	0,029
	(0.050)	(0.050)	(0.052)	(0.052)	(0.065)
age	0,004	0,004	0,002	0,002	0,003
	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)
genderMale		0,003	-0,049	-0,051	-0,167
		(0.156)	(0.163)	(0.164)	(0.181)
region_groupedcentral			-0,222	-0,24	-0,222
			(0.274)	(0.282)	(0.297)
region_groupednorth			0.851***	0.836***	1.079***
			(0.282)	(0.287)	(0.315)
region_groupedsouth			-0,124	-0,162	-0,088
			(0.259)	(0.288)	(0.310)
region_groupedwest			-0,386	-0,408	-0,343
			(0.305)	(0.315)	(0.334)
residenceUrban				-0,051	-0,031
				(0.179)	(0.196)
sectorConstruction					0,628
					(0.511)
sectorFinance, Insurance, and Real Estate					-4,881
					(173.064)
sectorManufacturing					0,612
					(0.532)
sectorMining					0,314
					(0.724)
sectorNonclassifiable Establishments					-0,151
					(0.530)
sectorPublic Administration					-0,637
					(0.522)
sectorRetail Trade					0,625
					(0.516)
sectorServices					-0,097
					(0.487)
sectorTransportation and Public Utilities					-0,137
					(0.541)

sectorWholesale Trade					-0,406
					(0.745)
Constant	-0,807	-0,809	-0,821	-0,773	-1.608*
	(0.639)	(0.650)	(0.733)	(0.756)	(0.966)
Observations	494	494	494	494	494
Log Likelihood	-175,48	-175,48	-161,26	-161,22	-146,13
Akaike Inf. Crit.	358,957	360,957	340,527	342,447	332,266
Note:	*p**p***p<0.01				

Conclusion

Social mobility is an important concept in modern economics that reflects a movement of people through a system of social hierarchy. Upward social mobility creates incentives for people to improve their human capital or human capital of their children through education, skills development, healthcare and so on, and thus, contributes to the economic and social development of the countries.

Social mobility could be measured by objective and subjective indicators. While objective indicators measure actual social mobility, such as careers and wages of children versus careers and wages of their parents, subjective indicators measure the perception of people regarding social mobility and social lifts. The data on subjective indicators are usually collected by various surveys.

We use the data of the "Life in Transition" survey collected by the European Bank for Reconstruction and Development in Kazakhstan in 2016. We assess the perceived social mobility of the survey respondents by considering their answers to two the question: "I agree or disagree with the following statement: I have done better in life than my parents" and "I agree or disagree with the following statement: Children who are born now will have a better life than my generation".

We found out that the majority of people positively assess social mobility in Kazakhstan and believe that they live better lives than their parents and their children in turn will live even better. This is consistent with the previous studies that positively assess objective social mobility in Kazakhstan. We also found that the likelihood to have an opposite, negative perception is not explained by people's observed characteristics: the vast majority of coefficients turned out to be statistically insignificant. It is interesting to note that unlike in other countries people with higher levels of education, higher wages and older people tend to be more pessimistic regarding social mobility, however, this result is not statistically significant. Thus, we conclude that more research is needed in this area to understand what factors actually determine social mobility perception, which we leave for future research work.

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Comparative Analysis of the Returns to Education by Industries in Kazakhstan.

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Abstract

This paper uses the Household Budget Survey data to estimate returns to education by industries in Kazakhstan for 2019. The comparative analysis by industries has shown that the returns to schooling tend to be relatively high and statistically significant. The expectations on estimates of returns were partially fulfilled with Education and Finance industries having the highest returns to schooling. The results of the study show that most of the industries that formally require higher educational attainment (Education, Information and communication, Financial and insurance activities) have greater returns to schooling.

Introduction

The returns to education are one of the essential concepts in economics, which shows how additional years of schooling affect the wage of an individual (Sianesi, 2003). The study applies the Mincer-type wage equation (Mincer, 1974) by using the Household Budget Survey data developed by the Bureau of National Statistics. The purpose of the study is to make a comparative analysis of the returns to schooling between the industries represented in the data.

Historically, education started to gain emphasis after Kazakhstan gained its independence in 1991. According to OECD (2015), the number of educational institutions grew considerably and 146 universities offered tertiary and post-secondary education in 2011. The establishment of Nazarbayev Intellectual Schools and scholarship programs such as the Bolashak program made education more affordable. Therefore, it is essential to estimate how additional years of schooling affect the real wages of individuals. In particular, leading industries should be identified.

With the multiple regression model, we found that the returns to schooling were relatively high (5-16.1%) and most of the industries had statistically significant estimates except for Real estate activities and Professional, scientific and technical activities. This can be caused due to the sample size since the former had 20 and the latter had 78 respondents. The highest returns to schooling were in Education and Information and communication industries, which can be explained by the formal requirement to hold a certain educational degree to operate in this industry. The potential weakness of the following approach is the endogeneity and the presence of unobservable factors affecting wages (motivation, skills).

This research paper is organized as follows. The next section is devoted to the literature review. Sections 2 and 3 discuss empirical strategy and data. Section 4 discusses the estimates of returns to schooling across industries. Section 5 discusses the limitations of the study. Section 6 concludes.

Literature review

There is a rising debate concerning the correlation between wages and years of schooling, and according to Sianesi's research (2003), this question is the subject of dispute between economists. Nevertheless, very few studies have examined returns to schooling in Kazakhstan. Existing studies on the returns to schooling have found a decrease in returns due to the age effect and general glut (Kemelbayeva, 2020).

Most of the studies in this field used the wage regression model also known as the standard Mincer equation to estimate returns to schooling. Ordinary Least Squares (OLS) is used for estimation procedure and as Brunello et al. (2000) mentioned this approach has several drawbacks. One of the main disadvantages of

this approach is omitted variable bias. As Sianesi & Reenen (2002) have mentioned in their study, different unobservable variables such as personal skills, and unobservable ability of the individual can be correlated with schooling. The majority of studies used panel data to tackle this methodological problem.

Moreover, most of the studies have shown a positive relationship between wages and a worker's education. For instance, Li (2003) explains that investments in human capital, which include educational attainment and working experience, should increase wages, so the correlation between years and income is positive. However, the duration of schooling does not always indicate the quality of knowledge and the ability to apply it in real life. As Toybazarova & Nazarova (2018) argue that the modernization of the education system in Kazakhstan is a necessary factor for the development of the country's economy in the context of modern globalization. A highly effective education system will improve the quality of human capital, which affects the income of citizens and the standard of living in the country.

Also, we used additional sources related to the consideration of Kazakhstan as a developing country. AllahMorad (2021) claims that both the country itself as a whole and the education in Kazakhstan are in a state of development. However, it was confirmed by other studies that the importance of the level of education in the country can be increased. Thus, all three studies conducted by Andrén et al. (2005), Fleisher et al. (2005), and Pastore and Verashchagina (2006) had a conclusion that after successful reforms in the field of education, other developing countries were able to increase the value of education and thereby raise the returns to education.

Empirical strategy

The data from the Household Budget Survey by the Bureau of National Statistics are used. To study the returns to education by industries, OLS (multiple regression) with log-transformed variables will be implemented. This research method was chosen because it is one of the well-known approaches in economics for being intuitive and robust. To be more specific, a commonly used Mincer-type statistical wage equation is applied, which can be represented as follows:

$$\log r = \beta_0 + \beta_1 \text{ schooling} + \beta_2 \text{ age} + \beta_3 \text{age}^2 + \beta_4 \text{ gender} + \beta_5 \text{ region} + \beta_6 \text{ residence} + \beta_7 \text{ company} + \varepsilon$$

where

r – real income

ε – error term.

In this case, age is in quadratic terms, which acts as a control variable. The natural logarithm of real income is the dependent variable for all models. Schooling is a numeric variable representing the minimum required years of schooling derived from the education levels recorded by the data (Kemelbayeva, 2020).

- No education: 0 years of schooling
- Primary education: 4 years of schooling
- Basic secondary education: 9 years of schooling
- General secondary education and TVET: 12 years of schooling
- Higher education: 15 years of schooling
- Models also control for age, gender, region, residence (urban or rural), and company ownership (private or public).

Based on theory, the real income of an individual is determined by investment in human capital. In other words, the returns to education measure how an additional year of schooling affects the wage of an individual (Li, 2003). Generally speaking, it is assumed that an individual with the highest educational attainment should have higher wages. For our study, we will make log-transformed models for each industry for 2019 and make a comparative analysis of the estimated returns to education by these industries. These estimated returns are then compared to average schooling in the Household Budget Survey data.

Data

The data on which the study is based is Household Budget Survey (HBS) for the period from 2011 to 2019, which is carried out by the Bureau of National Statistics in Kazakhstan. The HBS aims to obtain primary statistical data on the population's standards of living. The Survey is based on the principles of voluntary participation of selected households through interviews and self-completion of statistical

forms by respondents. This is repeated cross-sectional data, where new households are surveyed each year.

The survey covers 18 regions consisting of urban and rural areas except for Almaty, Astana, and Shymkent cities, which are entirely urban. The data collected contained information about gender, age, level of education, income, and employment. The Survey conducted covers 583,203 respondents aged 15 to 62 for all four quarters of nine years with various levels of education and employment in different industries.

The study is based on the fourth quarter of 2019 with 13,901 respondents. Self-employed individuals are excluded from the sample due to doubt of an absence of direct dependence of their income on the years of schooling. 51.9% are men, and 48.1% are women. The age range is from 16 to 62 years, and the average age of the respondents in the sample is 40 years. The 19 of 20 industries are considered during the study to understand which industry has the highest return to education, highest average salary, highest employment rate, and the highest labor productivity. The activities of household as employers, which is excluded from the study due to the small number of respondents and the insignificance of the result.

The statistical information about labor productivity is used in our study to understand the significance of industry in terms of the country's economy. The information covers all 20 industries of Kazakhstan producing goods and services. The Mining and quarrying sector has the highest output per worker with 35,837 million tenge. The lowest labor productivity with 1,677 million tenge in the Education sector.

Table 1 provides information about the share of employees by industries in the total number of respondents in the fourth quarter of 2019. According to the table, the most significant industries in terms of employment are Education and Wholesale trade.

Table 1: Share of the employees by industries in 2019

Industry	2019
Accommodation and food service activities	2.23%
Administrative and support service activities	3.03%
Agriculture, forestry and fishing	7.14%
Arts, entertainment and recreation	2.22%
Construction	6.11%
Education	19.95%
Electricity, gas, steam and air conditioning supply	3.15%
Financial and insurance activities	3.09%
Human health and social work activities	6.86%
Information and communication	2.01%
Manufacturing	5.55%
Mining and quarrying	5.34%
Other service activities	5.11%
Professional, scientific and technical activities	0.56%
Public administration and defense; compulsory social security	7.24%
Real estate activities	0.14%
Transportation and storage	8.17%
Water supply; sewerage, waste management and remediation activities	1.55%
Wholesale and retail trade	10.52%
Source: Household budget survey	

Average income measurement by levels of education

The data used in our study record the level of education that respondents achieved. This section reflects our expectations on the return to education in Kazakhstan by presenting an overview of schooling, visualization of the respondents' level of education, and average income depending on it.

Kazakhstan has a unified education system developed at the national level. It consists of such levels as preschool, primary, basic secondary, secondary, higher, and graduate education. The pupils have a choice to receive technical and vocational education after nine years of schooling. Secondary schools, regardless of their type, private or public, have their curricula developed by the Ministry of Education, while technical and vocational and higher education institutions develop their curricula but overall are subordinated by the Ministry.

Nowadays, the improvement of the education system in Kazakhstan is a high-priority aspect for the country. After all, education is one of the significant factors that ensure the recovery of the national economy and the standard of living of citizens. There is a necessity to apply reforms and to revise the approach to the education of the future society. According to the results of the large-scale international studies, TIMSS and PISA, students have a sufficient level of knowledge in subjects but are unable to apply it in the context of real life (Toybazarova & Nazarova, 2018).

The analysis of the collected data from the Bureau of National Statistics in Kazakhstan demonstrates that the most common type of education is general secondary education and TVET. According to Figure 1, the number of respondents with general secondary education and TVET is 8,715, which is 63% of the respondents. After the collapse of the USSR, the level of education in the country decreased due to a lack of funding and the crisis. However, the share of higher education increased in 2019 compared with 2011. By observing the descriptive statistics one can notice that the level of education in the country is increasing, and this is indeed the case. According to Table 2, the participation rate in tertiary education in Kazakhstan is 61.7% in 2019, which is 13% higher than in 2011.

Table 2: Participation in education

Higher education	2011	2012	2013	2014	2015	2016	2017	2018	2019
Gross enrolment ratio	48.7%	51.6%	50.4%	48.8%	46.4%	46.6%	50.1%	54%	61.7%
Source: UNESCO. Institute for statistics									

Figure 1: Number of students by level of education in 2019
Source: Household Budget Survey. Authors' calculation

Figure 2 demonstrates the average income of the respondents by the level of education in 2019. According to the figure, we can assume that the average income of individuals depends on the duration of schooling achieved. The average wage for respondents with postgraduate education is the highest with 267,105 KZT in 2019. The Empirical results section of the study will reveal more about the correlation between wages and education.

Figure 2: The average income in 2019
Source: Household Budget Survey. Authors' calculations

Average income measurement by industries
Figure 3: The average income by the level of education in industries in 2019
Source: Household Budget Survey. Authors' calculations

The graph above illustrates the average income among people with general secondary and TVET, and higher education in different industries in Kazakhstan in 2019. As can be seen from the graph, people with higher education earn more than people with general secondary education except in the real estate industry there is a slight difference in wages with 183,428 and 181,092 KZT. According to the graph, people in Mining and quarrying earn approximately 344,252 and 275,834 KZT. In the Education industry, the average income is about 182,390 and 119,794 KZT. Generally, we can observe that people with the highest average wages work in the Mining and quarrying, and manufacturing industries, whereas this indicator is lowest for Education, Agriculture, foresting and fishing industries. Therefore, it is crucial to estimate returns to schooling across industries to identify where educated people are most valued. For instance, the highest salary will be in Mining and quarrying, but the returns to schooling may not be very high there. Whereas in Education wages are comparatively low, but the returns can be relatively higher.

Another point that should be noted is that only 26 out of 13920 respondents have postgraduate education degrees. Despite the fact that there are few of them, their average salary is about 267,105 KZT. The graph below represents the income of nine industries in Kazakhstan in 2019. In four of these industries, people make more than 300,000 KZT, whereas in the previous graph people with a high education level only in 2 industries can do so. Consequently, it leads to the point that a few years of schooling can increase returns in the future.

Figure 4: The average income of people with postgraduate education in industries in 2019
Source: Household Budget Survey. Authors' calculations
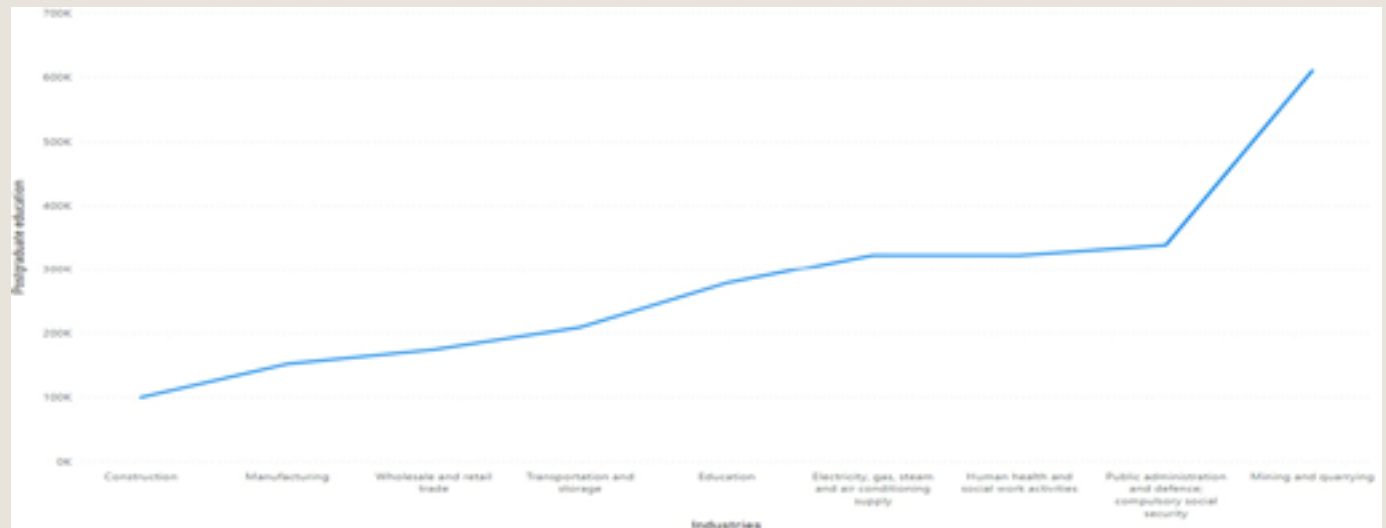
Returns to education expectations

It is commonly known that investment in human capital is one of the key drivers of economic growth (Brunello et al., 2000). This economic growth can be achieved by implementing policies that make education more affordable for the population. According to human capital theory, incomes are highly dependent on work experience and educational attainment (Li, 2003). Incomes will reach a peak when human capital is at its maximum. However, in the middle of the career, human capital depreciation will eventually take its place and incomes will decrease (Dickson & Harmon, 2011).

In our research, we compare returns to education by industries. In our case, we can assume that more people with graduate and postgraduate education (Master's degree or Ph.D.) are likely to work in Education or Finance rather than Agriculture or Mining and quarrying (exploration and extraction of minerals) because the latter requires more physical labor. Although someone can work as a driver, security guard, or receptionist in Finance, still the majority of the workers in these fields should have at least higher education. We expect that returns to education will be the highest in the Education industry because this field requires a degree. Most of the researchers with Master's or Ph.D. degrees work in the Education field and returns to education for them should be higher. Also, we can expect that individuals with a lower level of educational attainment are less likely to be employed in industries with a high return to education compared to those workers with high educational attainment.

Empirical results

The results of the returns to education for all 19 industries that were used in our data are represented below.

Table 3: Returns to education by industry and other industry characteristics

Industry	Returns to schooling	R-squared	NOBS	Mean (schooling)	Average wage (KZT)	Labour productivity (thousand KZT)
Real estate activities	16,1	84,9	20	13,95	181 910	9 207.2
Education	13,96***	31,43	2773	13,54	158 830	1 677
Information and communication	12,95***	43,32	279	13,3	177 395	8 343.7
Administrative and support service activities	12,2***	41,78	421	13,14	179 382	5 475.4
Financial and insurance activities	11,34***	34,64	429	14,24	221 408	11 726.2
Arts, entertainment and recreation	9,79***	35,17	309	13,06	163 907	3 583.5
Public administration and defence; compulsory social security	9,45***	38,13	1007	13,44	178 191	2 373.2
Construction	8,63***	22,86	850	12,58	209 048	5 996.3
Accommodation and food service activities	8,55***	28,99	310	12,44	151 288	4 028.7
Human health and social work activities	8,35***	24,78	954	12,77	161 025	2 638.4
Electricity, gas, steam and air conditioning supply	7,5***	34,72	438	12,82	195 635	6 531.3
Other service activities	6,86***	23,9	711	12,74	158 693	6 944.2
Manufacturing	6,85***	42,85	772	12,57	254 863	13 660.8
Transportation and storage	6,82***	25,48	1136	12,68	212 114	8 762.4
Agriculture, forestry and fishing	5,4***	14,07	1010	11,94	135 945	2 466
Water supply; sewerage, waste management and remediation activities	5,36*	35,08	216	12,57	172 757	2 078.9
Mining and quarrying	5,18***	33,92	742	12,62	290 725	35 837.2
Wholesale and retail trade	5,08***	32,62	1462	12,59	161 482	8 237.6
Professional, scientific and technical activities	1,09	37,91	78	13,27	201 441	• 11 946.7

Notes:
(1)   Returns to schooling and R-squared – the results of the models' estimations. 19 models for each industry were estimated separately. Corresponding coefficients with the sign. codes and R-squared are presented.
(2)   Mean of schooling and average wage are the average years of schooling and mean wage per industry in the sample.
(3)   Labour productivity by industry – country level national statistics for 2019 (https://stat.gov.kz/).

As it can be seen from table 3, the highest returns to education are in the Real estate activities sector with a predicted increase in wages by 16,1%, when schooling increases by one year; this result is however not statistically significant, possibly due to very small sample size. Therefore, among the significant coefficients, the education industry generates the highest returns for an additional year of study. Information and communication; Administrative and support service activities and Financial and insurance activities are also among the industries with the high returns to education.

The smallest and statistically insignificant rate of returns is observed in the Professional, scientific, and technical activities sector with the predicted increase of wages by only 1,09%. This industry includes consulting and auditing companies, which normally have top-tier specialists with a high background in education. Considering this assumption, we expected higher returns for this industry. However, the estimate of returns to schooling for this sector is unexpectedly low, and possibly should be explained by a high mean in the schooling of the respondents in the sample - or, in other words, smaller variation in the respondents' level of education. Among the industries with statistically significant results, the lowest returns are observed in Agriculture, forestry, and fishing; Water supply; Mining and quarrying and Wholesale and retail trade.

Excluding statistically not significant results, the table suggests that the industries with relatively higher returns to education are those that hire relatively better-educated workers (as measured by their average years of schooling), while the industries with the lower returns tend to employ people with lower educational attainment. This is likely a two-way causality – the industries requiring more educated workers pay them a better premium for education than other industries, to attract them, and this makes better-educated workers self-select into industries that value education more.

The majority of those industries, however, are not the best-paid industries in Kazakhstan. Besides Financial and insurance activities and Professional, scientific and technical activities, the best-paid industries (such as Mining and quarrying; Manufacturing; Transportation and storage and Construction) are characterised by lower returns to education and less educated employees. The wages in turn seem to be positively correlated with the industry labour productivity: the higher the productivity (the output per worker), the higher the wage.

Thus, we can conclude that the production process in the economy of Kazakhstan is rather primitive and, with few exemptions, does not require a better-educated labour force.

R-squared results explain how much variation in wages in our model is explained by the joint variation in all explanatory variables. The data used captures on average only 35 per cent of a variation of the real wage, with the most unexplained component in Construction; Transportation and storage; Human health and social work and other services). Thus, there are other systematic and random (non-systematic) factors affecting wages that are left unexplained due to the data unavailability.

Limitations of the study and further recommendations

The study has two main limitations such as unobservable variable bias and possible endogeneity. For example, both schooling and wages can be affected by other factors such as individual abilities and skills which are often left unobserved due to data unavailability. This limitation may be solved by using panel data or instrumental variables methodologies. Also, the opportunity cost of doing education is higher for those who have lower abilities. It means that people may spend a different number of years studying to get the degree they need due to some external and internal obstacles. For instance, some students can fail and retake courses, thus they may not graduate at the same time as their peers. Consequently, it may lead to uncertainties in estimating the years of schooling.

For further research, we can do a comparative analysis between Kazakhstan and other emerging economies elaborating on possible similarities and differences.

Conclusion

This paper complements existing studies related to the returns to education in Kazakhstan. By providing a comparative analysis of the returns to education by industries for 2019, we

concluded that industries with higher returns to education prefer to employ people with a higher level of education, whereas, for example, the sector of Agriculture, forestry and fishing generate very low returns and predominately hires workers with a low level of education.

After analyzing the average wages, it was identified that most industries with a high demand for educational attainment tend to pay less. Whereas, for example, the Financial and insurance activities industry needs highly qualified workers with higher education, and, accordingly, they pay more, thereby attracting workers. Thus, a more educated person can choose the industry to work in, and most likely will prefer the industry where his higher education will be valued and paid higher than in industries dominated by physical labour.

In addition, we were able to identify a positive correlation between average wages and industry labour productivity. Those industries with relatively low labour productivity are also characterized by relatively low wages. Thus, we concluded that the production process of Kazakhstan is rather typical for a developing country. As well as the whole country, education is at the stage of development in Kazakhstan (AllahMorad, 2021). Many manufacturing industries do not require a highly educated workforce, and office-based industries recruit more educated people. However, based on similar studies done in other countries with transition economies, a continuation of market reforms leads to the development of returns to education trend (Andrén et al, 2005; Pastore and Verashchagina, 2006). Thus, according to Fleisher et al. (2005) returns to education tended to increase immediately after educational reforms in Russia, Estonia, the Czech Republic, Poland, and Slovenia. Therefore, with the development of the Kazakhstani economy, the value of higher education can also grow in direct proportion in our case.

In general, despite the limitation of our study due to endogeneity, which is a fairly common limitation for any empirical study using micro-data, the results are expected and justified.

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The Trade Liberalization Impact on Kazakhstani Economy.

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Abstract

Kazakhstan is a young country with one of the fastest-growing economies but also it is a country with an exceptional history behind. It was important to highlight how the past affects the present and even the future because Kazakhstan was an important transit point between the East and the West in the past, and now we wanted to analyze how reviving its past role would be beneficial for the future periods. This research examines the impacts of trade liberalization on the economy of Kazakhstan, particularly export and import statistics within the period from 2000 to 2019. The purpose of this study is to evaluate the effects of liberalizing trade on export and import and to see how having FTAs and being a part of unions affects it. For analyzing this question, we use a linear regression equation and estimate it with many different variables to make this research more complex and accurate. Our main findings are impressive because they showed how a small distance between two partner countries is important for both export and import, and also justified how our estimates increase when there is a common border with a trading country. Moreover, having FTAs between countries showed significant results, which also proves that trade openness is beneficial. Some of the other variables were not so significant, however, analysis of all received data showed that trade liberalization has a positive impact on the economy of the country. In conclusion, this research has an interesting topic that could be analyzed further in the future.

Introduction

Kazakhstan is the largest country in Central Asia and the ninth biggest country in the world, which is simply covering the territory of Western Europe. Even though Kazakhstan is a very young country, it is a country with a rich historical and cultural past. Its location always was very important, it served the role of a transit corridor between the West and the East. If we look back at history, we can understand that the Great Silk Road, which covers the period from 130 BCE to the 15th century, was very important in the history of Kazakhstan. Chinese merchants started carrying rice, spices, silk and other exotic goods to the West, Kazakhstan earned its taxes and duties for the services of keeping the merchants and their goods safe, while they were on the road. Archaeologists found many examples of terracotta and ceramic objects, which tells us about mutual enrichment in arts, religions, and architecture between Eastern and Western cultures, The Great Silk Road was the instrument for transmitting economic, political, and cultural values at that time. However, location cannot be considered only beneficial because Kazakhstan is a landlocked country, which means that there is no access to the seas. One of the reasons why the Great Silk Road was shut down is the discovery of new sea routes. Since new sea trade routes were discovered in the late 15th century, it became easier to transfer goods via sea. Sea transportation became a faster and safer option to transfer goods to the West and the use of the Great Silk Road was brought to the end.

An economical analyst Vladimir Fedorenko (2013) suggests that Kazakhstan should use its strategy from the past and focus more on being a transit country between China and Europe. As an immediate neighbor of China, Kazakhstan should revive its role from the past and it will create trade routes between East and West again, which will attract new investments to the economy of the country, and it is for sure will be beneficial for the economy of our country. Presidents of both China and Kazakhstan highlighted the importance of bringing back the concept of the Great Silk Road. The CASI analyst Rafis Abazov (2017) stated how both countries invested in infrastructure to prepare Kazakhstan to become the transit hub in Central Asia. Investing in Kazakhstan's infrastructure is a part of the "Silk Road One Belt" strategy of China, which was announced in 2013. Improving

infrastructure, and creating better trade conditions is part of this strategy and it is clear how both sides are interested in developing Kazakhstan's future of being the transit point as it is beneficial for both countries.

Geographical location has always been an important factor for Kazakhstan, as it took a key role in trade in the past, however, its unique location is also a huge advantage due to all the deposits of mineral resources. A considerably young country with those enormous deposits of resources, Kazakhstan focuses on exporting petroleum, gas, ferroalloys, radioactive chemicals, and refined copper. Mostly, our country exports to China, Russia, Italy, Netherlands, and Turkey, so these countries are our main export partners. Thus, Regarding the import of our country, Kazakhstan is importing into Russia, China, South Korea, Germany, and Turkey. Heating machinery, medicaments, cars, and other technical equipment are the main products that we are importing. Kazakhstan is an export-oriented economy that is very dependent on oil and oil-related product shipments.

Source: https://wits.worldbank.org
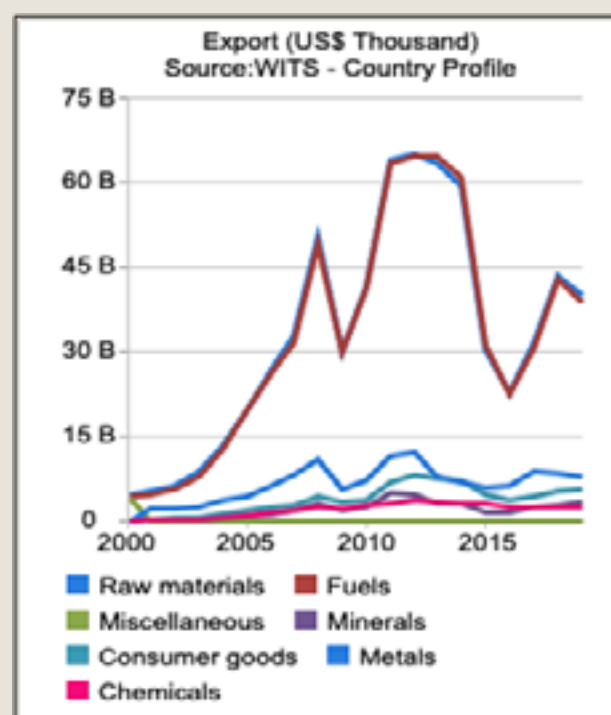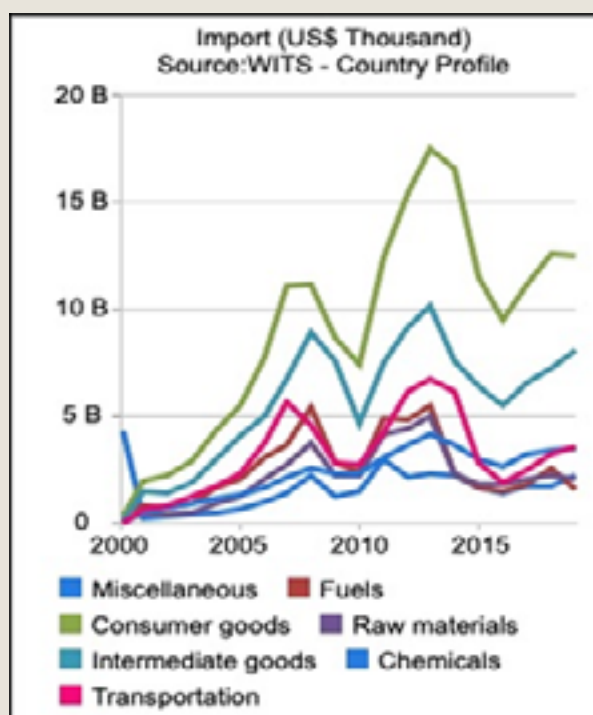
To understand all the concepts of trade, we looked through all trade theories that ever existed, and we highlighted some of them. Adam Smith explained his new trade theory of Absolute Advantage in 1776, where he basically says that countries should not regulate trade by policies and restrictions. His theory is based on the assumption of one country being more suitable for producing one particular good, in other words, one country can focus on producing the good if it has the advantage to produce it faster or cheaper. Moreover, he also adds that countries should have specializations to produce that good in order to increase production levels in general. Increased efficiency in the market will benefit all the countries and increase the living standards of all people.

Hecksher-Ohlin's theory suggests that countries should export goods that are in greater supply or basically have cheaper production costs, and countries should import goods that have a higher demand and shorter supply. This theory is based on a country's variables like land, labor and capital. For instance, in 2017 Netherlands exported 506 million U.S. dollars, and imported 450 million U.S dollars, it is an example of a balanced trade model, where export and import figures are almost the same. It allowed the Netherlands to focus on production and to import from Germany, a neighbor country, in order to pay less for transportation costs (Kopp, 2017). Reading about trade and trade theories helped us to understand what this research will be focused on. Trade was always an essential

part of our history and now our country should use it to achieve economic growth. Economic growth is the goal of every country to increase its citizens' standards of living. International trade is known to be one of the few forces to boost the economy. Trade is a simple exchange of goods and services between two or more people, international trade is the exchange between two different countries. According to Oxford Reference, trade liberalization is identified as a process of removing and reducing restrictions on international trade. It's a common practice to use trade liberalization and benefit from increasing figures for export and import. Chandrashekar Raghutla (2020) explained how trade openness affects the economy and export and import in particular.

This research looked through the advantages and disadvantages of trade liberalization. Starting with advantages, trade liberalization provides many opportunities to have a comparative advantage in producing goods or services, which is known to be beneficial for a country's economy. Removing tariffs and additional costs provides a chance for foreign producers to enter the market and it leads to lowering prices of goods, which is a good thing for customers. Although, government spending is usually reduced because funding used in the past to provide some subsidies for trade stimulation and for purchasing goods from foreign countries is not necessary anymore. Countries that practice liberalized trade usually are more attractive to investors, capital inflows are very beneficial for any economy. On the other hand, trade liberalization has some disadvantages like a lack of support for local industries due to high competitiveness in the market. Trade liberalization can help some industries to grow but some of them could decline due to high competitiveness. There are also some environmental disadvantages regarding lack of protection for natural resources and increased levels of pollution due to greater exploration of resources and increased production. Whether a country should start implying trade liberalization or not is a very important decision because there are both advantages, and disadvantages (Hufbauer&Kotschwar,1998). Many examples of developed countries showed us how effective it could be to remove the barriers and use all the benefits of trade liberalization. It is important to highlight the fact that impacts of trade liberalization are very individual and depend on the country's economy, that is why this research will provide information, that includes different variables to understand if trade liberalization in Kazakhstan will increase export and import figures.

To regulate all trade relationships between countries, the government can enter into trade agreements with different countries, or be a part of a union. Kazakhstan has many agreements with many different countries, however, there is also another way to regulate trade among countries and it is union establishing. The Eurasian Economic Union (EAEU), European Free Trade Association (EFTA), European Union (EU) and other examples of those agreements between two and more countries are established to increase import and export figures and economic growth of each country. Our research will focus on analyzing how all these factors like having trade agreements or being a part of a union, affect the trade and the economy of our country.

Purpose of the Study

This research is about the impacts of trade liberalization on the economy of Kazakhstan, and although this paper would provide all necessary information about trade, trade theories, and the importance of trade and trade liberalization. The main research question is to identify how trade liberalization impacts the economy of Kazakhstan. Kazakhstan is a country that has a great potential for economic growth and making a decision regarding trade policies in a country is important for the economy.

Our hypothesis is tested whether implying the trade liberalization policy will increase export and import figures for Kazakhstan. For answering the main question of this research, firstly, it's necessary to find out how the fact of having trade agreements affects export and import figures among countries. To fully understand the situation with trade liberalization it would be necessary to collect data regarding figures for imports and export of Kazakhstan and some other countries for comparison. To make this research more accurate it's necessary to understand how being a part of trade unions affects trade turnover and

it is considered to be one of the main questions of this paper. Analyzing what trade relationships Kazakhstan has with different countries, how the distance between countries plays its role, and whether being a part of a trade union affects any industry in Kazakhstan is very important to provide answers for this research. Using all necessary data and making calculations will also help this research to see if trade liberalization is beneficial or not for the economy.

Literature review

The gravity model is the main international model for world trade. The main point of "Eurasian Economic Union, Regional Integration and the Gravity Model" by Maryam Sugaipova's research is related to the gravity model as in our research. Her main purpose is to analyze how the gravity model of international trade helps to find out the effects of economic integration agreements (EIAs) on Eurasian Economic Unions members (Russian Federation, Republic of Kazakhstan, and Republic of Belarus (2015)) trade flow. The theory of gravity model was studied theoretically, also econometrical methodologically based on the theoretical application of the gravity model by Anderson & Wincoop (2003). The traditional gravity equation was introduced by Jan Tinbergen in 1962. According to Jan Tinbergen (1962), "trade flows between exporters and importers GDPs and trade resistance in terms of geographical distance between the countries".

Moreover, in Sugaipova's work, regionalism is one of the factors in improving world trade. Therefore, international economic integration agreements started growing their number. Treaties between countries in order to lessen policy-controlled barriers to movements of goods and services, capital, and labor between both countries. Most EIAs are RTAs, which are regional trade agreements, and FTAs are free to trade agreements. The World Trade Organization (WTO) recognizes it as three types of regional economic integration: customs union, free trade area and economic integration agreement. Along with WTO, the Organization for Economic Cooperation and Development (OECD) recognizes it as free trade area, customs union, common market and economic union. Examples of free trade areas are the North American Free Trade Area (NAFTA) and the

European Free Trade Association (EFTA) (Sugaipova, 2015). They got rid of tariffs and non-tariffs for members and have no common external tariffs (CET) towards non-members. The customs union's duty is to accept free trade on goods and services within the customs union, furthermore agreeing to a common external tariff (CET). When it comes to common markets – European Common Market is the best example. The main goal of the European Common Market is to liberalize the movement of goods and services, capital and labor within the European Union. And last, an example of an economic union is the European Union, which includes 27 countries in Europe.

The author mentioned how the change in the tariffs, as a member of the Eurasian Economic Union, affected Kazakhstan's economy. Our country takes second place, in Purchasing power parity (PPP), after Russia, with a GDP of 8% and a population of 10% among union members. Changes in tariffs of the Customs Union is decreasing the real income of Kazakhstan because imports of the country were displaced from Europe, and under common external tariffs (CET), they would've shifted to Russia. It shows us, how Kazakhstan's potential income transferred to Russia. According to Tarr (2012), Kazakhstan has benefited from exporting and was deprived of importing from Europe, because of tariffs. Krugman (1989) mentioned, that in this particular Customs union the external tariffs were set by Russia, and other members were forced to adjust to it, with following losses. Despite that, the country is attracting new foreign investors/investments to all economic sectors, especially agriculture. Furthermore, Krugman (1989) says that any project with the point of liberalization can be both trade creating or trade diverting, it will affect the economy of the country differently.

In the paper "The Economics of Customs Union in the Commonwealth of Independent States" by Michalopoulos & Tarr (1997), they pointed out how the joining of CIS members to the Customs Union after the fall of the Soviet Union will bring a negative influence on the dynamic effect, the growth output rate of the country. Because it will probably keep the old Soviet Union's philosophy and the tech area too. One of the conditions, when joining the Customs Union should be setting common external tariffs (CET), therefore it should be higher than initial

tariffs, and adopting CET will lead to higher import tariffs. By using the gravity model, it was found negative dynamic effect, and in our research, we will try to use the same variable with the same - gravity model.

The second resource we got information from is a research project by Roman Vakulchuk, Farrukh Irnazarov, and Alexander Libman called "Liberalization of Trade in Services in Kazakhstan and Uzbekistan: Analysis of Formal and Informal Barriers". Nowadays importance of Central Asian countries, such as Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan, and Tajikistan gradually growing. They have great economic potential, strategic geopolitical location and have a lot of natural moreover energy recourses. Starting from 1991, after getting its independence, Central Asian countries, especially Kazakhstan, Kyrgyzstan, Uzbekistan and Tajikistan, implemented liberal forms.

Central Asian countries all have different political, economic, and institutional reform models. For that, chances for effective regional cooperation and trade relations are very low. They all follow the principle of market economy and different reform paths, that have some common features: for foreign investment attraction – liberal reform principle; new incentives for the development of small and medium businesses; trade over increase between regions; World Trade Organization.

Mainly this research project studies "the liberalization of barriers to trade in services in a systematic transition context" and analyzes its formal and informal barriers. When it comes to Central Asia, most of the trade-related issues came from the Soviet Union's collapse – cross-border movements between countries (Pomfret, 2006). Next, its geographic location – being landlocked. Kazakhstan is the largest landlocked country in the world. It faced a lot of economic challenges landlocked developing countries tend to have. Therefore, smuggling and under-invoicing – illegal trade, which is very common both in Kazakhstan and Uzbekistan. Factors, such as transportation cost, low trade volume and trade deficit causes low trade level between Central Asia and European Union (Raballand, G. et al., 2005). In the chapter "Studies on barriers to trade in other regions", the authors analyzed currently existing informal barriers. They

are corruption, political competition, wealth gap, absence of infrastructure, and social and cultural differences. As an example, they took a study conducted by Sustainable Development Policy Institute for World Bank related to Pakistan and India's informal barrier issue. The higher transaction cost leads to trading through informal channels. The transaction cost of the formal sector is much higher than in the informal, moreover, the difference is over in the tariff rate (Rafi Khan et al., 2005).

Next, the article was written by experts from the website "Globalization, World Trade Organization, Newly Independent States". All the information was collected before joining WTO, experts gave their opinions, analyzed possibilities and discussed the advantages and disadvantages of Kazakhstan's membership.

Until 2015, Kazakhstan's main goal was to ensure sustainable development of the country, which will be done by diversification and modernization of the economy. The change from the raw material development model to the innovative development was the right way.

Kazakhstan is one of the top exporters when it comes to agricultural goods - wheat, barley, cotton, sunflowers, rice, cattle, sheep, horses, chicken, pigs, and goats. The main suppliers of agricultural products are The Commonwealth of Independent States (CIS) countries. Import, for the most part, consists of poultry meat, black tea and cane sugar. Kazakhstan's main importer in this field is the USA, around 96%. The level of tariff protection in Kazakhstan is relatively lower than in developed countries. It means regulation on tariffs of imports is liberal. "The presence of low customs duties on import does not lead not only to the aggression of imports but even to its slight increase". Starting in 1993, the liberalization of foreign economic activity in Kazakhstan took lead. Now, non-tariff regulations are reduced, because of the protection of public health and social protection, for trading with more countries in the future.

Being a member of WTO gives the opportunity for effective integration of the world economy and international trade. Accession to the WTO does not mean only signing the agreements, following the rules and coming to trade liberalization, it also means changing the whole structure of the trade in the country, and being

ready to open a local market to the international goods and services. The purpose of the WTO agreement is to carry out trade reform in the agriculture sector and to create a market-oriented mechanism. Rules and obligations in the agreement on agriculture:

• Opening the domestic market to the agricultural goods;

• Domestic support (subsidies and other agricultural support programs);

• Obligations in the service sector (veterinary services, services in the field of forestry, fisheries, etc.);

• Export subsidies;

• Application of sanitary and phytosanitary norms and rules.

The agreements on the protection of domestic agriculture with high tariffs on the market in basic types of food will lead to modernization for local agro-industrial complexes, therefore, increasing export. WTO can be used as a door for a world food market. "In general, the WTO implies the liberalization and transparency of trade". Within the framework of WTO, tariffs are reduced, in addition, the volume of Kazakhstani trade with other WTO member states will increase.

Joining a trade organization has a lot of advantages: providing access to the international market for domestic goods and services, reducing tariff and non-tariff barriers in industrial besides agricultural trade, forming trade and investing environment, strengthening its integration into the world economy, international trade liberalization and building environment for free and decent rivalry. One of the most important things is opportunities and opening to the country. For example, the influence of importers on Kazakhstan's production process: clean technologies, greening, resource-saving, storage organization, the recycling. It all affects the competitiveness of local production in the international market.

Methodology

This research paper explains the correlation between the effects of trade liberalization and changes in export and import. To test our hypothesis, that implying the trade liberalization policy will increase export and import figures of Kazakhstan, we use the quantitative approach, which is focused on describing how all the data and statistics that we could gather affect figures for export and import for 40 countries, starting from 2000 to 2019.

Firstly, we use the gravity model approach as a base of this research because it is one the most useful econometric model, that is applied for analyzing international trade and the sensitivity of trade flows to different factors. Moreover, this model is commonly used to discover how different policies affect trade and its volumes. Tinbergen (1962) used the gravity model to analyze how the FTA variable affects trade turnover and discover how its effect was insignificant. However, our approach was changed since we use more variables to make this research more complex and get more accurate results. We investigated many different sources to gather all the necessary information. This research is based on analyzing three independent variables like GDP, population, the distance between Kazakhstan and partners countries, five dummy variables like language, border, WTO, FTA and EAEU, and two dependent variables like export and import. Gathering all statistics about chosen variables of 40 countries took some time, but it was a primary step to finding answers to how chosen independent variables will affect dependent variables. To get results from all collected data, we used linear regression. To review of effects on export and import, we use a linear regression equation for both export and import changes from 2000 to 2019 in Kazakhstan.

Using our data set, we estimated two gravity model equations of Kazakhstan's trade: (a) the gravity model of Kazakhstan's exports, (b) the gravity model of Kazakhstan's imports. Whereas export and import are the gravity model's dependent variables, GDP, Population, and Distance have been used as independent variables. In our model, we've included several dummy variables. They are WTO, EAEU, and FTA, as well as a common language and border. As an outcome, in this study, the gravity model of export is:

$lnX\_ij = \beta_0 + \beta_1 lnGDPi + \beta_2 lnGDPj + \beta_3 lndist + \beta_4 border + \beta_5 language + \beta_6 popi + \beta_7 popj + \beta_8 WTO + \beta_9 FTA + \beta_{10} EAEU$ (a)

where:

X = the value of export from Kazakhstan to country j,

GDPi = Kazakhstan's GDP,

GDPj = Kazakhstan's partner's GDP,

distance = distance between Kazakhstan and partner country,

pop$i$ = Kazakhstan's population,

pop$j$ = partner country's population,

border = Kazakhstan and partner country have or not common border

language = Kazakhstan and partner country have or not common language

WTO, FTA, EAEU = Kazakhstan and Kazakhstan's partner are members or not

The following model is used to calculate the gravity of Kazakhstan's imports:

$lnMij = \beta_0 + \beta_1 lnGDPi + \beta_2 lnGDPj + \beta_3 lndist + \beta_4 border + \beta_5 language + \beta_6 popi + \beta_7 popj + \beta_8 WTO + \beta_9 FTA + \beta_{10} EAEU$ (b)

where:

M = the value of import from Kazakhstan to country j, and the rest of the variables are the same as in the Export model.

The following is the description our choice of variables:

1. Dependent Variables

Export and import are the key variables of this research because maintaining trade balance is very important to the growth of countries' economies. Each country is individual due to its resources, some of them are rich in minerals, like Kazakhstan, but some are not and are rich in different goods. Now international trade between countries gives an opportunity to expand markets. Moreover, analyzing how other variables affect these chosen variables, export and import, would help to see trade liberalization impacts in the scope of the research.

2. Independent Variables

Starting with GDP, which is an independent variable, this research used the GDP of Kazakhstan (GDPi) and the GDP of 40 partners (GDPj) because relationships between export and import directly affect GDP. If a country exports goods, it sells them to another country and those exports bring money to the country. When a country's exports exceed imports, it means that net export is positive, and more money was brought to the country. The population is also a relevant variable to analyze because changes in population over years affect the economy, and import and export figures too. Changes in population mean direct changes in a number of consumers, employers, and employees. Distance between Kazakhstan and partners is a variable that could possibly prove that trade turnover is higher when countries are located not so far from each other.

3. Dummy Variables

Dummy variables are coded using 0 and 1 system. For example, if Kazakhstan has the same language as the partner country, it identifies as 1 and if there is no common language between countries, it identifies as 0. Analysis of having the borderline between countries is done in the same way, if a country is bordered by Kazakhstan, then it is expressed as 1. One of our research questions was to analyze how having FTAs with different countries and being part of unions could affect import and export figures. That is why if Kazakhstan had an FTA with that country at that year, it is expressed as 1. Those variables that analyzed FTAs and unions are more complicated because there were many changes throughout the years. Some years countries had an agreement, some years they did not and the same thing happened with being part of trade unions. Dummy variables like being a part of WTO, EAEU and having FTA with country-partners are analyzed through the years to see how it affects import and export in Kazakhstan.

Results

The gravity model of Kazakhstan's exports has been estimated by taking all variables for 800 observations of 40 countries. The results revealed that half of the variables are found to be either not significant or had negative signs. Only GDPi, GDPj, common language and border, and FTA were shown to be significant throughout the model selection process. Population$i$, Population$j$ and EAEU are significant, but they have a negative relationship. The results are shown in Table 1.

Number of obs = 800

F(10, 789) = 62.03

Prob > F = 0.0000

R-squared = 0.4402

Adj R-squared = 0.4331

Root MSE = 1.8675

Table 1

lnexpi	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
lngdpi	.5889007	.148675	3.96	0.000	.2970553	.8807461
lngdpj	.9395118	.06801	13.81	0.000	.8060099	1.073014
lnpopi	-1.361839	1.617322	-0.84	0.400	-4.536601	1.812923
lnpopj	-3.949861	.0692719	-5.70	0.000	-.5309651	-.259007
lndist	-.5878126	.2584228	-2.27	0.023	-1.09509	-.080535
language	.8447904	.2379163	3.55	0.000	.3777666	1.311814
border	1.865132	.2884407	6.47	0.000	1.29903	2.431434
WTO	.1826587	.198414	0.92	0.358	-.2068231	.5721405
FTA	.5467931	.2151229	2.54	0.011	.1245123	.9690739
EAEU	-1.214758	.4657754	-2.61	0.009	-2.129063	-.3004521
_cons	5.906949	23.99311	0.25	0.806	-41.19093	53.00483

The gravity model of Kazakhstan's imports has been estimated taking all variables both independent and dummy variables. The model includes all 800 observations from all countries in our sample. Only GDPi, GDPj, common language and border, WTO, FTA are shown to be significant in the estimating process. All other variables are either not significant or have negative signs. Population$i$, Population$j$ are significant, but they have a negative relationship. Table 2 shows the results.

Number of obs = 800

$F(10, 789) = 221.05$

Prob > F = 0.0000

R-squared = 0.7370

Adj R-squared = 0.7336

Root MSE = 1.0634

Table 2

lnimpi	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
lngdpi	.5806068	.0846633	6.86	0.000	.4144148	.7467987
lngdpj	.9159481	.0387284	23.65	0.000	.8399252	.991971
lnpopi	-3.381771	.9209871	-3.67	0.000	-5.189645	-1.573896
lnpopj	-.1853761	.039447	-4.70	0.000	-.2628097	-.1079426
lndist	-.0465438	.1471594	-0.32	0.752	-.3354141	.2423264
language	1.536176	.1354819	11.34	0.000	1.270229	1.802124
border	1.738085	.1642531	10.58	0.000	1.41566	2.06051
WTO	.3173736	.1129873	2.81	0.005	.0955824	.5391648
FTA	.4610741	.1225022	3.76	0.000	.2206054	.7015428
EAEU	-.0087238	.2652367	-0.03	0.974	-.529377	.5119293
_cons	31.74812	13.66293	2.32	0.020	4.928133	58.5681

In our export model (Table 1), only the independent variables GDP, language, border and EAEU dummy variables are significant, but EAEU dummy has a negative sign. If GDPi goes up by 1% then the export goes up by 58.9%.

Even though the population variable is significant, it has a negative sign which shows that if the population of Kazakhstan is growing, then we import less. And when the population of partners grows, their exports become less.

The WTO dummy variable is insignificant not as excepted. This shows that whether the country is a member or not a member, does not affect exports.

The distance variable is not significant and has a negative sign which means that Kazakhstan prefers to trade more often with its neighboring countries. The further the distance, the less the exports.

The border dummy is highly significant with a positive sign which shows if we border a country, then we constantly trade well. Kazakhstan borders China, Turkmenistan, the Kyrgyz Republic, Russian Federation and Uzbekistan.

Language dummy is also significant and has a positive sign which means when two countries speak the same language, communication is simplified, and transaction costs are reduced between them.

The model has R-squared = 0.4402, and $F_{(10, 789)}$ = 62.03. Where 44.02 per cent r-squared indicates that the regression model accounts for 44.02 per cent of the variability in the target variable. The R-squared is the amount of variance explained by the independent variable in the dependent variable. In the export case, r-squared has a weak size effect. This variable explained 44.02 per cent of the variation in the dependent variable in this case. This indicates that it was a significant but only a partial determinant, with other factors affecting 55.98 per cent of the observed variability.

In the import model (Table 2), as in the export model, the GDP variable and, language and border dummy variables are significant, but here WTO and FTA dummy variables are also significant and have positive signs. With a 1% increase in the GDP variable, imports of Kazakhstan grow up by 58%. Kazakhstani imports are also positively correlated with language, border, WTO, and FTA dummies and negatively correlated with a population in country j. The results show that if Kazakhstan and Kazakhstan's partner country has FTAs then it has a positive influence on Kazakhstan's import as if they are members of WTO.

As in the export model, language, and border dummies favorably responsive to Kazakhstan's imports. If Kazakhstan and country j have a common border it indicates that the imports will be higher by 1.73.

The model has R-squared = 0.7370, and $F_{(10, 789)}$ = 221.05. Where 73.7 per cent r-squared indicates that the regression model accounts for 73.7 per cent of the variability in the target variable. A higher r-squared means that the model can explain more variability. This tells us that 73.7% of the variation in the dependent variable can be explained by independent variables.

Conclusion

The objectives of the research paper were to analyze the effect of trade liberalization on Kazakhstan's economy, and therefore results of applying trade liberalization policy to the country's export and import. The gravity model was used to consider Kazakhstan's trade with countries all over the world, despite borders, geographic location, language, and cultural and political differences. In general, the gravity model is the leading model when it comes to forecasting the impact of changes in the trade policy of the country on trade costs. We took export and import as our dependent variables; GDP, population, and distance as independent ones; therefore, having a common border, language, trade agreements, like WTO, FTA, EAEU as our dummy variables. Our results show that implying the trade liberalization policy would possibly increase Kazakhstan's exports and imports. But by using the linear regression equation, we found out that half of the variables we took were not important or had negative signs at all. If we take each one separately, the population has a negative sign, because if Kazakhstan's population will grow, imports will go down; whether Kazakhstan is part of the World Trade Organization (WTO) or not, it does not affect our export; when it comes to the distance between partners, Kazakhstan trades with neighbors, because further the partner country, it requires effort to export; common border and language as a dummy variable take the significant role and have a positive sign – it simplifies trading process.

We came to results as we expected, our hypothesis was correct, but some data was not as important as we thought. Only GDP has great influence, and it does not matter if we have FTA with the partner country, or are members of the trade organization, because it will not affect Kazakhstan's export and import.

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Factors Influencing IPO Price in the Short-Term Perspective Between Pre-IPO and Post-IPO as an Example of Indian Stock Market.

Aruana Orak

Abstract

This paper introduces reader with National Stock Exchange of India. This research will help to understand factors of share underperformance at the date of offering and first-day trading return in the range of pre-IPO and post-IPO. Previous research proved the fact that IPOs in India underpriced at first day of trading, there share price at the end of 1st, 7th, 15th and 30th trading day checked against the offer price. This study pursued short-term performance of post-IPO share prices. The objectives of the research:

• measure the IPOs performance on first 30 trading days to confirm that whether investors can earn positive return on the close of these trading days.

• assess the short-run performance of IPOs for firms listed at the National Stock Exchange.

• to calculate market adjusted short-run returns, wealth relative index to get an in-depth knowledge about the IPOs performance.

• to analyze the factors influencing price performance of IPOs.

Sample were taken from 2021 and 2020 IPOs, there were 81 public offering in NSE, 62 of them have fitted sampling criteria.

This research has found that IPOs in India were underpriced by an average 81% of 62 initially issued companies.

Introduction

The purpose of this study is to investigate IPOs in India, focusing on the short-term performance of stocks, which will include both initial underpricing in the range of 1 to 30 trading days and performance factors that have effect on price changing.

Research's objectives are to measure the IPOs performance on first 30 trading days to confirm that whether investors can earn positive return on the close of these trading days; assess the short-run performance of IPOs for firms listed at the National Stock Exchange; to calculate market adjusted short-run returns, wealth relative index to get an in-depth knowledge about the IPOs performance, and to analyze the factors that are influencing price performance of IPOs.

Thesis will identify whether issue size, age of the IPO company, Return on Assets (ROA), Earnings per share (EPS) , Net profit margin (NPM), Profit after tax (PAT), oversubscription, promoters' holding of the company and market return affects to IPO performance and what are the percentage of initial offering's underperformance.

Dr. S. Poornima et al. (2016), I.T. Hawaldar et al. (2018), A Yadav and S. Goel (2019), S. Ghosh (2005), K.S. Manu and C. Saini (2020), A.K. Shukla and T.S. Shaw (2018), J.S. Matharu (2021), R. Kiran (2011), H. Puri (2012) and T.R.C. Babu and A.E.C. Dsouza (2021) proved in their papers that underpricing exist at the first day of trading in Indian markets.

This paper took into consideration all 81 IPOs issued in 2021 and 2020, and share price return of 1st, 7th, 15th and 30th trading days will be analyzed for underpricing. Type of analysis of data will be cross-sectional, which means that data of all initially offered companies will be analyzed at one point in time. Additionally, the panel data analysis is used in the research, in other words offered companies will be analyzed in different points of time. Other studies have researched both the short run and long run performance, this research is focused only on short run, for deeper valuation and analysis of influencing factors.

Literature review

Initial Public Offerings theory

Initial public offering (IPO) – is the process, when private company is listing their shares into market exchanges for the first time and selling shares to the investors by the reason to raise equity capital and earn benefits in non-financial ways, as increasing publicity, reputation, and acquisition currency. IPO is the very comprehensive process, where firstly the company need to understand in which market listing will hold shares of the company based on many diverse factors. Therefore, the

following factors have impact on IPO process: management team, corporate governance, executive compensation, investor relations, financial track record, and tax strategy (PwC, 2018).

In accordance with the research of PwC, made by capital markets departments in 2018, the IPO has three parts as planning, execution, and completion. The process may take from four to twelve months of preparation to the public offering. Firstly, company chose consultant and underwriter, who will help with offering process. They release prospectus, help with corporate governance, structure of issuing process. Secondly, company need to hire auditors, who will give opinion on their financial statements. Thirdly, company need legal consultants, who will help with all documentation and regulations. Marketing department of the company release news about forthcoming issue of shares to understand investor's sentiment and issuing press release. Furthermore, there are three types of price setting mechanisms as book-building, fixed price, and auctions (Iannota, 2010). There are many strategies to value company's share price and this thesis covers the factors that have influence on the price. Investors need to know financial results of the company to understand fair price of share when they will make decision.

Company should clear the three "C" s characteristics of equity story: crisp, comprehensible, and compelling. Then company need to identify target holding structure of their equity, if they have existing investors they will go to secondary proceeds and in the reason that this research about initial public offering, only new investors will be considered. Directors of the company make analysis of financial risks as dividends payment, that is why they prefer to have a buffer of profits a three to five-year, which will cover dividends to shareholders. The issuer should identify share class of securities and number of shares and exchange and listing venue. Chosen exchange need to have clear tax, legal and accounting requirements on the Issuer. The next important aspect of the issuing process is remuneration of management team after IPO proceeds. Company may decide to give additional compensation if everything is done by the plan. That can be in form of bonuses or shares, which have lock-up period for realization, usually two years based on

continued employment stated by PwC in the article "Executing a successful IPO", 2018. Another important factor, which influenced to the results of IPO is corporate governance of the firm. Companies with good corporate governance attract more investors due to their openness and transparency, minimizing conflicts of interest. More investors mean less cost of equity, less cost of debt, which means more available funds, which, in turn, implies that the company has more chances to win over competitors and get the necessary funding. That is, if a company has made a successful IPO, it is transparent, which means that it can be trusted, everyone trusts it, both banks and suppliers and potential employees. Therefore, the company is more likely to succeed. After successful IPO, company become public, which means higher performance expectations as earnings per share, all financial ratios, and dividends are required. To achieve investor's expectations, company must be transparent and detailed in presenting their results, what is more they need to add investor relation page to their site and provide annual general shareholders meetings.

National Stock Exchange

National Stock Exchange (NSE) of India was found at 1992 in Mumbai, Maharashtra, which was the first fully automated screen-based electronic exchange in the country. National Stock Exchange of India has nearly 202 IPOs from 2016 to current time. 79 IPOs have been from the beginning of 2020 at NSE and BSE (Investing, 2021). In 2021 there were boom of IPO, which hold 63 public goings in one year, as of 5 months of 2022 there are 15 issued companies. Furthermore, Securities and Exchange Board of India (SEBI) introduced new regulations for NSE's transparency, that is why the process of equity offering and funding became more advanced. The features as electronic trading system, price–volume tracking in the trading system, dematerialisation, shorter trading cycles, rolling settlement, derivatives trading, credit rating, IPO grading, lock-in period for promoter holding, buy-back of shares, and book-building process for IPOs were added by SEBI, which have boosted number of offering and trading through exchange (Hawaldar I.T., Kumar N. K.R. and Mallikarjunappa T., 2018). India has reasonably fewer requirements for company's listing in the comparison with

other countries as lower capitalization of the company. Adversely, companies cannot list in foreign exchanges if they have been already listed in NSE.

Figure 1: Number of IPOs in different exchanges
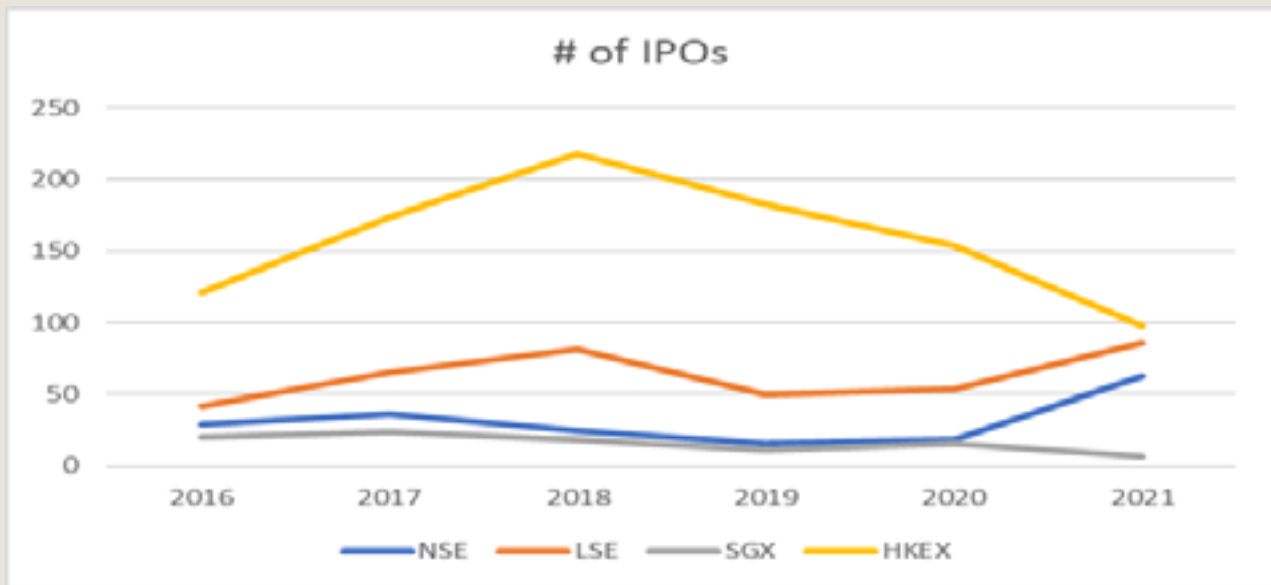
Indian market was chosen to analyze in the reason of high number of yearly IPOs and few research articles related to that market. Additionally, Indian stock market is continuously developing, which will be interesting to observe the progress. Furthermore, from January to December 2021, 63 IPOs were done in National Stock Exchange in India, which gives good sample to research companies' return of chosen period. Investments in Indian new offered companies raised in 2021, there were boom in new public issues of startup companies, called "unicorn". This was supported, among other things, by the actions of the Chinese government to regulate the IT industry, India also had a long way to go and was ready for the opportunity to come forward. In recent years, the country has become an increasingly confident newsmaker in the venture capital and high-tech environment. In 2021, the total number of "unicorns" in India has grown to 29. Three sectors attracted the most investments in 2021, according to an October report by PwC: fintech (Pine Labs, OfBusiness, BharatPe, CRED), educational platforms (Byju's, Eruditus and Unacademy), cloud solutions (Gupshup, Postman and BrowserStack). Health technologies, media and entertainment, logistics and e-commerce were also popular. India is the second market in the world in terms of the number of Internet users. In 2021, there are 843 million people, by 2023 their number will increase to an estimated 900 million, and by 2040 to 1.5 billion. That is why these factors have enabled the creation of new business models and Indian start-ups have exploded in the last couple of years. Now, the issue of attracting new and retaining old users comes to the fore for them which means NSE have opportunities to new IPOs in the future.

IPO underpricing

IPO underpricing emerged when stock's close price is higher on the first day in exchange than their offering price at initiation. If the gap became larger between initiated and closed price, the more share is undervalued, which means a risk premium in the form of a discounted price to compensate for the investor's minds precariousness (Luo, 2015). T. Ramesh Chandra Babu and Aaron Ethan Charles Dsouza (2021) analyzed 22 day returns of companies in comparison with NIFTY 50 index returns and observed that highest returns were on 3rd trading day. Furthermore, their study found that IPO returns outperform index return. Yadar and Goel (2019) state that this gap gives short-term opportunity to speculators. According to market experience, average first day return of 7% reached 65% during internet bubble from 1980s, from US experience 817 IPOs from 2010 to 2016 on average underpriced of 15%.

Ritter and Welch (2002) have developed the

theories that explained the reasons of IPO underpricing, as information asymmetry among the IPO transaction's participants, which can lead to price manipulation. For instance, investment bank's employees or their friends may have insider information about future offering and use this information at the date of IPO, insider trading issues. Secondly, underwriters' discretionary power can affect on the share price, therefore allocation of underpriced IPO shares and after what, underwriters can benefit from trading commissions they acquire from clients (Baba and Sevil, 2019). According to that research this paper will analyze asymmetrical information and underwriters' influence.

According to the study of M.S. AlShiab (2018), who examined the short- and long-run IPO returns of MENA region, found that IPOs in Tunis, Morocco, Egypt, and Oman have been underpriced to the portfolio's benchmark in the short-run. He examined 162 companies for 10, 30, 90, and 120 days. Author explained underpricing that stock overvalued in the early aftermarket because of market inefficiency.

Madhusoodanan and Thiripalraju (1997) had tested the impact of the issue size on the extent of underpricing in his sample offerings and the performance of the investment bankers in pricing these issues. The research states that, the underpricing in the Indian IPOs in the short-term period is higher than in other countries. Therefore, this research will analyze which investment bank engaged in company's public offering, their history of underwriting services.

L.N. Switzer and X. Zhai (2019) provides research of the effect of size for IPO underpricing, which showed that in both USA and Canada smaller firms have greater IPO underpricing due to a greater uncertainty of valuation.

C.C. Koech (2011) found that IPOs in Kenya underpriced by 57% and 87.5% since 2001, in the short-run IPOs best performance at 15th day, and lowest returns at 7th trading day.

Hawaldar et al. (2018) presented the theory, when IPOs come to the market consequentially and then potential investors take their trading strategies by observing previous investors' investing decisions. The demand for offerings is so elastic that risk-neutral issuers underpriced their share prices to avoid failure.

Factors influencing to IPO performance

Market capitalization (size of the company) described as total value of all a company's shares of stock. It is calculated by multiplying the price of a stock by its total number of outstanding shares ("What is market capitalization or market cap | Fidelity"). For regression analysis will be used natural logarithm of market capitalization. Market capitalization refers to how much a company is worth as determined by the stock market. Market capitalization shows the size of a company, which is important because company size is a basic determinant of various characteristics in which investors are interested, including risk ("Market Capitalization Definition"). Sukesti et al. (2021) described the effect of size of the company on stock price, results showed that size has positive effect on price performance and experience in increasing their business capacity. But from regression analysis the size does not affect the share price, because p-value was higher.

Age of the company will be measured as difference between the date of IPO and date of creation of the company. For regression analysis natural logarithm will be conducted. Matharu (2021) used age of the firm in regression analysis on stock performance. Measures years from the incorporated time until the time of public issue, he stated that the younger the company, underpricing will be higher, in the reason of uncertainties of young firm's operations. Coefficient of the age variable had negative relation with underpricing, which means that it wasn't statistically significant. Kiran and Phil (2011) stated that young and middle-aged firms become public companies more rigorously and highest returns have companies in the age group from 20 to 30 years. Companies aged after 30 years returns declined.

Net profit margin (NPM) is the financial indicator that measures how much of net income is generated as the percentage of revenue. NPM gives an understanding to investors whether a company's management is generating enough profit from its sales. Sukesti et al. (2021) found that NPM has positive effect on stock return. Author stated that the higher value of NPM, then returns to shareholders also will be higher. NPM is the percentage of net profit after tax divided to sales or revenue of the company.

Return on Assets (ROA) identifies how company profitable is in relation to its average total assets (Investopedia, ROA, 2022). A higher

ROA means that company more efficiently and productively manage and use their assets to generate profits for the company. When revenue and profit increase, the value of the company also increases, which means that investors will invest to the company by their strategy that in future they will get higher return. Sukesti et al. (2021) analyzed profitability ratio effect on stock performance. Author found that ROA has positive effect on share performance.

Earnings per share (EPS) profitability measure, which describe a public company's net profit per outstanding shares. The higher the EPS, the more profit investor can earn, and it is indicating how company generate money for each share of stock. There is no previous research on how EPS influence to the IPO return, which give value to the current research.

Profit after tax (PAT) is the amount of earnings after all taxes which have been deducted and indicates the operational efficiency and performance of the company. Babu and Dsouza (2021) found that PAT does not have effect on stock return.

Oversubscription of IPO happens when the demand for shares higher than the number of shares on offer. Allocation of shares goes to different categories of investors as retail institutional investors, qualified institutional buyers, and non-institutional investors. Underwrites can adjust the price upward, or if it is possible offer more shares. This rate calculated by dividing total demand of the issue size by total offer size, and if results is positive means that IPO is over subscribed. Babu and Dsouza (2021) in their research stated that oversubscription has positive impact on share return. For 1 unit increase in oversubscription 0,102 unit increase in stock return. And it is only one reason which has effect on IPO return. Kiran and Phil (2011) also found that oversubscription and return have positive correlation and issues which are oversubscribed have positive returns indicating underpricing.

Issue size (proceeds) is the funds that have been raised during the offering process. Matharu (2021) stated that larger proceeds have more coverage by analysts, thus may be less underpriced. Regression analysis showed that size of proceeds has negative relation with underpricing, and it is statistically significant. Kiran and Phil (2011) wrote that increase in issue size will increase in returns.

Promoters' holding is the amount of the shares owned by promoter, who is involved in building the company and operational processes. If promoter holding increases means that the company is expected to operate better, and promoter believes that company will have progress and have high returns and he thinks that shares worth to buy. Manu and Saini (2020) found through regression analysis that promoters' holding insignificant variable as other tested variables as age, issue size and the ownership sector. Babu and Dsouza (2021) stated that promoters' holding have no impact on stock return, because the results of regression model were insignificant.

Issue price is the price of offering of new security. The price usually driven by demand and supply and new price reflects on present value of the company's future cash flows and profits. Babu and Dsouza (2021) found that issue price insignificant variable that is why, have no effect on IPO return. Matharu (2021) stated in the research that issue price has positive relationship with underpricing, and it is statistically significant.

Objectives of the Research

i.   to measure the IPOs performance on first, seventh, fifteenth and thirtieth trading day to validate that investor can earn positive return on the close of these trading days.

ii.   assess the short-run performance of first 30 trading days of IPOs for firms listed at the National Stock Exchange.

iii.   to use market adjusted short run returns, wealth relative index to get an in-depth knowledge about the IPOs performance.

iv.   to analyze the factors influencing price performance of IPOs.

Key stakeholders of this research are retail investors, investment analysts, traders

2.6   Hypothesis development

H1: Indian IPOs are underpriced in the short run and there is positive relationship between stock performance and S&P BSE IPO index return.

H2: There is significant impact of oversubscription, age of the company, issue size, issue price, promoters' holding, and market return on the initial returns.

H3: There exists significant impact of financial variables as net profit margin, ROA, EPS, and PAT on the initial returns of all the selected IPOs.

Research methodology

Research design

IPO's underperformance may be resulted in the method of valuation and measuring benchmark and expected performance of the company. Underpricing will be calculated as the natural logarithm of closing price in the secondary market and offering price as

$R_{i,d} = Ln(P_1) - Ln(P_0)$

$R_{i,d}$ – return on "i" at the end of the dth day; P_1 – the closing price of the stock i at the dth day; P_0 – issue price.

For the benchmark will be calculated S&P BSE IPO index returns also as difference in natural logarithms: $Rm,d = Ln(M_1) - Ln(M_0)$

Rm,d – the return on index at the end of the dth day; M_1 – the closing S&P BSE IPO Index value at the dth day; M_0 – the closing S&P BSE IPO Index value on the offering day of the stock. This data then will be used to calculate abnormal returns. An abnormal return describes the unusually large profits or losses generated by a given investment over a specified period, the formula of abnormal return – $R_{i,d}$ (IPO stock) – E (R). Expected return was calculated by formula of $Re = Rf + \beta * Rm$, risk free rate was taken from the Damodaran database, as risk premium of the country by specific industry which relates to each IPO company. Beta of every industry also was taken from Damodaran and multiplied by market return. After calculation of expected return, it was found abnormal return by subtracting from IPO stock return. The presence of abnormal returns, which can be either positive or negative in direction, helps investors to determine risk-adjusted performance. For underpricing analysis in the research calculates $MASRP_{i,d} = \{ [(1 + R_{i,d}) / (1 + Rm,d)] - 1 \}$, then calculated mean of $MASRP_d$ by the sum of all sample MASRP divided by the number of sample. Next step is to calculate t-statistic:

$t = (MASRP_d) / (S/\sqrt{N})$

S – the standard deviation of $MASRP,d$; N – the number of sample.

The wealth relative ratio has also been applied to measure the short-run performance for group of IPO in relation to the market return; $WR_d = (1 + 1/N \Sigma R_{i,d}) / (1 + 1/N \Sigma Rm,d)$.

Through multiple regression analysis, which have been done by R Studio program, research analyzes such ratios as ROA, market capitalization, age of the company, NPM, and EPS, issue size, oversubscription, promoters' holding, and PAT to show the influence of the financial performance of the listing company on share return at the end of 30 trading days. In the research two multiple regression analysis have been calculated, relation of financial ratios on stock returns separately with influence of other variables. This technique helps to recognize the direction of relationship between the dependent variable and chosen independent variables. Regression shows high R-squared and adjusted R-squared data, which shows the proportion of variance for a dependent variable (y) explained by independent variables (x).

Sample selection

The following criteria will be considered:

i.   Firms are non-financial service companies.

ii.   The IPOs which are listed on the National Stock Exchange and has been trading for short run analysis, which are common shares.

iii.   Data relating to offer price, listing date, issue price and the closing prices which were required was available.

iv.   For the factors affecting IPOs price performance analysis: all IPOs that's data has been available are considered for study.

There are total of 81 IPOs for 2020-2021 years, after applying sampling criteria, there are 1 company that delisted, 18 companies were from financial industry and do not have available information. Hence, the total number of analyzed companies is 62 IPO companies.

Data collection

Data collected from open sources as Investing.com, official site of NSE stock exchange, the site of "The economic Times of India", and Bloomberg terminal. This paper will collect Indian IPO data from the NSE. All financial and return data as total assets, earnings, debt, book value of equity, market value will be obtained from Bloomberg. From the NSE site will be collected data of each IPO and date of

IPO, and the official pages of companies will be considered. The data comprises the name of stock, industry, offer price, number of shares offered, market capitalization of the company, IPO price range, market returns, first-date trading performance, and first day closing prices for all IPOs in the one-year period from January 2021 to December 2021. There were chose between NIFTY 500, NIFTY 50 and S&P BSE IPO indexes, which consists of IPO companies, and after testing for correlation between index returns and initial returns, S&P BSE IPO index was chosen, which showed higher level of significance and return of the index will be used to analyze abnormal returns. The S&P BSE IPO index is designed to measure the performance of companies listed at BSE Ltd. after the completion of their initial public offering (IPO).

Data analysis and interpretation

After sample selection there are 62 companies that fitted the criteria, which is 77% of all offerings for the chosen period. In NSE all IPOs have been done through 100% book building method used in 2021 and 2020. Book building process starts with setting a price range of preliminary offer, then underwriters and issuers go on a "road show" to present company for potential investors and understand their appetite and demand for upcoming issue. When demand is high, the underwriter usually can set a higher offer price. Thus, high liquidity indicates the positive sentiment s of irrational investors, which lead to abnormally low expected returns. From the trading data 50 stocks out of 62 were underpriced at 1st trading than offered price of Indian IPOs in NSE exchange.

IPO underpricing levels

From the research of Babu and Dsouza (2021), who has sample of 52 companies calculated short-term returns for 22 trading days. They observed that average stock return is 13,52%, the range of return from -23,15% to 82,16%, and standard deviation of 26,72% after first trading day. Matharu (2021) found from 379 sample that underpricing level from 45% to 23%, the correlation between underpricing and number of IPOs negative -0,17. Puri (2012) observed from sample of 100 companies from NSE, mean return 7,09%, ranging from -74,6% to 83,07%, standard deviation 27,2% after 1st trading day. Dr.S.Poornima et al (2016) stated analysis with the sample of 10 companies, issued at NSE, has average 30,09% return on the listing day and market adjusted excess return 29,66%. Manu and Saini (2020) stated in the research that average toral return of 26 sample companies on listing day is 23,67%, abnormal return is 23,67%. Kiran (2011) found from the sample of 244 IPO companies that average raw return on listing day is 58,11%, with the range from -88,9% to 6589,86%.

Table 1: IPO stock returns

	stock return mean	stock return median	st dev of stock return	MAX stock return	MIN stock return
1st trading day	30,31%	23,51%	32,60%	130,07%	-32,03%
2nd trading day	31,43%	23,85%	35,10%	134,94%	-45,83%
3rd trading day	32,29%	24,67%	37,31%	129,82%	-36,35%
4th trading day	31,07%	26,14%	36,62%	126,44%	-26,64%
5th trading day	30,99%	24,49%	36,33%	122,96%	-34,64%
6th trading day	31,13%	26,01%	35,96%	127,84%	-38,87%
7th trading day	31,91%	26,25%	36,31%	132,72%	-32,39%
8th trading day	31,55%	25,99%	35,77%	127,59%	-32,92%
9th trading day	31,41%	26,08%	35,37%	122,47%	-34,23%
10th trading day	31,71%	27,56%	35,74%	127,34%	-31,58%
11th trading day	31,58%	29,54%	36,16%	145,58%	-31,69%
12th trading day	31,97%	28,73%	37,17%	163,81%	-31,11%

13th trading day	32,17%	30,87%	37,88%	173,33%	-31,63%
14th trading day	32,12%	29,93%	38,44%	182,86%	-32,50%
15th trading day	32,17%	32,57%	38,79%	192,39%	-29,93%
16th trading day	32,18%	29,74%	38,46%	187,26%	-31,60%
17th trading day	31,75%	30,36%	38,23%	182,13%	-32,40%
18th trading day	31,01%	29,66%	38,08%	177,00%	-36,26%
19th trading day	30,78%	29,76%	37,87%	171,88%	-44,34%
20th trading day	30,33%	29,84%	36,65%	166,75%	-42,95%
21st trading day	30,08%	29,94%	35,77%	161,62%	-48,71%
22nd trading day	30,16%	28,21%	35,40%	156,50%	-50,00%
23rd trading day	29,94%	28,56%	34,98%	151,76%	-49,43%
24th trading day	29,45%	27,83%	35,24%	153,91%	-47,12%
25th trading day	29,21%	26,38%	35,11%	148,79%	-46,63%
26th trading day	29,32%	27,02%	35,81%	153,66%	-45,10%
27th trading day	29,68%	27,47%	35,78%	152,56%	-46,91%
28th trading day	29,33%	26,80%	35,56%	150,67%	-46,28%
29th trading day	29,58%	26,16%	35,91%	150,60%	-47,16%
30th trading day	30,54%	25,90%	36,92%	150,62%	-48,18%

Table 2: Market returns

	market return mean	market return median	market return st dev	MAX market return	MIN market return
1st trading day	-0,36%	-0,13%	1,50%	2,32%	-6,02%
2nd trading day	-0,25%	0,10%	2,29%	4,89%	-5,85%
3rd trading day	0,17%	0,64%	2,38%	6,52%	-4,64%
4th trading day	0,02%	-0,08%	2,29%	3,80%	-4,62%
5th trading day	0,21%	0,64%	3,16%	5,92%	-6,87%
6th trading day	0,45%	0,38%	3,34%	7,15%	-6,12%
7th trading day	1,04%	1,07%	3,27%	6,67%	-5,85%
8th trading day	1,42%	1,19%	3,62%	8,31%	-6,94%
9th trading day	1,33%	0,58%	3,81%	9,92%	-7,87%
10th trading day	1,64%	0,77%	4,09%	11,12%	-7,32%
11th trading day	1,65%	0,96%	4,26%	10,97%	-7,02%
12th trading day	1,70%	0,84%	4,36%	10,81%	-6,52%
13th trading day	1,84%	1,31%	4,85%	14,23%	-7,95%
14th trading day	1,93%	1,77%	5,00%	14,70%	-10,05%
15th trading day	2,15%	1,29%	5,76%	17,03%	-12,19%
16th trading day	2,22%	1,38%	5,82%	16,88%	-10,60%
17th trading day	2,09%	1,53%	6,24%	17,47%	-16,26%
18th trading day	2,40%	1,42%	6,43%	18,51%	-14,67%
19th trading day	2,19%	1,55%	6,43%	16,67%	-12,36%
20th trading day	2,15%	1,37%	7,02%	18,95%	-12,03%
21st trading day	1,85%	1,97%	7,15%	17,11%	-12,90%
22nd trading day	1,75%	2,01%	7,58%	15,72%	-15,59%
23rd trading day	1,66%	1,76%	7,76%	15,90%	-14,00%

24th trading day	1,28%	0,33%	7,88%	15,83%	-11,68%
25th trading day	1,03%	0,11%	8,60%	17,33%	-13,56%
26th trading day	1,27%	0,89%	8,50%	18,24%	-12,23%
27th trading day	1,91%	1,79%	8,53%	18,66%	-12,55%
28th trading day	1,92%	1,16%	8,64%	18,16%	-12,88%
29th trading day	2,21%	1,84%	8,53%	17,88%	-11,74%
30th trading day	2,45%	1,43%	8,82%	19,78%	-12,38%

On first listing day mean return from 62 companies return 30,31%, median IPO stock return 23,51%, standard deviation 32,6%. From the analysis we can conclude that at the 3rd trading day the highest mean stock return and at 15th trading day the highest median return, also maximum value of return. The lowest mean returns at 25th trading day, and the lowest median return at 1st trading day. The maximum return of 192,39% at 15th trading day, while the minimum value of return at 22nd trading day with -50% return.

Table 3: Abnormal returns and MASRP

	mean abnormal return	ST DEV	t statistic	MASRP	ST DEV	t statistic	Wealth relative
1st trading day	24,05%	31,91%	5,89	28,38%	37,34%	5,94	1,27
2nd trading day	25,06%	34,41%	5,69	27,74%	36,55%	5,93	1,27
3rd trading day	25,68%	36,33%	5,52	27,94%	36,73%	5,94	1,27
4th trading day	24,59%	36,38%	5,28	28,29%	36,63%	6,03	1,27
5th trading day	24,36%	35,93%	5,29	28,65%	36,62%	6,11	1,28
6th trading day	24,23%	35,59%	5,32	28,97%	36,46%	6,20	1,28
7th trading day	24,13%	35,94%	5,25	28,90%	36,21%	6,23	1,28
8th trading day	23,40%	35,51%	5,15	28,79%	35,89%	6,27	1,28
9th trading day	23,45%	35,44%	5,17	28,88%	36,11%	6,25	1,28
10th trading day	23,20%	35,81%	5,06	28,81%	36,94%	6,09	1,28
11th trading day	23,16%	35,73%	5,06	28,67%	37,92%	5,90	1,28
12th trading day	23,46%	36,76%	4,98	28,85%	38,34%	5,88	1,28
13th trading day	23,49%	38,01%	4,83	28,80%	38,49%	5,85	1,28
14th trading day	23,23%	38,87%	4,67	29,80%	38,48%	6,05	1,29
15th trading day	23,10%	39,05%	4,62	30,09%	38,76%	6,06	1,29
16th trading day	22,97%	39,11%	4,59	30,05%	38,52%	6,09	1,29
17th trading day	22,42%	38,95%	4,50	30,30%	38,37%	6,17	1,30
18th trading day	21,40%	38,90%	4,30	30,37%	37,56%	6,32	1,30
19th trading day	21,43%	38,49%	4,35	30,19%	36,19%	6,52	1,30
20th trading day	20,99%	37,65%	4,35	29,91%	35,15%	6,65	1,29
21st trading day	21,16%	36,79%	4,49	30,07%	35,35%	6,64	1,30
22nd trading day	21,39%	36,12%	4,62	30,24%	34,89%	6,77	1,30
23rd trading day	21,38%	35,97%	4,64	30,15%	34,77%	6,77	1,30
24th trading day	21,58%	36,17%	4,66	30,90%	35,48%	6,80	1,31
25th trading day	21,65%	35,94%	4,71	31,03%	35,50%	6,83	1,31
26th trading day	21,36%	36,47%	4,58	31,16%	35,96%	6,77	1,31
27th trading day	20,93%	36,70%	4,45	31,44%	36,32%	6,76	1,31

28th trading day	20,42%	36,85%	4,33	32,30%	35,94%	7,02	1,32
29th trading day	20,19%	36,91%	4,27	31,79%	34,35%	7,23	1,32
30th trading day	20,77%	37,62%	4,31	30,64%	32,12%	7,45	1,31

To sum up, NSE IPO companies underpriced against offer price in short term. Highest abnormal return is detected on 3rd trading day, highest value of market adjusted short run performance at 28th trading day. Wealth relative index is higher than 1, which means that all 30 trading days IPO stocks have been performing better than market.

Correlation between each stock return and market returns is on average 0,36 and mean 0,52, which is not high results, and there is no detection of multicollinearity.

4.2 Market-adjusted Short Run Performance & Wealth Relative Model

Using each companies' stock returns for 1st, 7th, 15th and 30th trading days and the market returns, the market-adjusted short run performance for each IPO on nth day of trading:

$$MASRP_{i,n} = \{ [(1 + R_{i,n}) / (1 + R_{m,n})] - 1 \}$$

This model measures the initial trading returns which are adjusted with the market returns. That kind of measurement has been commonly used in many past studies as T.R.C. Babu and A.E.C. Dsouza (2021), H. Puri (2012), R. Kiran and R.I. Chopram Phil (2011) to measure the short-run performance of IPOs with risk adjustment, assuming the systematic risk of the newly listed stock to be 1. All the different kind of research proves that underpricing of IPO is present in Indian market.

The average of market adjusted short run performance return for the nth trading day as the return more than the market return on investment divided by number of samples:

$$MASRP_n = 1/N \sum MASRP_{i,n}$$

To test if the MASRP equals to zero, the associated t-statistic is considered:

$$t = (MASRP_n) / (S/\sqrt{N})6$$ where, S is the standard deviation of MASRP,n across the companies and N is the number of sample.

The wealth relative model has also been applied to measure the short run performance for group of IPOs.

$$WR_n = (1+ 1/N \sum R_{i,n}) / (1+ 1/N \sum R_{m,n})$$, where WRn is the Wealth Relative for the nth trading day and n is the total number of IPOs in the sample.

A WR score of more than one means that the IPOs has performed better than market and when score less than one means deficient performance in comparison with market. In our case for all analyzed trading days WR is higher than 1, which proves that IPO returns performed better than S&P BSE IPO index.

Table 4: MASRP for the first listing day

		Offer price	1-st trading day price	Price change	S&P BSE IPO Index change	MASRP
1	ROSSARI IN Equity	425	741,65	55,68%	0,71%	54,58%
2	HAPPSTMN IN Equity	166	370,95	80,41%	-0,83%	81,91%
3	ROUTE IN Equity	350	651,3	62,10%	-2,11%	65,60%
4	CAMS IN Equity	1240	1412,995122	13,06%	-0,43%	13,55%
5	CHEMCON IN Equity	340	584,8	54,23%	1,64%	51,75%
6	LIKHITHA IN Equity	120	136,5	12,88%	-2,65%	15,95%
7	MAZDOCKS IN Equity	145	171,95	17,05%	0,21%	16,80%
8	GLAND IN Equity	1500	1819,55	19,31%	0,65%	18,55%
9	RBA IN Equity	60	135	81,09%	0,33%	80,49%
10	BECTORS IN Equity	288	594,2	72,43%	1,13%	70,49%

11	AWHCL IN Equity	315	407,35	25,71%	0,25%	25,40%
12	CMSINFO IN Equity	216	238,2	9,78%	1,16%	8,52%
13	SUPRIYA IN Equity	274	390,85	35,52%	0,87%	34,35%
14	HPAL IN Equity	274	330,75	18,82%	-0,32%	19,20%
15	DATAPATT IN Equity	585	755	25,51%	-0,88%	26,62%
16	MEDPLUS IN Equity	796	1121,15	34,25%	0,33%	33,81%
17	METROBRA IN Equity	500	493,35	-1,34%	2,32%	-3,57%
18	MAPMYIND IN Equity	1033	1393,65	29,95%	1,59%	27,91%
19	SHRIRAMP IN Equity	118	99,6	-16,95%	-6,02%	-11,64%
20	GOCOLORS IN Equity	690	1253,7	59,72%	0,39%	59,09%
21	TARSONS IN Equity	662	818,4	21,21%	-2,72%	24,59%
22	LATENTVI IN Equity	197	488,75	90,86%	1,20%	88,60%
23	SAPPHIRE IN Equity	1180	1211,55	2,64%	-2,91%	5,71%
24	PAYTM IN Equity	2150	1560,8	-32,03%	-2,91%	-29,99%
25	SJS IN Equity	542	510,2	-6,05%	0,69%	-6,69%
26	SIGACHI IN Equity	163	598,5	130,07%	0,69%	128,48%
27	POLICYBZ IN Equity	980	1202,3	20,44%	0,69%	19,61%
28	NYKAA IN Equity	1125	2205,8	67,33%	-0,66%	68,44%
29	PARAS IN Equity	175	492,45	103,46%	0,50%	102,44%
30	SANSERA IN Equity	744	818,55	9,55%	-1,05%	10,71%
31	AMIORG IN Equity	610	935	42,71%	0,46%	42,05%
32	CHEMPLAS IN Equity	541	535,6	-1,00%	0,75%	-1,74%
33	NUVOCO IN Equity	570	531,7	-6,96%	-3,99%	-3,09%
34	CARTRADE IN Equity	1618	1501,05	-7,50%	-1,31%	-6,27%
35	DEVYANI IN Equity	90	123,5	31,64%	-0,76%	32,65%
36	EXXARO IN Equity	120	132,3	9,76%	-0,76%	10,60%
37	WINDLAS IN Equity	460	407,15	-12,20%	-0,76%	-11,53%
38	ROLEXRIN IN Equity	900	1167	25,98%	0,19%	25,74%
39	GLS IN Equity	• 720	748,5	3,88%	-0,73%	4,64%
40	TATVA IN Equity	1083	2312,2	75,85%	1,86%	72,63%
41	ZOMATO IN Equity	76	126	50,55%	-1,84%	53,38%
42	CLEAN IN Equity	900	1585,25	56,61%	-0,15%	56,84%
43	GRINFRA IN Equity	837	1747,1	73,59%	-0,15%	73,85%
44	IPL IN Equity	296	343,15	14,78%	1,24%	13,38%

45	KIMS IN Equity	825	996,95	18,93%	0,17%	18,73%
46	DODLA IN Equity	428	609,9	35,42%	0,17%	35,19%
47	SONACOMS IN Equity	291	361,2	21,61%	0,10%	21,49%
48	SHYAMMET IN Equity	306	376,15	20,64%	0,10%	20,52%
49	LODHA IN Equity	486	465,25	-4,36%	-0,63%	-3,76%
50	BARBEQUE IN Equity	500	587,8	16,18%	1,12%	14,89%
51	NAZARA IN Equity	1101	1592	36,88%	0,72%	35,90%
52	KALYANKJ IN Equity	87	75,2	-14,58%	-0,11%	-14,48%
53	CRAFTSMA IN Equity	1490	1435,6	-3,72%	-2,10%	-1,66%
54	LXCHEM IN Equity	130	164,45	23,51%	-2,10%	26,15%
55	ANURAS IN Equity	555	526,8	-5,21%	-1,43%	-3,84%
56	EASEMYTR IN Equity	93,5	104,23	10,86%	0,55%	10,25%
57	MTARTECH IN Equity	575	1082,5	63,27%	-0,39%	63,90%
58	HERANBA IN Equity	627	812,6	25,93%	-2,33%	28,93%
59	RAILTEL IN Equity	94	121,35	25,54%	-1,16%	27,02%
60	NURECA IN Equity	400	645,75	47,89%	2,17%	44,75%
61	STOVEKRA IN Equity	385	445,95	14,70%	0,50%	14,13%
62	INDIGOPN IN Equity	1490	3117,15	73,81%	0,53%	72,90%

mean	581,25	785,91	0,30	0,00	0,3025
median	493,00	591,00	0,23	0,00	0,25
MAX	2150,00	3117,15	1,30	0,02	1,28
MIN	60,00	75,20	-0,32	-0,06	-0,30
correlation				0,38028983	
				0,274501689	1875,41%
MASRP d					30,25%
ST DEV					0,317756192
t statistics					7,495603632
WR				1,304	

Average mean for the first listing day for 62 companies is 30%, median 23%, maximum return 130%, and minimum return -32%. Correlation of market return and IPO stock return is 0,38, standard deviation of market and IPO returns is 27,45% and standard deviation of MASRP is 31,8%. Wealth relative 1,304, which means that companies at average performed better than market index return.

Table 5: MASRP for 7th and 15th trading days

	Offer price	7-st trading day price	Price change	S&P BSE IPO Index change	MASRP	15-st trading day price	Price change	S&P BSE IPO Index change	MASRP
mean	581,25	794,61	0,32	0,01	0,31	799,70	0,32	0,02	0,30
median	493,00	619,45	0,26	0,01	0,24	609,28	0,33	0,01	0,22
MAX	2150,00	2666,25	1,33	0,07	1,22	2542,70	1,92	0,17	1,87
MIN	60,00	69,90	-0,32	-0,06	-0,31	67,15	-0,30	-0,12	-0,28
correlation				0,206528				0,096194	
				0,299669	1892,98%			0,31435	1841%
MASRP d					30,53%				29,69%
ST DEV					0,353131				0,3831
t statistics					6,807908				6,1035
WR					1,306				1,295

Average mean for the seventh and fifteenth listing days for 62 companies is 32%, median 26% and 33% relatively, maximum return 133% and 192% relatively, and minimum return -32% and -30%. Correlation of market return and IPO stock return is 0,21 and 0,097, standard deviation of market and IPO returns is 29,97% and 31,44%, and standard deviation of MASRP is 35,31% and 38,31%. Wealth relative 1,306 and 1,295, which means that companies at average performed better than market index return.

Table 6: MASRP for 30th trading day

	30-st trading day price	Price change	S&P BSE IPO Index change	MASRP
Mean	776,89	0,31	0,02	0,28
Median	637,20	0,26	0,01	0,21
MAX	2447,70	1,51	0,20	1,38
MIN	62,35	-0,48	-0,12	-0,42
correlation			0,122955	
			0,302014	1737%
MASRP d				28,02%
ST DEV				0,371449
t statistics				5,938897
WR				1,275

Average mean for the thirtieth listing day for 62 companies is 31%, median 26%, maximum return 151%, and minimum return -48%. Correlation of market return and IPO stock return is 0,123, standard deviation of market and IPO returns is 30,2% and standard deviation of MASRP is 37,15%. Wealth relative 1,275, which means that companies at average performed better than market index return.

From the analysis, there are stated that highest mean and median return on 15th trading day, maximum return also at 15th trading day. Lowest minimum return at 30th trading day. Standard

deviation is also higher at 15th trading day, wich means that investor can sold their shares after 15th traing day to earn highest return.

Figure 2: Difference in stock and market returns
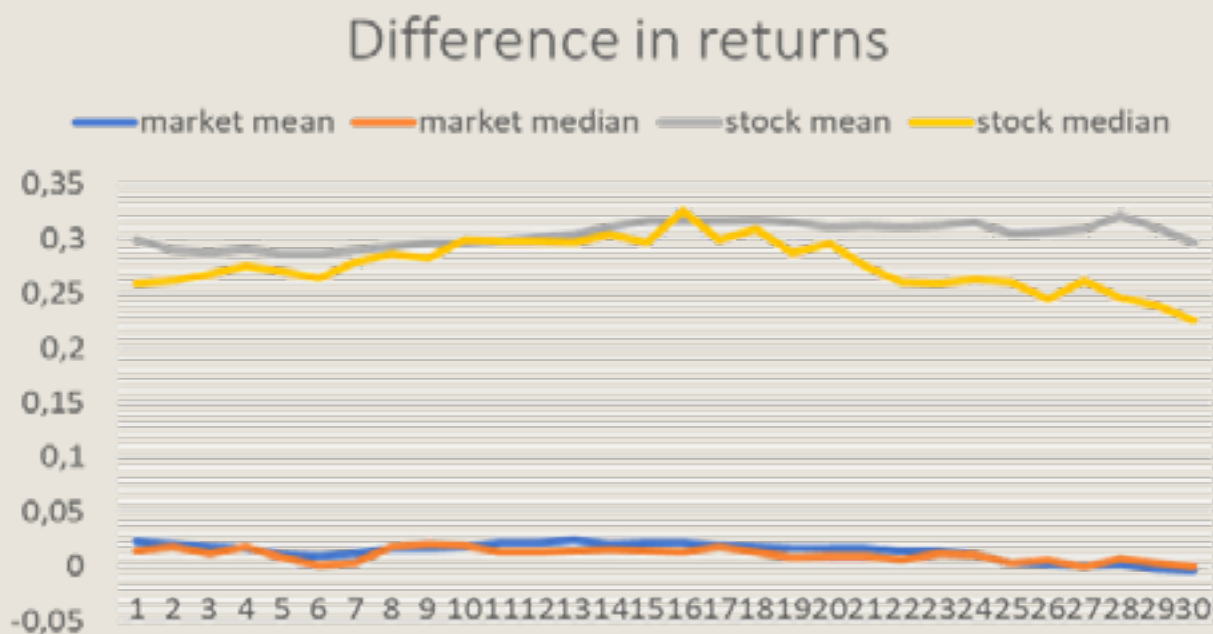
Average correlation between each IPO stock and market return – 0,36, which means that the data can be used for analysis.

Regression analysis
H2: There is significant impact of age, size, offer price and market return on the initial returns.
Regression analysis calculated through the R Studio program, where can be used multiple independent variables to analyze.
H0 = There is no association between IPOs performance and chosen variables.
H1 = There is significant association between IPOs performance and chosen variables.
Testing H2. The initial returns from the IPO are regressed on the age of the firm, the issue size, issue price, market returns. The regression model used is as follows:
$y = \beta_0 + \beta_1 *$ Oversubscription $+ \beta_2 *$ PAT $+ \beta_3 *$ IssuePrice $+ \beta_4 *$ Marketreturn $+ \beta_5 *$ Promotersholding $+ \varepsilon_i$,
where, ln is the natural logarithm which were calculated variables as Issue Price, Oversubscription, PAT, and Promotersholding, β_0 is the intercept, β_1 to β_5 are the coefficients of various independent variables and ε_i is the error term of the regression equation.

Table 7: Multiple regression H2

Call:				
lm(formula = Return ~ Oversubscription + PAT + IssuePrice + Marketreturn + Promotersholding, data = IPO)				
Residuals:				
Min	1Q	Median	3Q	Max
-0.45258	-0.16943	-0.02645	0.12739	0.78429
Coefficients:				
	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	-0.0422021	0.3264463	-0.129	0.8977

Oversubscription	0.1250832	0.0227178	5.506	1.79e-06 ***
PAT	-0.0009895	0.0368311	-0.027	0.9787
IssuePrice	-0.0144210	0.0510230	-0.283	0.7788
Marketreturn	5.7235054	2.8892223	1.981	0.0539
Promotersholding	-0.0239501	0.1320418	-0.181	0.8569
Signif. codes:	0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1		
Residual standard error: 0.2435 on 44 degrees of freedom			
Multiple R-squared: 0.4523,	Adjusted R-squared: 0.3901		
F-statistic: 7.268 on 5 and 44 DF,	p-value: 4.901e-05		

Table 8: Multicollinearity test for H2

> car::vif(model)				
Oversubscription	PAT	IssuePrice	Marketreturn	Promotersholding
1.028964	1.239541	1.245890	1.009910	1.346140

Figure 3: Diagnostic plot for multicollinearity H2
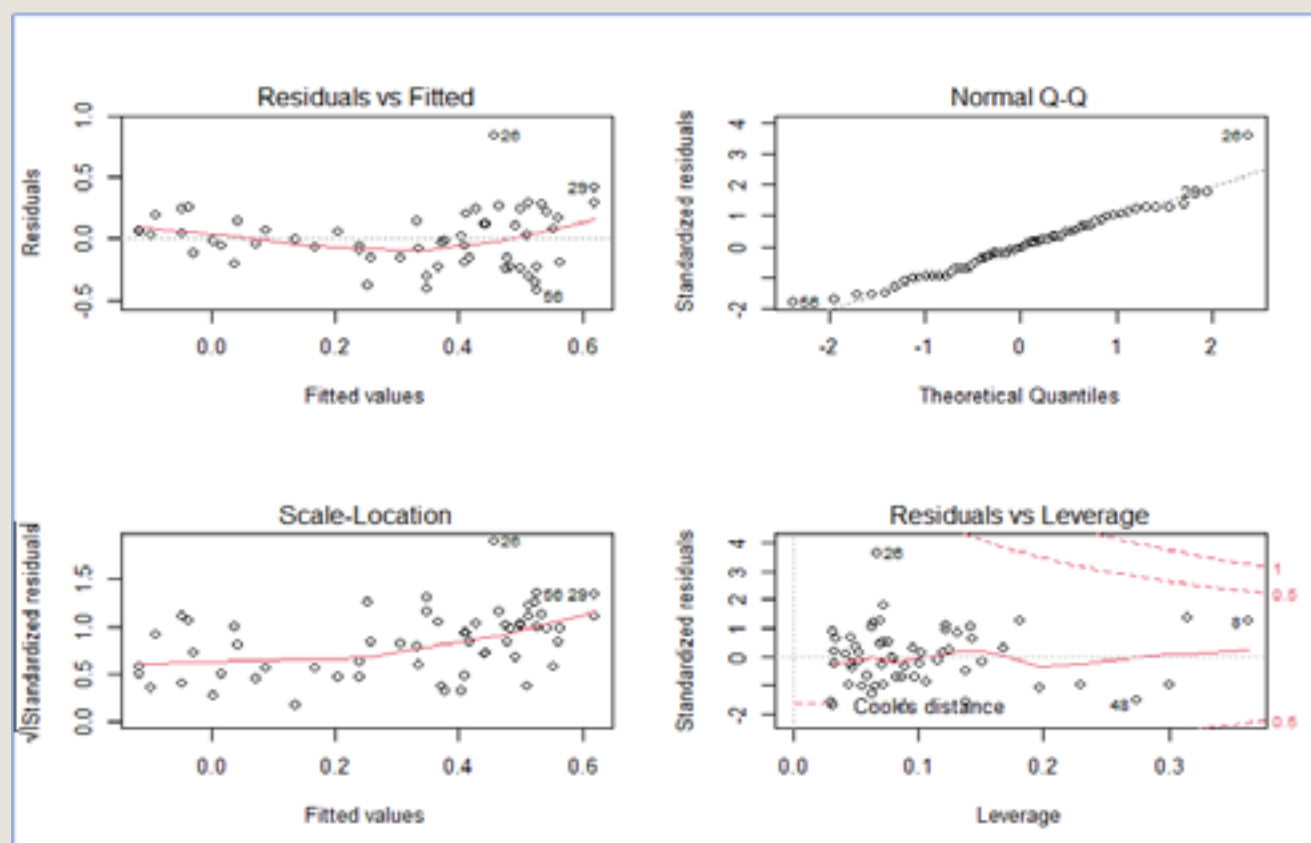
Finally, our model equation can be written as follow: Return = -0,042 + 0,125 * Oversubscription – 0,001 * PAT – 0,014 * IssuePrice + 5,724 * Marketreturn – 0,024 * Promotersholding + εi. From the probability values (Pr(>|t|)), it is observed that except Oversubscription (P =1,79e-06), all the other factors as PAT (P=0,9787), IssuePrice (P =0,7788), Marketreturn (P=0,0539) and Promotersholdings (P= 0,8569) have not influence on IPO stock returns.

For 1 unit increase in the Oversubscription causes 0.1125-unit increase in the IPO stock returns. From the multiple regression model, R-squared value is 0,4523 and Adjusted R-squared is 0,3901, we can say that

around 39,01% variations can be explained from all independent chosen variables. Multicollinearity test showed that in all variables low level of VIF, which means that there is no bias of multicollinearity.

Figure 4: Multicollinearity of variables H2
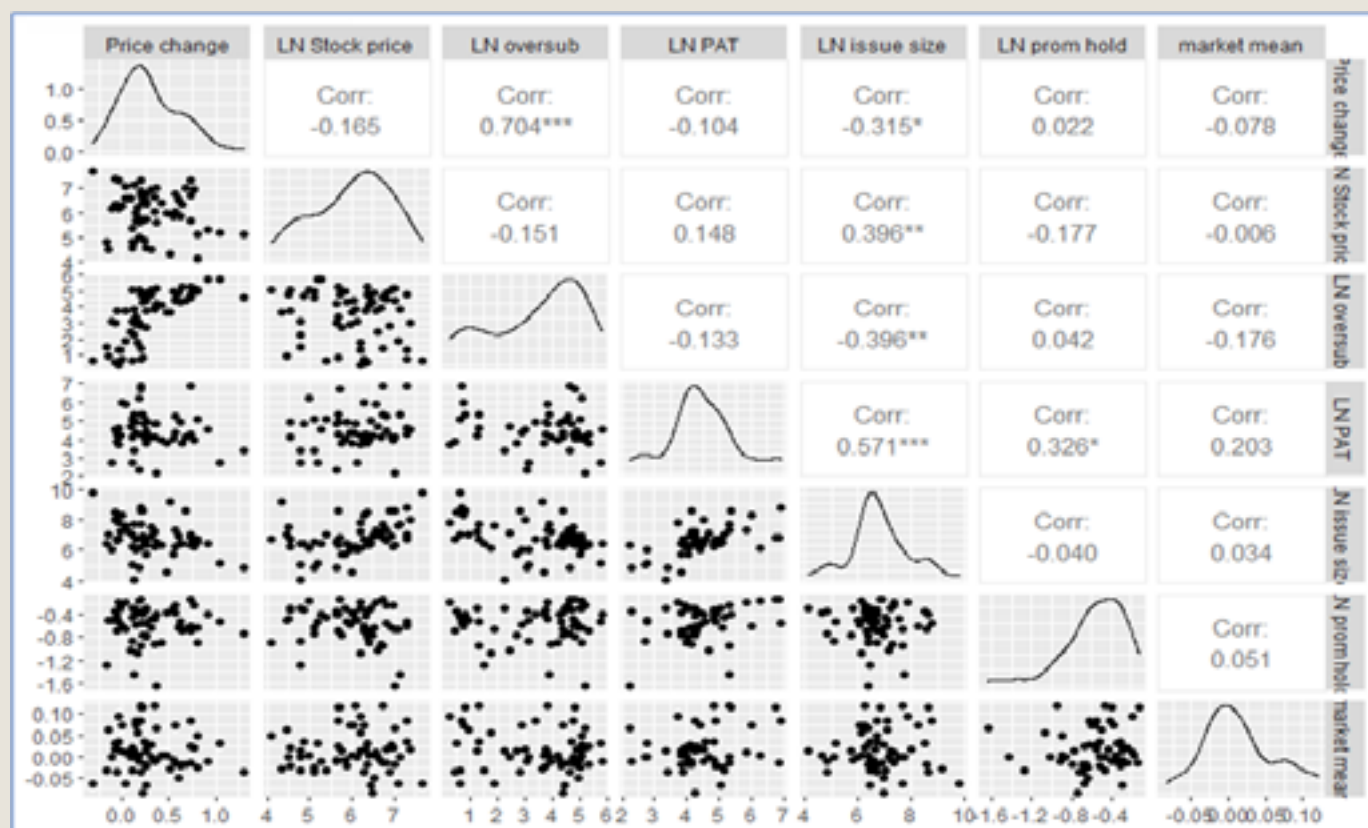
H3: There exists significant impact of various variables (NPM, ROA, EPS, Market cap and age of the firm) on the initial returns of all the selected IPOs.
H0 = There is no association between IPOs performance and chosen variables.
H1 = There is significant association between IPOs performance and chosen variables.

Table 9: Multiple regression analysis for H3

Call:			
lm(formula = Return ~ ROA + EPS + NPM + MarketCap + Age, data = IPO)			
Residuals:			
Min 1Q Median 3Q Max			
-0.59693 -0.20952 -0.02144 0.15805 1.20832			
Coefficients:			
	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept) 0.18191	0.38757	0.469	0.6406
ROA 1.32088	0.77037	1.715	0.0919 .
EPS 0.01211	0.01711	0.707	0.4822
NPM -0.24153	0.41441	-0.583	0.5623

MarketCap	0.06751	0.03884	1.738	0.0877 .
Age	-0.18530	0.07837	-2.364	0.0215 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.3378 on 56 degrees of freedom

Multiple R-squared: 0.1676, Adjusted R-squared: 0.09328

F-statistic: 2.255 on 5 and 56 DF, p-value: 0.06129

Table 10: Multicollinearity test for H3

car::vif(model)				
ROA	EPS	NPM	MarketCap	Age
3.176102	1.138184	3.173915	1.133527	1.073743

After regression analysis, multicollinearity test was done, which showed that ROA and NPM have high values. That is why NPM were eliminated from the regression analysis.

Table 11: Multiple regression analysis after multicollinearity test H3

Call:				
lm(formula = Return ~ ROA + EPS + MarketCap + Age, data = IPO)				
Residuals:				
Min	1Q	Median	3Q	Max
-0.60887	-0.19355	-0.02702	0.15664	1.18556
Coefficients:				
	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	0.21279	0.38170	0.557	0.5794
ROA	0.96286	0.46220	2.083	0.0417 *
EPS	0.01130	0.01696	0.667	0.5077
MarketCap	0.06747	0.03861	1.747	0.0860 .
Age	-0.19279	0.07686	-2.508	0.0150 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.3358 on 57 degrees of freedom

Multiple R-squared: 0.1625, Adjusted R-squared: 0.1038

F-statistic: 2.766 on 4 and 57 DF, p-value: 0.0359

Table 12: Multicollinearity test H3

> car::vif(model)			
ROA	EPS	MarketCap	Age
1.156714	1.130851	1.133523	1.044918

Figure 5: Diagnostic plot for H3
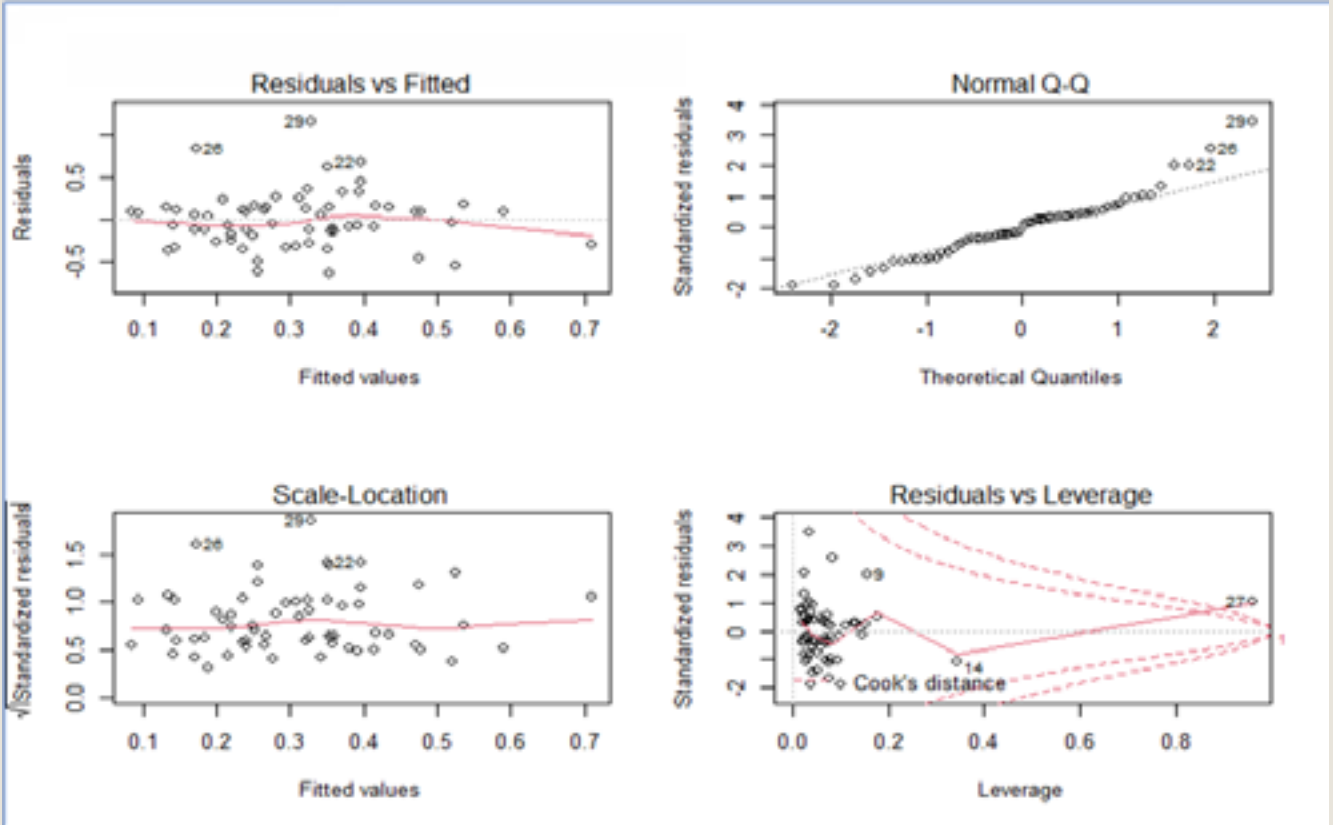
Figure 6: Multicollinearity of variables H3
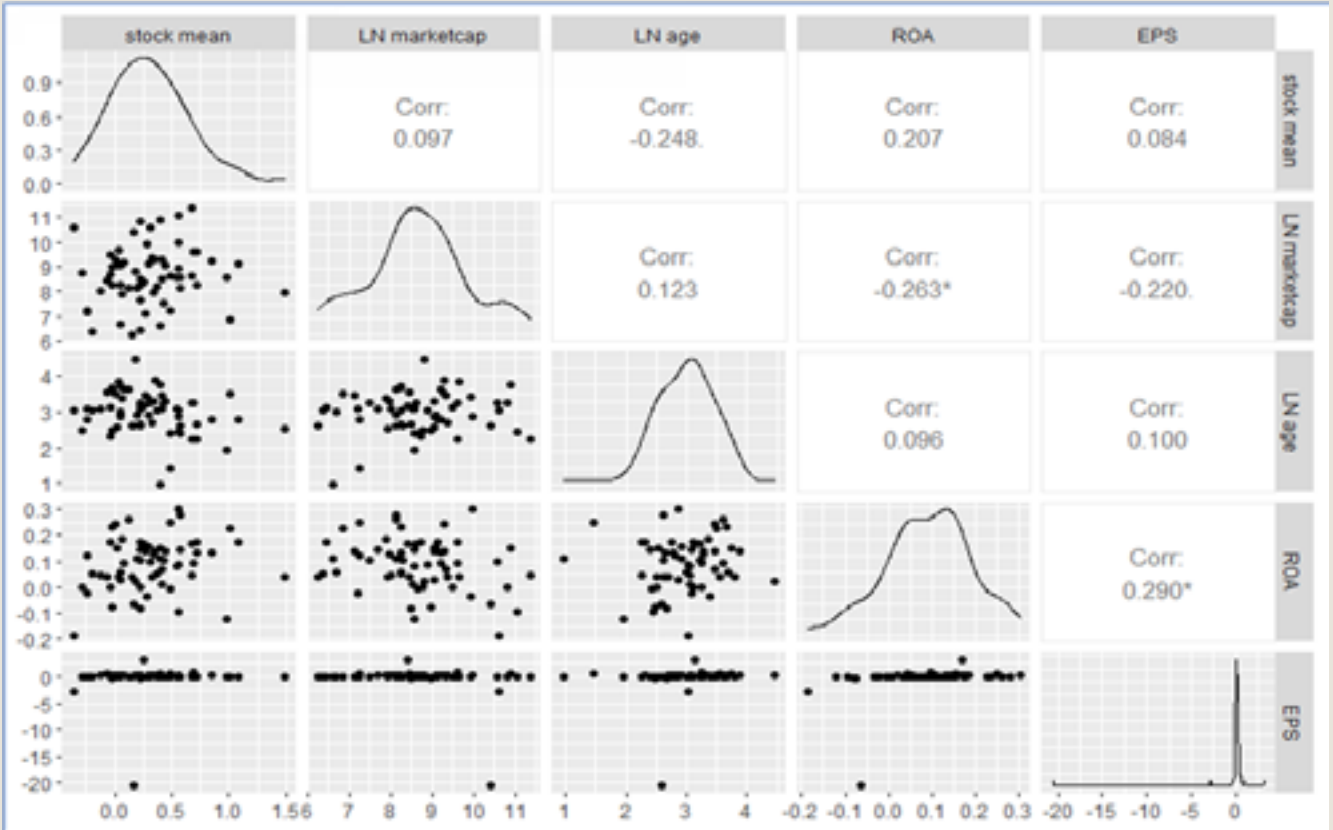
P-value (0,0359): The association is statistically significant If the p-value is less than or equal to the significance level, there is a statistically significant association between the response variable and the term. From the regression analysis there are only age (P=0,0150) in statistically significant. For 1 unit increase in age of the firm, IPO stock return decreases for 0,193, which means that there is negative relationship between variables. Other variables do not have impact on IPO stock return. Multiple R-squared for the model is 0,1625 and adjusted R-squared is only 0,1038, which is quite low value for the regression model. From other research where financial ratio variables also be used, the percentage of R-squared is similar to this research.

Our model equation can be written as follow: Return = 0.213 + 0,963*ROA + 0,011*EPS + 0,067*Marketcap – 0,193*Age.

Conclusion and recommendations

After this research investor's interest to Indian markets could increase, and they can see if stocks are profitable and perspective. Furthermore, investors will understand factors that need attention when buying new stocks. Investors can invest money at IPO, and earn gain from rising the stock price, the paper showed that 81% of sample underpriced at 1st trading day. Also, stakeholders can see which factors mostly influence to initial return. From the regression analysis only oversubscribed value and age of the firm influence to the IPO stock return. Other tested variables such as Profit after tax, issue price, market return, promoters' holdings, Return on assets, Earnings per share and market capitalization do not have impact on price return and not statistically significant. Net profit margin has multicollinearity bias between other regressed variables, that is why was removed from the regression analysis. Investor can use oversubscription factor and age of the company to analyze and predict future returns of the stock.

As recommendation for the future research, researchers may use bigger sample size to get fewer biases, because current research used 62 sample size for 2020 and 2021 IPO years. Furthermore, in this research used tested variables weren't statistically significant, which means that other financial and non-financial indicators should be used to get higher R-squared and adjusted R-squared in multiple regression analysis.

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		Offer price	LN Stock price	LN marketcap	LN age	market cap in mln INR	age	Date of incorporation	IPO date
1	ROSSARI IN Equity	425	6,0521	8,5503	2,3916	5168,42	11	10.08.2009	13.07.2020
2	HAPPSTMN IN Equity	166	5,1120	9,6181	2,2459	15034,42	9	30.03.2011	07.09.2020
3	ROUTE IN Equity	350	5,8579	9,2140	2,7933	10036,85	16	14.05.2004	09.09.2020
4	CAMS IN Equity	1240	7,1229	9,2825	3,4767	10748,74	32	25.05.1988	23.09.2020
5	CHEMCON IN Equity	340	5,8289	7,1312	3,4591	1250,39	32	15.12.1988	21.09.2020
6	LIKHITHA IN Equity	120	4,7875	6,4343	3,0985	622,82	22	06.08.1998	29.09.2020
7	MAZDOCKS IN Equity	145	4,9767	8,7955	4,4619	6604,34	87	26.02.1934	29.09.2020
8	GLAND IN Equity	1500	7,3132	10,9126	3,7535	54865,61	43	20.03.1978	09.11.2020
9	RBA IN Equity	60	4,0943	8,5883	1,9549	5368,5	7	11.11.2013	02.12.2020
10	BECTORS IN Equity	288	5,6630	7,5029	3,2296	1813,28	25	15.09.1995	15.12.2020
11	AWHCL IN Equity	315	5,7526	6,6805	2,9927	796,71	20	17.01.2001	21.12.2020
12	CMSINFO IN Equity	216	5,3753	8,2941	2,6209	4000,35	14	26.03.2008	21.12.2021
13	SUPRIYA IN Equity	274	5,6131	8,1440	2,6199	3442,65	14	26.03.2008	16.12.2021
14	HPAL IN Equity	274	5,6131	6,6215	0,9597	751,08	3	07.05.2019	15.12.2021
15	DATAPATT IN Equity	585	6,3716	8,3992	3,1401	4443,57	23	11.11.1998	14.12.2021
16	MEDPLUS IN Equity	796	6,6796	9,3829	2,7112	11883,44	15	30.11.2006	13.12.2021
17	METROBRA IN Equity	500	6,2146	9,6430	3,8049	15413,48	45	19.01.1977	10.12.2021
18	MAPMYIND IN Equity	1033	6,9402	9,0505	3,2894	8522,6	27	17.02.1995	09.12.2021
19	SHRIRAMP IN Equity	118	4,7707	7,1884	3,0779	1323,92	22	28.03.2000	08.12.2021
20	GOCOLORS IN Equity	690	6,5367	8,6348	2,4157	5624,23	11	09.09.2010	17.11.2021
21	TARSONS IN Equity	662	6,4953	8,2560	3,6478	3850,8	38	05.07.1983	15.11.2021
22	LATENTVI IN Equity	197	5,2832	9,1344	2,7640	9268,52	16	03.01.2006	10.11.2021

23	SAPPHIRE IN Equity	1180	7,0733	8,9901	2,4854	8023,2	12	10.11.2009	09.11.2021
24	PAYTM IN Equity	2150	7,6732	10,6109	3,0394	40574	21	22.12.2000	08.11.2021
25	SJS IN Equity	542	6,2953	7,2262	2,7958	1375,03	16	21.06.2005	01.11.2021
26	SIGACHI IN Equity	163	5,0938	6,8566	3,4913	950,1	33	11.01.1989	01.11.2021
27	POLICYBZ IN Equity	980	6,8876	10,4244	2,5967	33672,03	13	04.06.2008	01.11.2021
28	NYKAA IN Equity	1125	7,0255	11,3672	2,2532	86441,17	10	24.04.2012	28.10.2021
29	PARAS IN Equity	175	5,1648	7,9344	2,5075	2791,62	12	16.06.2009	21.09.2021
30	SANSERA IN Equity	744	6,6120	8,2612	3,6832	3870,74	40	15.12.1981	14.09.2021
31	AMIORG IN Equity	610	6,4135	8,2477	2,6556	3818,97	14	12.06.2007	01.09.2021
32	CHEMPLAS IN Equity	541	6,2934	9,2087	3,5955	9983,83	36	13.03.1985	10.08.2021
33	NUVOCO IN Equity	570	6,3456	9,4767	3,1142	13052,27	23	08.02.1999	09.08.2021
34	CARTRADE IN Equity	1618	7,3889	8,0210	3,0585	3044,22	21	28.04.2000	09.08.2021
35	DEVYANI IN Equity	90	4,4998	9,9169	3,3899	20269,69	30	13.12.1991	04.08.2021
36	EXXARO IN Equity	120	4,7875	6,2506	2,6099	518,33	14	02.01.2008	04.08.2021
37	WINDLAS IN Equity	460	6,1312	6,3537	3,0189	574,61	20	19.02.2001	04.08.2021
38	ROLEXRIN IN Equity	900	6,8024	8,1407	2,9159	3431,4	18	13.02.2003	28.07.2021
39	GLS IN Equity	720	6,5793	8,7177	2,3127	6109,82	10	23.06.2011	27.07.2021
40	TATVA IN Equity	1083	6,9875	8,6115	3,2232	5494,28	25	12.06.1996	16.07.2021
41	ZOMATO IN Equity	76	4,3307	11,0654	2,4418	63920,09	11	18.01.2010	14.07.2021
42	CLEAN IN Equity	900	6,8024	9,9553	2,8722	21063,75	18	07.11.2003	07.07.2021
43	GRINFRA IN Equity	837	6,7298	9,6198	3,2410	15060,28	26	22.12.1995	07.07.2021
44	IPL IN Equity	296	5,6904	8,1309	3,5987	3397,9	37	13.12.1984	23.06.2021
45	KIMS IN Equity	825	6,7154	9,3025	3,8696	10965,41	48	26.07.1973	16.06.2021
46	DODLA IN Equity	428	6,0591	7,9863	3,2622	2940,43	26	15.05.1995	16.06.2021
47	SONACOMS IN Equity	291	5,6733	10,5771	3,2445	39224,68	26	27.10.1995	14.06.2021

48	SHYAMMET IN Equity	306	5,7236	9,0956	2,9190	8916,35	19	10.12.2002	14.06.2021
49	LODHA IN Equity	486	6,1862	10,8057	3,2407	49301,44	26	25.09.1995	07.04.2021
50	BARBEQUE IN Equity	500	6,2146	8,4775	2,6710	4805,48	14	13.10.2006	24.03.2021
51	NAZARA IN Equity	1101	7,0040	8,5225	3,0581	5026,44	21	08.12.1999	17.03.2021
52	KALYANKJ IN Equity	87	4,4659	8,7803	2,4960	6504,79	12	29.01.2009	16.03.2021
53	CRAFTSMA IN Equity	1490	7,3065	8,4322	3,5462	4592,77	35	18.07.1986	15.03.2021
54	LXCHEM IN Equity	130	4,8675	9,3318	3,4612	11291,36	32	15.05.1989	15.03.2021
55	ANURAS IN Equity	555	6,3190	9,0520	2,8599	8535,87	17	30.09.2003	12.03.2021
56	EASEMYTR IN Equity	93,5	4,5380	9,0651	2,5469	8648,14	13	04.06.2008	08.03.2021
57	MTARTECH IN Equity	575	6,3544	8,5699	3,0598	5270,35	21	11.11.1999	03.03.2021
58	HERANBA IN Equity	627	6,4409	7,8706	3,3659	2619,08	29	17.03.1992	23.02.2021
59	RAILTEL IN Equity	94	4,5433	8,2304	3,0158	3753,37	20	26.09.2000	16.02.2021
60	NURECA IN Equity	400	5,9915	7,2296	1,4564	1379,72	4	02.11.2016	15.02.2021
61	STOVEKRA IN Equity	385	5,9532	7,6703	3,0724	2143,67	22	28.06.1999	25.01.2021
62	INDIGOPN IN Equity	1490	7,3065	8,9100	3,0364	7406,02	21	28.03.2000	20.01.2021

		promoters holding	LN oversub	LN PAT	LN issue size	LN prom hold	stock mean	market mean
1	ROSSARI IN Equity	68,56%	4,37412	4,384773	6,207563	-0,37746	0,571489	0,074951
2	HAPPSTMN IN Equity	53,26%	5,017147	5,090432	6,553962	-0,62998	0,720133	-0,02443
3	ROUTE IN Equity	59,82%	4,294561	4,892752	6,39693	-0,51383	0,842657	-0,02173
4	CAMS IN Equity	23,75%	3,849935	5,324424	7,716162	-1,43759	0,002373	-0,0001
5	CHEMCON IN Equity	74,47%	5,005958	4,032469	5,762051	-0,29477	0,260747	-0,00812
6	LIKHITHA IN Equity	74,11%	2,252344	3,366951	4,114147	-0,29962	0,228497	0,01445
7	MAZDOCKS IN Equity	84,83%	5,058854	6,241951	6,095126	-0,16452	0,181252	0,003998
8	GLAND IN Equity	58%	0,722706	6,904711	8,776406	-0,54473	0,397702	0,08249

9	RBA IN Equity	40,96%	5,054014		6,697034	-0,89257	0,980119	0,049148
10	BECTORS IN Equity	51,07%	5,288368	4,280547	6,292569	-0,67197	0,432346	0,023493
11	AWHCL IN Equity	46,23%	2,710713	3,807551	5,703782	-0,77154	0,054362	0,015145
12	CMSINFO IN Equity	63,38%	0,667829	5,127054	7,003065	-0,45602	0,222325	-0,03016
13	SUPRIYA IN Equity	68,24%	4,269837	4,81697	6,55108	-0,38214	0,578777	-0,00893
14	HPAL IN Equity	71,35%	3,042616	2,308567	4,835964	-0,33757	0,405344	-0,00982
15	DATAPATT IN Equity	45,62%	4,78432	4,017464	6,377101	-0,78482	0,251406	-0,01681
16	MEDPLUS IN Equity	40,43%	3,962526	4,156693	7,243012	-0,9056	0,329489	-0,01186
17	METROBRA IN Equity	74,27%	1,291984	4,222445	7,220747	-0,29746	0,039221	0,012625
18	MAPMYIND IN Equity	53,73%	5,041552	4,084799	6,946601	-0,6212	0,442342	0,029062
19	SHRIRAMP IN Equity	28%	1,526056		6,39693	-1,27297	-0,23744	-0,03019
20	GOCOLORS IN Equity	52,79%	4,908676		6,921273	-0,63885	0,489969	-0,04843
21	TARSONS IN Equity	47,31%	4,350149	4,232221	6,930954	-0,74845	-0,02604	-0,08354
22	LATENTVI IN Equity	67,21%	5,788399	4,515902	6,39693	-0,39735	1,080877	-0,00964
23	SAPPHIRE IN Equity	51,26%	1,890095		7,636873	-0,66826	-0,01939	-0,06456
24	PAYTM IN Equity	0,00%	0,636577		9,814656		-0,36172	-0,06456
25	SJS IN Equity	50,37%	0,463734	3,866398	6,684612	-0,68577	-0,2388	-0,03378
26	SIGACHI IN Equity	48,48%	4,62409	3,409827	4,831748	-0,72402	1,01537	-0,03378
27	POLICYBZ IN Equity	0,00%	2,8088		8,634976		0,165481	-0,03378
28	NYKAA IN Equity	52,43%	4,404033	4,124712	8,585211	-0,64569	0,6724	-0,01789
29	PARAS IN Equity	58,94%	5,717883	2,75557	5,140376	-0,52865	1,492567	0,02959
30	SANSERA IN Equity	36,02%	2,439735	4,682039	7,156941	-1,0211	0,044833	0,000781
31	AMIORG IN Equity	41,05%	4,167285	3,988984	6,345005	-0,89038	0,715288	0,003179
32	CHEMPLAS IN Equity	54,99%	0,774727	6,016377	8,255828	-0,59802	0,072554	0,074178
33	NUVOCO IN Equity	71,42%	0,536493		8,517193	-0,33659	-0,04061	0,030951

34	CARTRADE IN Equity	0,00%	3,010128	4,513165	8,005871		-0,125	0,016207
35	DEVYANI IN Equity	62,80%	4,759607		7,516433	-0,46522	0,283686	-0,00094
36	EXXARO IN Equity	42,07%	3,12016	2,72261	5,081963	-0,86584	0,153801	-0,00094
37	WINDLAS IN Equity	59,95%	3,110845	2,761907	5,995307	-0,51166	-0,20045	-0,00094
38	ROLEXRIN IN Equity	57,64%	4,870913	4,465448	6,594413	-0,55095	0,196517	0,018482
39	GLS IN Equity	82,85%	3,788046	5,862437	7,322246	-0,18814	-0,03082	0,010364
40	TATVA IN Equity	79,17%	5,194955	3,956231	6,214608	-0,23357	0,676263	0,021973
41	ZOMATO IN Equity	0,00%	3,644144		9,145802		0,563817	-0,02884
42	CLEAN IN Equity	78,51%	4,536998	5,290184	7,343827	-0,24194	0,562678	-0,01569
43	GRINFRA IN Equity	86,54%	4,630643	6,861533	6,870344	-0,14456	0,684243	-0,01569
44	IPL IN Equity	66,56%	3,368674	4,901639	6,684612	-0,40707	0,124086	0,083799
45	KIMS IN Equity	38,84%	1,350667	5,304399	7,670307	-0,94572	0,348699	0,119908
46	DODLA IN Equity	62,54%	3,820346	4,836044	6,254175	-0,46936	0,336038	0,119908
47	SONACOMS IN Equity	67,18%	0,824175	5,371428	8,621553	-0,39779	0,315065	0,113969
48	SHYAMMET IN Equity	88,35%	4,799338	6,737394	6,812345	-0,12386	0,291845	0,113969
49	LODHA IN Equity	82,22%	0,307485	3,692871	7,824046	-0,19577	0,225426	0,095289
50	BARBEQUE IN Equity	34,45%	1,788421		6,115605	-1,06566	0,220477	0,054436
51	NAZARA IN Equity	19,32%	5,167411	2,223542	6,368033	-1,64403	0,415496	0,067673
52	KALYANKJ IN Equity	60,54%	0,95935		7,069023	-0,50187	-0,28559	0,061914
53	CRAFTSMA IN Equity	59,76%	1,34025	4,576668	6,713806	-0,51483	-0,07133	0,03594
54	LXCHEM IN Equity	72,92%	4,671052	4,844423	6,39693	-0,31581	0,407492	0,03594
55	ANURAS IN Equity	65,18%	3,785552	4,252772	6,633318	-0,42802	0,047055	0,016916
56	EASEMYTR IN Equity	74,90%	5,070978	4,111038	6,234411	-0,28902	0,015963	0,021025
57	MTARTECH IN Equity	50,26%	5,30226	3,830162	6,390928	-0,68796	0,541672	-0,0181
58	HERANBA IN Equity	74,77%	4,422328	5,038445	6,438136	-0,29075	0,058956	-0,06556

59	RAILTEL IN Equity	72,84%	3,746912	4,958991	6,708377	-0,3169	0,368595	-0,02029
60	NURECA IN Equity	70,00%	3,687128	3,836653	4,60517	-0,35667	0,478793	0,002941
61	STOVEKRA IN Equity	56,38%	2,892037	4,399989	6,022551	-0,57306	0,223046	0,074997
62	INDIGOPN IN Equity	54,00%	4,762345	4,260565	7,069874	-0,61619	0,558807	0,085049

		ROA	NPM	EPS	change in ROA	change in NPM	change in EPS
1	ROSSARI IN Equity	14,29%	1,30%	5,56%	3,3%	-88,0%	-58,6%
2	HAPPSTMN IN Equity	17,62%	21,00%	11,75%	24,9%	104,5%	66,9%
3	ROUTE IN Equity	13,04%	9,48%	24,76%	18,2%	31,1%	79,0%
4	CAMS IN Equity	24,38%	29,09%	42,08%	14,0%	18,5%	19,4%
5	CHEMCON IN Equity	13,97%	23,16%	16,48%	-35,4%	24,2%	7,2%
6	LIKHITHA IN Equity	17,17%	15,20%	17,05%	-12,9%	23,4%	25,5%
7	MAZDOCKS IN Equity	2,04%	12,69%	25,48%	-8,9%	32,3%	20,9%
8	GLAND IN Equity	15,34%	28,79%	63,07%			
9	RBA IN Equity	-12,17%	-35,17%	-5,47%	90,5%	286,5%	90,6%
10	BECTORS IN Equity	10,61%	8,20%	12,53%			
11	AWHCL IN Equity	5,68%	9,68%	17,14%	42,4%	59,5%	-3,6%
12	CMSINFO IN Equity	10,45%	12,90%	11,39%	3,5%	32,6%	25,2%
13	SUPRIYA IN Equity	27,74%	32,07%	16,89%	28,9%	38,5%	-65,7%
14	HPAL IN Equity	11,20%	8,51%	7,74%			
15	DATAPATT IN Equity	16,90%	24,80%	327,00%	137,0%	83,7%	163,7%
16	MEDPLUS IN Equity	4,07%	2,08%	30,64%	2443,8%	2871,4%	2818,1%
17	METROBRA IN Equity	4,11%	8,52%	2,43%			
18	MAPMYIND IN Equity	13,92%	38,98%	11,30%	114,8%	149,9%	156,2%
19	SHRIRAMP IN Equity	-2,06%	-15,82%	-4,60%	-17,9%	5,1%	-20,7%
20	GOCOLORS IN Equity	-0,64%	-1,41%	-0,68%	-106,3%	-110,5%	-106,7%
21	TARSONS IN Equity	23,27%	30,08%	13,43%			
22	LATENTVI IN Equity	17,61%	29,90%	5,35%	-3,8%	27,4%	25,0%
23	SAPPHIRE IN Equity	-7,71%	-12,01%	-18,70%	-29,8%	-4,5%	-32,4%
24	PAYTM IN Equity	-18,53%	-60,52%	-281,16%	-32,8%	-30,1%	-42,3%
25	SJS IN Equity	12,45%	18,98%	15,69%	0,2%	-0,6%	15,7%
26	SIGACHI IN Equity	22,68%	15,69%	13,13%	21,9%	7,5%	49,0%
27	POLICYBZ IN Equity	-6,44%	-16,94%	-2056,23%	-66,6%	-57,0%	-52,6%
28	NYKAA IN Equity	4,75%	2,53%	1,39%	-423,1%	-372,0%	-456,4%
29	PARAS IN Equity	4,33%	10,97%	5,55%	-24,6%	-17,9%	-19,8%
30	SANSERA IN Equity	5,59%	6,97%	21,02%	27,3%	26,5%	34,5%
31	AMIORG IN Equity	13,06%	15,85%	17,14%	10,3%	38,3%	96,6%

32	CHEMPLAS IN Equity	9,14%	10,79%	30,59%			
33	NUVOCO IN Equity	-0,13%	-0,34%	-0,82%	-107,0%	-109,3%	-108,0%
34	CARTRADE IN Equity	4,72%	36,52%	22,06%	265,9%	480,6%	-74,0%
35	DEVYANI IN Equity	-3,30%	-4,86%	-0,55%	-48,8%	-39,4%	-95,2%
36	EXXARO IN Equity	4,12%	5,96%	4,54%	42,1%	27,6%	35,1%
37	WINDLAS IN Equity	5,34%	3,70%	8,70%	11,7%	-24,9%	-2,2%
38	ROLEXRIN IN Equity	10,91%	14,10%	36,26%	41,5%	77,6%	64,2%
39	GLS IN Equity	17,60%	18,64%	32,61%	-3,0%	-8,4%	-98,0%
40	TATVA IN Equity	16,60%	17,39%	26,02%	9,4%	21,2%	38,3%
41	ZOMATO IN Equity	-9,33%	-40,76%	-1,51%	-88,6%	-55,1%	-72,1%
42	CLEAN IN Equity	30,06%	38,71%	18,68%	-7,5%	16,2%	42,1%
43	GRINFRA IN Equity	9,43%	12,17%	98,48%	-3,6%	1,8%	25,3%
44	IPL IN Equity	26,01%	20,72%	12,07%			
45	KIMS IN Equity	14,01%	15,12%	26,87%	40,7%	42,5%	67,9%
46	DODLA IN Equity	12,95%	6,47%	22,48%	107,9%	177,7%	150,9%
47	SONACOMS IN Equity	9,89%	13,73%	3,76%	-49,2%	-60,4%	-46,7%
48	SHYAMMET IN Equity	15,56%	13,39%	36,10%	131,5%	72,3%	147,9%
49	LODHA IN Equity	0,10%	0,73%	1,01%	-94,4%	-87,6%	-94,5%
50	BARBEQUE IN Equity	-7,95%	-17,84%	-31,14%	134,5%	367,0%	164,6%
51	NAZARA IN Equity	0,90%	2,03%	3,20%	1400,0%	915,0%	1677,8%
52	KALYANKJ IN Equity	-0,07%	-0,07%	-0,07%	-104,0%	-105,0%	-104,1%
53	CRAFTSMA IN Equity	4,13%	6,23%	48,32%	138,7%	132,5%	143,1%
54	LXCHEM IN Equity	6,91%	7,18%	5,59%	5,5%	57,5%	95,5%
55	ANURAS IN Equity	3,05%	8,66%	8,56%	-4,4%	-13,9%	-19,5%
56	EASEMYTR IN Equity	15,34%	57,17%	5,62%			
57	MTARTECH IN Equity	7,85%	18,69%	16,99%			
58	HERANBA IN Equity	18,28%	12,65%	39,41%	16,9%	23,2%	57,5%
59	RAILTEL IN Equity	5,25%	10,33%	4,44%	-10,7%	-17,4%	0,9%
60	NURECA IN Equity	24,96%	21,72%	62,04%			
61	STOVEKRA IN Equity	14,29%	9,48%	26,70%			
62	INDIGOPN IN Equity	8,73%	9,79%	15,55%	-22,9%	28,0%	-5,8%

The Long-Run Performance of Initial Public Offerings: South Korea Case.

Abilkaiyr Turpanov

Abstract

In this research, we empirically investigated South Korean initial public offerings (IPOs) to provide one case of international evidence on the long-run performance of IPOs. Our sample consists of 92 companies listed on the Korea Exchange (KOSDAQ) during the period 2015-2016. Unlike previous international evidence, our results reveal that the Korean IPOs outperform seasoned firms with similar characteristics. The results show that the three-year buy-and-hold abnormal returns (BHAR) value is 28.3%. Out of 92 companies – 59 or 64% were overperformed in the market, while 33 or 36% were underperformed. Thus, we can conclude about the overall overperformance trend. The firm's size and financial leverage variables are significant at the 5% level. Our results suggest that the divergence of opinion hypothesis (on the whole) does not apply to the case of Korean IPOs, however, one sub-hypothesis (Size) is accepted. Based on the multiple regression model, firms with huge sizes and low financiaal leverage seem to experience greater long-run overperformance on average.

Introduction

Actually, in simple words IPO (Initial Public Offering) is the "initial public offering" of a company's shares on the stock exchange. Most often, a company places shares to raise funding. The opportunity of capital raise is allowed by public share issuance to a company by public investors. The time of transition from a private to a public company can prove extremely crucial for private investors to completely materialize gains from their investment (Fernando 2021). This, generally, presents share premiums for current private investors. In the meantime, it also enables the public investors to engage and take a part in the offering.

Lee, referring to IPOs, write: "From the researcher's point of view, IPOs are important as they represent an opportunity to observe strategic choices related to valuation and disclosure" (Lee 2003, p. 1). As a matter of fact, the research on IPOs is extensive which certainly unveiled that the performance and pricing of IPOs are identified by various apparent anomalies. Above all, it is associated with long-term performance. Specifically, in the first years, the performance is frequently poor by IPOs regardless of the remarkable raise in price during initial trading.

Anomalies associated with IPOs have not yet been fully explored. And it is very interesting, why especially in the long run there is an underperformance trend. There are many hypotheses that answer why this phenomenon happens, however sometimes hypotheses are confirmed, sometimes not. There are opinions and calculations that in developed countries there is a presence of long-term underperformance of Initial Public Offerings. Also, there are not many research papers on emerging markets. It can be due to undeveloped markets in some countries or strong government regulation and etc. For example, South Korea became a developed country in the 2000s. However, there are very few studies on the "long-term underperformance" subject and they are done in the 1990s. For example, research conducted in 1995 by Kim et al., where IPO firms showed long-term "outperformance" instead of "underperformance". However, the time has changed and now it is possible to do new and additional research on the case of South Korea.

Korea Exchange (KRX). According to PricewaterhouseCoopers Report (2017): "In 1956, the Korean stock market opened with the start of Korea Stock Exchange. In January 2005, through the integration of the Korea Stock Exchange and two other domestic markets, the Korea Exchange (KRX) was created. There are four markets in the KRX; Main Board (KOSPI Market), KOSDAQ (Korea Securities Dealers Automated Quotation), KONEX (Korea new exchange) and the derivatives market. The KRX is one of the most liquid stock exchanges. Numerous companies from various industries completed their IPOs successfully on KRX. In 2021, the KRX listed 2,448 companies with a combined market capitalization of $2.6 trillion. Normal trading sessions look the same as those of other major stock markets around the world. Trading opens at 9:00 a.m. and closes at 3:30 p.m. The market is open every day of the week except Saturday, Sunday, and holidays."

(PricewaterhouseCoopers Report 2017, p. 1).

The purpose of the study is to examine whether the long-term IPO underperformance evidenced in the US, UK and other developed markets also can be applied to the South Korean IPOs.

We have stated several tasks to achieve this purpose:

1. conduct a literature review on the concept of the long-run IPO performance;

2. develop a research methodology for empirical research;

3. collect data and analyze descriptive statistics;

4. systematize the results of empirical research

The object of the study is IPOs in South Korea during 2015-2016.

The subject of the study is long-run IPO performance in South Korea during 2015-2016.

Methodology of the study. In this research, we used the event-time approach (BHAR) in order to measure long-run performance. The study is based on testing divergence of opinion hypothesis in terms of assessing the relationship between stock returns and the age of the firm, the issue size, the industry of the IPO and the financial strength of the firm. Thus, obtained results are just confirmation of the existing findings, which were tested based on the developed markets. We also used correlation analysis and regression modelling to evaluate the significance of the influence of several key factors on BHAR in South Korea.

Hypotheses of the study. We formulated five hypotheses for the study:

1. The long-run performance of IPOs is a positive function of the age of the issuing company in South Korea.

2. The long-run performance of IPOs is a positive function of issuing the size of the company in South Korea.

3. The long-run performance of IPOs is dependent on the financial strength of the company in South Korea.

4. The long-run performance is negatively related to the financial leverage of the companies in South Korea.

5. The long-run performance is positively related to the ROA of the companies.

The study consists of an introduction, a literature review, research methodology, results of the empirical part and conclusion.

Literature Review

Initially, to test the concept of the long-run underperformance, many researchers did their analysis of the United States stock markets. And then, they focused on other markets of different countries: primarily developed countries such as the United Kingdom, Germany, Japan, Spain and others. In general, most of the studies that had been done conclude that this phenomenon of the long-run underperformance appears in almost many cases. Still, of course, there are exceptions, but there are also some nuances there. Nonetheless, it is important to note that the amplitude and scope of the underperformance are contrasted among each stock market and country. Agathee et al. write: "Based on the overreaction hypothesis, it is often argued that the initial underpricing of IPOs is affected positively by ex-ante uncertainty and that a greater degree of underpricing will be followed by worse long-run aftermarket performance" (Agathee et al. 2014, p. 3). Buyers are highly positive about the securing IPOs at first, which then, "inflation" occurs and prices become very high. Nonetheless, at the stage where the information is vast, IPOs will eventually arrive at their fair values. It may occur that the short-run underpricing of equities is followed by long-run underperformance.

In general, Ritter (1991) did one of the first notable studies that set out to measure the performance contingent on stock returns. The matching of issuing firms in the (1975-1984) period was pursued in this study on the basis of industry, indices and size. The study conducted by Ritter (1991) showed the underperformance of IPOs. It suggested that the underperformance stretches beyond trading's first year. A trial was held having 1,526 IPOs samples through 1975-1984 underperformed same size & industry firms matching the percentage of 29% by the third-year anniversary of their public listing. The calculation of the returns was carried out by employing a cumulative average balanced with monthly rebalancing along with buy-and-hold returns over three years. It has been discovered that in the three years subsequent to making the way to becoming public, issuing firms considerably underperformed. It is explained

by Ritter (1991) as the over-optimism of the investors while considering the prospects of firms that issued equity for the first time, and firms availing these "window of opportunities".

However, as already mentioned, the underperformance of IPOs is not confined to the US. According to Miller (2000) on the European studies: "It was discovered by Uhlir (1988) that underperformance matched 7.4% after one year of German issues from 1977-1987. 93 Australian IPOs that were issued from 1966-1978 were studied by Finn & Higham (1988)" (Miller 2000, p. 3). They determined the earnings to be 6.5% below the indices if buying was made at the end of the month of listing and held to the end of the first year. However, the loss was not statistically notable. The long-run performance of a sample having 712 UK IPOs was surveyed by Levis (1993) in the UK that was issued during 1980-1988 (Levis 1993). Divergence of opinion and overreaction hypotheses are tested. Contingent on the chosen benchmark, Levis (1993) described the variation of underperformance between 8.3% and 23%. Also, Aggarwal et al. (1993) described three-year market-adjusted returns of minus 47%, minus 20% and minus 24% for Brazil, Mexico and Chile, respectively.

Mixed findings are discovered on Asian market IPOs concerning long-term performance. It was found that IPOs surpass the stock market average in the long run. For, example, there was a quite outdated study on the long-run performance of IPOs in South Korea made by Kim in 1995. The finding is compatible with the superior average ex-post-financial performance of IPOs. Results can be related to the fact that there was some government intervention and regulation. The authors explain that fact. Also, the long-run performance was reported positive for Malaysia. For example, Cao and Wen write: "While developed countries report a persistent result of long-run underperformance, emerging countries have mixed results. Dawson (1987) examines the 1-year market-adjusted return for IPOs in Hong Kong, Singapore, and Malaysia during 1978-1984. While the underperformance in Hong Kong and Singapore is insignificant, Malaysia's IPOs over-perform significantly by 18.2%. The same result of Malaysian IPOs with high long-term returns up to three-year after listing is reported in Jelic et al. (2001). Kim et al. (1995) studied 169 IPOs listed on KSE

during 1985–1989, and revealed that the Korean IPOs outperform seasoned firms with similar characteristics in the first month, quite not statistically different from seasoned firms in the long-run" (Cao and Wen (2013), p. 2). As we can see, these studies are informative but outdated. In Korea, 1995 study divergence of opinion and overreaction hypotheses did not confirm.

In the case of India, Bhatia and Singh (2010) analysed the "long-run performance" of 438 IPOs offered during 1992-2001. Bhatia and Singh write: "The cumulative adjusted abnormal returns (excluding initial returns) of Indian IPOs experienced a decline as evidenced in the literature, however, negative returns do not surface before the fifteenth month and after the thirtieth month such negative returns disappear. The CARs follow an increasing trend from the thirty-first month till the sixtieth month. The CARs at the end of the fifth year is 184.64%" Bhatia and Singh (2010), p. 12. Also, Cao and Wen (2013) discovered the performance of 121 IPOs listed on the Taiwan Stock Exchange between 2005 and 2007. They found severe underperformance (3-5 years after the issue). In one more recent study that had done by Jewartowski and Lizińska (2012) on the performance of Polish Initial Public Offerings between 1998 and 2008 on the Warsaw Stock Exchange, researchers noted: "significant long-term underperformance" with a mean of minus 23% for the three-year buy-and-hold strategy. The divergence of opinion hypotheses is confirmed. Jewartowski and Lizińska write: "Our study documents some determinants of IPO short- and long-run returns that are consistent with the divergence of opinion hypothesis (Miller 1977)." (Jewartowski and Lizińska 2012, p. 60).

Actually, there are three main hypotheses on the long-run underperformance issue that are mainly tested: divergence of opinion hypothesis, impresario/overreaction hypothesis and windows of opportunity hypothesis. Many clarifications have been given along with models in support of long-term underperformance. But the most well-liked justification for these settles with the overreaction hypothesis which argues that the IPOs' initial returns are influenced by the before the event uncertainties and that higher initial returns will be trailed by off-putting aftermarket execution. This also shows that at first purchasers are very hopeful about

the acquisition of IPOs but with the abundance of information at a later stage these IPOs will eventually reach their fair values, and it might happen that the initial short-run returns of equities are accompanied are paired with long-run underperformance. Shiller (1990) built up the impresario theory to anticipate that the IPO market is dependent upon some "crazes-fads" and that speculation financiers, going about as "producers", would just undervalue the "work" since they need to pull in financial backers for new issues. This outcome depends on the understanding that there is a data deviation among financial backers and guarantors and that all things considered, speculation investors go about as delegates to guarantee the nature of the issue. This intentional undervaluing makes the presence of an overabundance of interest to make it an occasion, setting off financial backers' positive thinking and eruption towards the stock. Specifically, Shiller (1990) accepts that there are "trends" in the protection markets, steady with the famous clarification of the overreaction hypothesis announced by De Bondt and Thaler (1987). As time passes by, data is revealed to such an extent that organizations with high introductory returns thusly procure low returns. It is interesting to note that Agathee et al. write: "As such, the impresario hypothesis and the overreaction hypothesis both predict that the degree of underperformance of IPOs would be positively related to the degree of the underpricing and negatively related to the ex-ante financial strength of an IPO" (Agathee et al.2014, p. 13).

In addition to that, Miller (1977) has suggested the "Divergence of Opinion" hypothesis in which the long-term performance is identified with a variety of opinions like the costs would change downwards in the long run with the boost in information flow along with a cutback on opinions and suggestions. Be that as it may, the dissimilarity of assessment will be more noteworthy when the ex-ante vulnerability in regard to the IPO is higher. Taking all points into consideration, the "divergence of opinion hypothesis" predicts a negative connection between ex-ante uncertainty and aftermarket performance. Furthermore, various investigations have also advocated by giving reasons that managers or administrators exploit the investors' good faith. Ritter writes: "If high volume periods are associated with poor long-run performance, this would indicate that issuers are successfully timing new issues to take advantage of windows of opportunity" (Ritter 1991, p. 4).

Simultaneously a reason given for the underperformance of IPOs is that there is an inclination for firms to attempt to seem appealing prior to opening up to the world. Teoh et al. (1998) contend that organizations will attempt "aggressive earnings management" exercises to build investors' good faith in the IPO year. So, IPOs will window dress their bookkeeping numbers with the end goal that financial bankers are excessively hopeful about their stocks. With this impact, Jain and Kini (1994) guarantee that it will bring about pre-IPO performance being exaggerated and post-IPO performance being downplayed (Jain and Kini 1994).

To evaluate the long-run IPO performance, researchers use different approaches. The calculation of buy-and-hold abnormal return (BHAR) is the most common approach. A fairly large number of studies based on this method are devoted to developed capital markets. For example, Fathi and Simonsson (2018) conducted an analysis of long-run IPO performance for Swedish companies based on BHAR. Merikas et al. (2010) conducted a similar analysis for the USA. Fotiadou (2015) assessed the factors that affect BHAR for companies in the UK.

Although a large number of studies are devoted to developed markets, there are studies that have evaluated long-run IPO performance based on BHAR for emerging markets. Agathee, et al. (2014) analyzed long-run IPO performance for companies in Mauritius. Arora N. and Singh B. (2020) conducted such an analysis for Indian companies. Jamaani and Alidarous (2021) studied the specifics of long-run IPO performance for companies in Saudi Arabia.

Researchers also use other methods to evaluate long-run IPO performance. In particular, Kuantan et al. (2019) calculated cumulative abnormal returns (CAR) to identify underperformed and overperformed companies. This method is usually used to analyze the reaction of the stock market to news (event study). This method is also applicable to the evaluation of long-run IPO performance. However, BHAR is more relevant because this method is focused on analyzing the long-term

effects of an IPO, while CAR is more relevant for analyzing short-term effects. Singh and Jain (2018) used a modified cumulative market-adjusted return method to analyze the long-run IPO performance. This method is also more relevant for the analysis of short and medium-term IPO performance.

Thus, based on previous research findings, it can be concluded that less research has been made to discover the relationship between stock returns and the long-run IPO performance in the South Korean market and the existing studies are outdated.

Research Methodology

Hypotheses development

The methodology will be generally conducted according to Agathee, et al. (2014) research. It will be tested 4 hypotheses on the divergence of opinion hypothesis. Divergence of opinion hypothesis: actually, there are a lot of investors that are very optimistic, when an IPO is in the beginning stage. Also, in the initial stage of IPO, there is a high level of uncertainty and scarcity of information, however, optimistic investors will overestimate IPOs. Nevertheless, after some time, information becomes more and more and there are more pessimists, thus the price corrects and falls. As such, the hypothesis predicts that if it is high ex-ante uncertainty, then the aftermarket performance will down. For instance, a young, small company with short operating history, low sales and low capitalization in the high-tech industry probably will have huge underperformance. Four variables for ex-ante uncertainty are used to test this relationship. These are the age of the firm, the issue size, the industry of the IPO and the financial strength of the firm.

An explanation of why these variables have been chosen. According to Miller (2000), when "divergence of opinion" lowers, the price of the stock also lowers. It is a direct dependency. Obviously, when a firm is new, there is also a lot of uncertainty around its future. It usually happens that there are more optimists than pessimists, and as a result, optimistic speculators dictate (influence) the pricing of stocks. Miller writes: "As a result, the divergence of opinion will be greater for an initial public offering than for the typical seasoned stock. The effect of this greater divergence of opinion is

to raise the stock price and lower the return. In addition, as the company develops an operating history, it becomes easier to forecast its future earnings and dividends. The divergence of opinion shrinks. This lowers the price relative to well-seasoned stocks given the same mean valuations by investors" (Miller 2000, p. 7). It is obvious that the more speculative our security if we look in the framework of our "divergence of opinion" theory, the worse our long-run performance will be in the future. Miller (1977) claimed that uncertainty and risk are correlated with "divergence of opinion", so the "divergence of opinion" itself can be measured by the uncertainty about the returns from security. However, we do have no measure of uncertainty. Miller writes: "Since there are no direct measures of uncertainty about the value at the time of the initial offering, it is necessary to find variables that proxy for the degree of initial uncertainty" (Miller 2000, p. 9-10). Size, firm age, industry and financial strength are some of the surrogates of uncertainty, that could shed light on the issue.

Size and underperformance. Small companies (low market value, small sales, small investments) will be the most speculative ones, the ones with the greatest "divergence of opinion", and the ones expected to underperform the most.

Firm age. The age of the company can be used as one of the proxies too. Actually, new young firms are the most uncertain and risky. However, many investors believe that these start-ups will achieve success in future. However, according to Ritter (1991), mature companies outperform new start-ups.

Industry. According to Miller (2000), usually, all industries have the same "low performance" trend, except for three special groups: financial institutions, insurance and restaurant chains.

Financial strength. As was already mentioned, there is a negative relationship between ex-ante uncertainty and aftermarket performance. Agathee et al. write: "To this effect, companies with lower ex-ante financial strength are associated with higher ex-ante uncertainty and as such, should experience greater underperformance." (Agathee et al. 2014, p. 22). In order to know the financial strength of companies, Altman Z-scores will be calculated. According to Investopedia: "The Altman Z-score

is the output of a credit-strength test that gauges a publicly traded manufacturing company's likelihood of bankruptcy. The formula takes into account profitability, leverage, liquidity, solvency, and activity ratios." (Investopedia 2021). Therefore, this indicator comprehensively assesses the financial position of the company.

Based on these arguments, the following hypotheses are considered:

Hypothesis 1 (H1): The long-run performance of IPOs is a positive function of the age of the issuing company in South Korea.

Hypothesis 2 (H2): The long-run performance of IPOs is a positive function of issuing size of the company in South Korea.

Hypothesis 3 (H3): The long-run performance of IPOs is dependent on the financial strength of the company in South Korea.

We will also analyze several other important factors that can have a significant impact on long-run IPO performance.

Financial risks can have a significant impact on long-run IPO performance. Kumar and Sahoo (2021) proved that risk exposure is a significant factor that affects long-run IPO performance. Companies that use a riskier financial strategy perform worse on average. Investors perceive such companies as insufficiently reliable. On the other hand, higher risk must be offset by higher returns, so the financial risk can have a positive impact on long-run IPO performance. To analyze financial risk, we will use financial leverage. Financial leverage is calculated as the ratio of debt to equity of the company. The higher the financial leverage, the more aggressive the financial policy pursued by the company. Financial leverage is used as an independent variable for the analysis of long-run performance. In particular, Aslam and Ullah (2017) revealed a negative and significant impact of financial leverage on long-run IPO performance. We also assume that financial leverage will have a negative impact on long-run IPO performance. We have identified the following hypothesis:

Hypothesis 4 (H4): The long-run performance is negatively related to the financial leverage of the companies in South Korea.

Business performance can also be an important factor. Companies that have efficient business processes, on average, have higher profitability.

Companies that have more profitable and efficient businesses have, on average, more successful long-run IPO performance, according to an empirical study by Singh and Jain (2018). The researchers built a regression model and proved that ROA, which was used as a proxy for business performance, had a statistically significant impact on long-run IPO performance. However, some studies refute this conclusion. Mutai (2020) also conducted an empirical study and showed that ROA and ROE are not reliable predictors of long-run IPO performance. ROA before the IPO is quite different from ROA after the IPO. Therefore, the author recommends that investors do not focus on ROA as an important indicator when deciding whether to invest in a company during an IPO. Consequently, there are different approaches to understanding the effect of ROA on long-run IPO performance. We will test this hypothesis using regression analysis:

Hypothesis 5 (H5): The long-run performance is positively related to the ROA of the companies in South Korea.

The specification of the regression equation is shown below:

$$BHAR_{i}36 = \alpha + \beta_{1i} SIZE_i + \beta_2 AGE_i + \beta_3 ZSCORE_i + \beta_4 Leverage_i + \beta_5 ROA_i + u_i$$

The dependent variable will be 36 months buy and hold abnormal returns (BHARs) of companies whereas the independent variables are defined: SIZE = log of firm's book value, AGE =company's age in years, where age is calculated from the year of incorporation to the year of listing, ZSCORE = Ex-ante Financial Strength, Financial leverage= The logarithm of financial leverage, ROA= Net income divided by total assets, INDUSTRY = extra dummy variable takes a value one if firms are in the non-financial sector and zero otherwise.

Sample and data collection

In fact, the South Korean Stock Exchange consists of three parts: Main Board (KOSPI Market), KOSDAQ and KONEX (New exchange). The sample of IPO companies had been taken from the KOSDAQ exchange, because of the search criteria, more than 90 per cent of companies are listed on this exchange. We got a sample of 92 companies, which have gone public from January 1, 2015 to May 5, 2016.

We have defined the following criteria for data collection:

1.   companies are public;
2.   head office of the companies is located in Korea;
3.   companies made an IPO in 2015-2016;
4.   companies belong to non-financial industries.

The data collection process has been conducted through Bloomberg Terminal, Korea Exchange site, Google search and other databases. Industry classification for IPO sample firms has been held. There are different data sources for the independent variables:

•   Size. The log of the firm's book value. Data from Bloomberg terminal.

•   Age. Age is calculated from the year of incorporation to the year of listing. Data from the Korea Exchange website.

•   Z-SCORE= ex-ante financial strength. An Altman Z score is calculated based on figures prior to the year of listing to proxy the ex-ante financial strength. Data from Bloomberg terminal.

•   Financial leverage= The logarithm of financial leverage. Data from Bloomberg terminal.

•   ROA= Net income divided by total assets. Data from Bloomberg terminal.

•   Industry (dummy). This dummy variable takes a value of one if firms are in the non-financial sector. Data from the Korea Exchange website.

Furthermore, only non-financial companies were taken due to fundamentally different economic mechanisms. Other researchers (for example, Agathee et al. 2014) also did not include financial companies in the sample. In particular, Z-Altman is quite different from such companies, but these changes are related to the specifics of the business model of organizations in the financial industry.

Next, there were checks for the availability of stock price for a 36-month period after the IPO event month and financial data (annual reports) for the period thirty-six months after an IPO event. We have chosen this period of time because it is the most optimal for analyzing long-term IPO performance. On the one hand, 36 months is a long enough period of time for investors to get enough information about the company's future prospects. On the other hand, if such a period of time is not too long, and the company's business model is likely to remain the same. Longer time periods may involve fundamental transformations of the company's business model, so IPO performance analysis becomes less relevant in this case.

Methods of the study

Long Run Return Measurement. The Event-time Approach

There are different methods to estimate "abnormal" returns. The BHAR method will be used because it is conceptually better for long-time horizons. Several studies criticize the CAR method when estimating long-run "abnormal" returns. For instance, Barber and Lyon (1997) find that CARs are the "biased predictors" of BHARs. It leads to measurement bias and incorrect results may appear to a greater extent. Furthermore, Barber and Lyon write: "Second, even if the inference based on cumulative abnormal returns is correct, the documented magnitude does not correspond to the value of investing in the average or median sample firm relative to an appropriate benchmark over the horizon of interest. Yet this is precisely the objective of long-run event studies of stock returns." (Barber and Lyon 1997, p. 370). Agathee et al. (2014) according to Ritter (1991), as an alternative measure to CAR, the buy and hold abnormal return, which is defined as a strategy where a stock is purchased at the first closing market price after going public and held until its T anniversary, is defined as:

$$R_{iT} = \prod_{t=1}^{T}(1+r_{iT})-1 \tag{1}$$

where T is number of months and r_iT is the raw return on firm i in event month t, T is 36 months here since we consider the 3-year total return. The holding period return on the benchmark during the corresponding period for firm i, r_mT, is also calculated in the same manner.

Agathee, U.S. et al. (2014) according to Kooli and Suret (2004), take the buy-and-hold abnormal return (BHAR) as:

$$BHAR_{iT} = \left[\prod_{t=1}^{T}(1+r_{iT})-1\right] - \left[\prod_{t=1}^{T}(1+r_{mT})-1\right] \tag{2}$$

where r_mT is the return on the benchmark during the corresponding time period.

The mean buy-and-hold abnormal returns for a period t are defined as:

$$BHAR_t = \sum_{i=1}^{nt} x_{it} BHAR_{it} \quad (3)$$

Multicollinearity and heteroscedasticity tests will be applied, also t-statistics will be used. We will use a correlation matrix and a Variance inflation factor (VIF) to test models for multicollinearity. VIF is the most relevant test for multicollinearity analysis, so we will draw final conclusions about multicollinearity based on this test. We will use White's test to test the model for heteroscedasticity. This test puts the null hypothesis of homoscedasticity. If we reject this hypothesis, then we will conclude that the residuals are heteroscedastic. The model in this case is not suitable for interpretation because the coefficient estimates are biased. We will calculate White's test for each regression model. Models will be constructed in the statistical software program STATA MP 16.

Results of the empirical study

According to the methodology we reviewed earlier, we calculated BHAR for the 92 companies that are part of KOSDAQ. The average BHAR value is 28.3%. Out of 92 companies – 59 or 64% were overperformed in the market, while 33 or 36% were underperformed. Thus, we can say about the overall overperformance trend.

The results are presented in the figure below.

Figure 1. BHAR calculation results
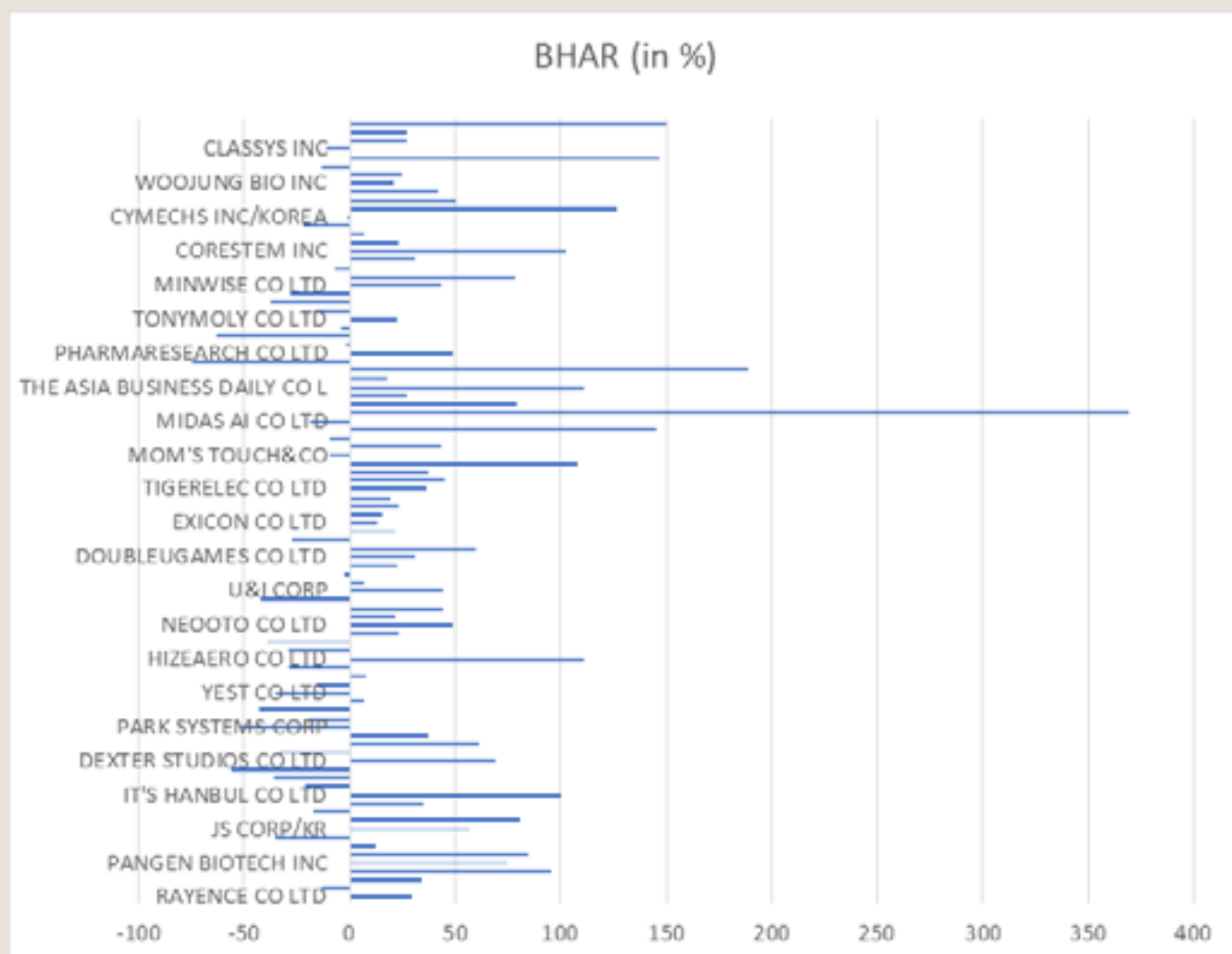
We concluded that most companies showed fairly good results in terms of increasing capitalization in the long run. Some companies posted extremely high BHARs - for example, Hyungkuk B&B posted a BHAR of 369%. Chemtros Co showed the worst results - this company showed BHAR, which is equal to -74.8%. However, the mean BHAR is positive at 28.3%. Consequently, companies outperformed the market by 28.3% on average over the long run. The IPOs that were implemented in 2015-2016 in Korea were quite successful.

The conclusions obtained are quite typical for empirical studies. For example, Ahmad-Zaluki (2018) identified the importance of overperformance for Malaysian companies. Arora and Singh (2020) also made this finding for Indian companies. But there are also studies that reveal significant underperformance. For example, Gregory et al. (2010) identified a fairly large proportion (over 40%) of underperformed IPOs.

We analyzed the factors that affect BHAR. We used regression equations to test our hypotheses.

Specification of the model:

$$BHAR_i = \alpha + \beta_1 {}^*Size_i + \beta_2 {}^*LN\_leverage_i + \beta_3 {}^*Altman\_Z\_Score_i + \beta_4 {}^*Age_i + \beta_5 {}^*ROA_i + u_i$$

Descriptive statistics are shown in table 1.

Table 1. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
BHAR	92	.2827034	.6306191	-.7475539	3.696602
Size	92	11.0957	1.165526	8.631334	14.33137
LN_leverage	92	.4444628	.3719901	.024595	1.947666
ALTMAN_Z_Score	92	13.46053	22.82462	.1456	124.7684
Age	92	13.73913	8.158956	2	50
ROA	92	.017652	.08671	-.4015389	.1508231

The sample size is 92 companies. The average age of companies that went public with an IPO was 14 years old at the time of the IPO. Consequently, the company was mature enough when it made the decision to go public. The oldest company was founded 50 years before going public. ROA averages 1.8% for the sample. Hence, the company is on average profitable. 15.1% is the highest ROA in the sample. This value is not extremely high. The lowest ROA value is -40%. We will check if ROA affects BHAR for this sample.

Altman Z-Score averages 13.5. This value is far enough from zero, so we can conclude that the financial condition of the companies is generally favorable. However, some companies have a very low Altman Z-Score. 0.15 is the minimum value in the sample.

Size and leverage were taken logarithmically to minimize the risks of heteroscedasticity. Such a method is relevant for spatial sampling in order to achieve a uniform scale for all companies.

The density diagram for the dependent variable (BHAR) is shown in the figure below.

Figure 2. Density diagram for BHAR
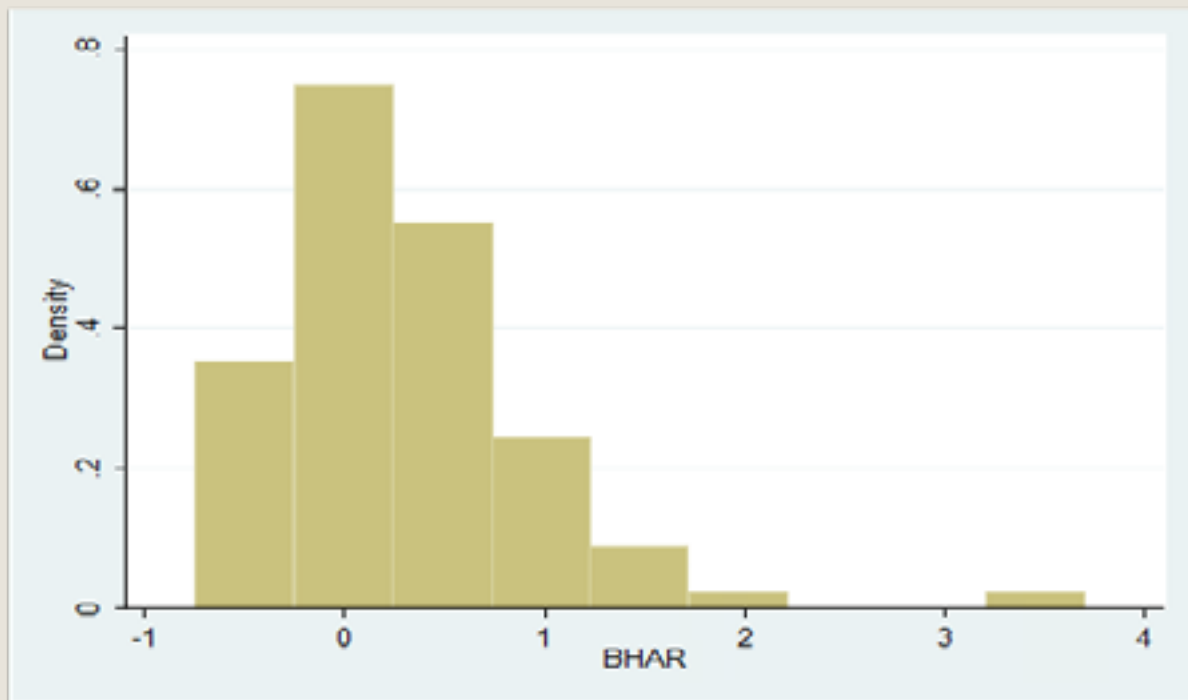
We built a correlation matrix to preliminarily assess the relationships and assess the risks of multicollinearity:

Table 2. Correlation matrix

	BHAR	Size	LN_leverage	ALTMAN_Z_SCORE	Age	ROA
BHAR	1.0000					
Size	0.1493	1.0000				
LN_leverage	-0.1228	0.3524	1.0000			
ALTMAN_Z_SCORE	-0.0390	-0.0137	-0.3983	1.0000		
Age	-0.0823	0.1114	0.0500	-0.1092	1.0000	
ROA	0.0662	0.3043	-0.0693	-0.1737	0.1268	1.0000

BHAR has rather weak correlations with independent variables. BHAR and Size have the closest correlation. The Pearson correlation coefficient is 0.15 for these variables. This coefficient is positive. Therefore, we can assume that company size is the growth driver of BHAR. However, we must use regression analysis to confirm this finding, because multiple regression will allow us to analyze the combined effect of various factors on the dependent variable.

BHAR and Leverage are also relatively highly correlated compared to other variables. Pearson's correlation coefficient is -0.12 for these variables. A negative value of the correlation coefficient indicates that there may be a negative relationship between the variables. The higher the company's leverage, the lower the BHAR. We may assume that this relationship is statistically significant, but we will use regression analysis to confirm this finding.

There is no strong correlation between the independent variables. Leverage and Altman Z-Score have the closest correlation. Pearson's correlation coefficient is -0.3983. Therefore, there is a weak negative relationship between a company's financial position and leverage. However, this relationship is not strong enough to pose a significant risk of multicollinearity. Therefore, we are able to include all factors in the regression model.

We conducted a VIF test for a more advanced multicollinearity risk analysis. This test quantifies the risk of multicollinearity. If the VIF is greater than 10, then there are high risks of multicollinearity. The results of the VIF test are shown in table 3. According to the results obtained, the VIF averaged 1.31; this is a fairly low value. VIF for all variables does not exceed 10, so we concluded that the risk of multicollinearity is low and we can include all independent variables in the model.

Table 3. VIF test for the basic regression

Variable	VIF	1/VIF
LN_leverage	1.53	0.653540
Size	1.40	0.716218
ALTMAN_Z_Score	1.34	0.746174
ROA	1.26	0.792437
Age	1.03	0.969471
Mean VIF	1.31	

The results of the VIF test for the model with industry variables also show that the risk of multicollinearity is low.

Table 4. VIF test for the regression with industry variables

Variable	VIF	1/VIF
Manufacture	2.81	0.355758
Software	1.93	0.517886
LN_leverage	1.83	0.544980
ALTMAN_Z_SCORE	1.65	0.607134
Wholesale	1.55	0.644695
Size	1.53	0.653446
Retail	1.52	0.656079
ROA	1.49	0.672594
RD	1.46	0.685083
Electronics	1.33	0.753335
Construction	1.17	0.855704
Media	1.14	0.878819
Age	1.07	0.931438
Mean VIF	1.58	

Next, we will present the results of the regression analysis
Firstly, we checked each hypothesis factor separately.
The results of the regression analysis for the Size variable are shown in table 5. We can conclude that this factor does not have a significant effect on BHAR at the 10% level.

Table 5. Size

BHAR	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Size	.0807659	.0563937	1.43	0.156	-.0312699	.1928018
_cons	-.613451	.6291324	-0.98	0.332	-1.863332	.6364303
F(1, 90)	2.05					
Prob > F	0.1556					
R-squared	0.0223					
Number of obs	92					

The results of White's test, which tests for heteroscedasticity, are shown in table 6. The null hypothesis of homoscedasticity is confirmed. Therefore, the problem of heteroscedasticity is not relevant.

Table 6. White test results

chi2(2)	=	1.22
Prob > chi2	=	0.5447

The regression where Altman Z-Score is the independent variable is shown in table 7. According to the results of this model, Altman Z-Score has no significant effect on BHAR at the 10% level.

Table 7. Altman_Z_Score

BHAR	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
ALTMAN_Z_SCORE	-.0010771	.0029101	-0.37	0.712	-.0068586	.0047044
_cons	.2972015	.0768013	3.87	0.000	.1446224	.4497806
F(1, 90)	0.14					
Prob > F	0.7122					
R-squared	0.0015					
Number of obs	92					

The results of White's test are shown in table 8. The model is not characterized by heteroscedasticity of residuals.

Table 8. White test results

chi2(2)	=	0.27
Prob > chi2	=	0.8727

The results of the regression calculation, where Leverage is the independent variable, are shown in table 9. This variable is not significant at the 10% level, according to the results of the t-test.

Table 9. Financial leverage

BHAR	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
LN_leverage	-.2082441	.1773425	-1.17	0.243	-.560566	.1440778
_cons	.3752602	.1025555	3.66	0.000	.1715158	.5790046
F(1, 90)	1.38					
Prob > F	0.2434					
R-squared	0.0151					
Number of obs	92					

The results of White's test are shown in table 10. The model is not characterized by heteroscedasticity of residuals.

Table 10. White test results

chi2(2)	=	0.28
Prob > chi2	=	0.8695

The results of the regression calculation, where ROA is the independent variable, are shown in table 11. ROA had no significant effect on BHAR at the 10% level, according to the results of this model.

Table 11. ROA

BHAR	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
ROA	.4815599	.7649317	0.63	0.531	-1.03811	2.00123
_cons	.274203	.0673335	4.07	0.000	.1404332	.4079727
F(1, 90)	0.40					
Prob > F	0.5306					
R-squared	0.0044					
Number of obs	92					

The results of White's test are shown in table 12. The model is not characterized by heteroscedasticity of residuals.

Table 12. White test results

chi2(2)	=	0.44
Prob > chi2	=	0.8027

The results of the regression calculation, where Age is the independent variable, are shown in table 13. The results of the model show that Age did not have a statistically significant effect on BHAR.

Table 13. Age

BHAR	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Age	-.0063575	.0081196	-0.78	0.436	-.0224886	.0097736
_cons	.3700496	.1295608	2.86	0.005	.1126544	.6274449
F(1, 90)	0.61					
Prob > F	0.4357					
R-squared	0.0068					
Number of obs	92					

The results of White's test are shown in table 14. The model is not characterized by heteroscedasticity of residuals.

Table 14. White test results

chi2(2)	=	0.41
Prob > chi2	=	0.8163

We can see that each variable is not significant, when is checked separately.
Next, we calculated the regression, which included all independent variables. The results of this regression are shown in table 15.

Table 15. Regression results

BHAR	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Size	.1495429	.0658137	2.27	0.026	.0187095	.2803762
LN_leverage	-.4854199	.2158708	-2.25	0.027	-.9145568	-.0562829
ALTMAN_Z_SCORE	-.0047132	.0032926	-1.43	0.156	-.0112586	.0018323
Age	-.0085476	.0080809	-1.06	0.293	-.0246119	.0075167
ROA	-.387845	.8410269	-0.46	0.646	-2.059751	1.284061
_cons	-.9731026	.6830163	-1.42	0.158	-2.330894	.3846888
F(5, 86)	1.67					
Prob > F	0.1497					
R-squared	0.0886					
Number of obs	92					

The results of White's test are shown in table 16. The model is not characterized by heteroscedasticity of residuals.

Table 16. White test results

chi2(20)	5.42	0.41
Prob > chi2	0.9995	0.8163

This regression model shows the following results. Firstly, company size has a statistically significant effect on BHAR (5% significance level). We made this conclusion based on the t-test. The coefficient is positive (0.15), so there is a positive effect of Size on BHAR. Secondly, leverage also has a significant effect on BHAR (5% significance level). However, leverage has a negative impact on BHAR. The higher the leverage, the lower the BHAR. This confirms our hypothesis. Thirdly, Altman Z-Score, age and ROA had no significant effect on BHAR. All of these factors had a negative impact on BHAR, but we cannot confirm the statistical significance of these results at the 10% level.
We can conclude that there are 2 significant factors: company size (positive impact) and financial leverage (negative impact). These variables are significant at the 5% level.
We also removed the least significant variable (marginality - ROA), and the results were stable:

Table 17. Main Regression results

BHAR	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Size	.1376898	.0603124	2.28	0.025	.0178124	.2575672
LN_leverage	-.4551829	.2047395	-2.22	0.029	-.8621248	-.048241
ALTMAN_Z_SCORE	-.0042798	.0031413	-1.36	0.177	-.0105236	.0019639
Age	-.0088181	.008023	-1.10	0.275	-.0247647	.0071286
_cons	-.8639874	.6378172	-1.35	0.179	-2.131718	.4037433
F(4, 87)	2.06	.6830163	-1.42	0.158	-2.330894	.3846888
Prob > F	0.0934					
R-squared	0.0864					
Number of obs	92					

The results of the White test for heteroscedasticity show that the null hypothesis of homoscedasticity is confirmed. Therefore, the model is not characterized by the heteroscedasticity problem, so the results obtained are not distorted.

Table 18. White test result

chi2(14)	3.49
Prob > chi2	0.9978

Many variations were made and thus this model was obtained. It is the final and most stable model. P-value is 0.09, we can say that our model is significant at the 10% level. Adjusted R-squared value is 4.4%. It is a low value, however many scientists argue that in finance and especially, for instance, in predicting stock returns using regression models, it is normal practice getting models that yield R-squared values in the range of 5% to 10%.

Size and financial leverage variables are significant at the 5% level. These two hypotheses are confirmed.

Regression equation results are the following:

$$BHAR = -0,864 + 0,138*Size - 0,455*LN\_leverage - 0,004*Altman\_Z\_Score - 0,0088*Age$$

We can conclude that models that assessed the significance of independent variables separately showed different results compared to a model that included all independent variables at the same time. This can be justified by the fact that the model becomes better with the advent of new variables because we reduce the proportion of the random factor. It turns out that if we include a few variables, then this so-called "random factor" begins to settle into a constant. And the R-squared goes down. The better variables we set, the more definite the model becomes. (We also take into account the simultaneous influence of several variables).

In contrast, if we do not take into account that something else can influence this "variable", then this simplifies the model too much. As a result, it may be of bad quality. Again, a lot of random factors. And we say that several factors simultaneously influence (and here they are Size, Age, Financial strength and etc.), then the share of random factors becomes smaller. The model is already better oriented in these dependencies. And the quality will go up.

Thus, when we include several variables, then we reduce the proportion of the random factor, for example, this can be seen from the R-squared. Also, we improve the quality of the model by taking into account the simultaneous influence of several factors. That is, it is not an isolated model (simplified), but more realistic. And in econometrics, multiple models are commonly used.

We added dummy variables for various industries to explore the impact of the industry factor:

Table 19. Regression with industry dummies results

BHAR	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Size	.1384288	.0638451	2.17	0.033	.0113482	.2655094
LN_leverage	-.5139576	.2235637	-2.30	0.024	-.95895	-.0689653
ALTMAN_Z_SCORE	-.0060488	.0035187	-1.72	0.090	-.0130526	.0009549
Age	-.0078061	.0082192	-0.95	0.345	-.024166	.0085537
Wholesale	.2010256	.3901336	0.52	0.608	-.5755159	.9775671
Software	.5977383	.361382	1.65	0.102	-.1215747	1.317051
Retail	.5577736	.4454694	1.25	0.214	-.3289111	1.444458
RD	-.15573	.4341834	-0.36	0.721	-1.019951	.7084905
Media	-.4223349	.6578545	-0.64	0.523	-1.731761	.8870917
Manufacture	.3081094	.2343221	1.31	0.192	-.1582972	.7745159
Construction	.044159	.6703725	0.07	0.948	-1.290184	1.378502
Electronics	.7327454	.4915314	1.49	0.140	-.2456234	1.711114
_cons	-1.123144	.6930302	-1.62	0.109	-2.502587	.2562976
F(12. 79)	1.32					
Prob > F	0.2231					
R-squared	0.1672					
Number of obs	92					

The results of White's test are shown in table 20. The model is not characterized by heteroscedasticity of residuals.

Table 20. White test results

chi2(14)	3.49
Prob > chi2	0.9978

Size and leverage remained significant at the 5% level. Altman-Z is also significant at the 10% level. But we cannot accept this model, because p-value shows that this regression is not significant at the 10% level. There are no significant industrial variables.
The results of the empirical analysis are systematized in table 21.

Table 21. Conclusions on hypothesis testing

Hypothesis	Outcome
Hypothesis 1. Size is significant and has a positive effect on BHAR.	The variable «Size» is significant and positive at the 5% level. Hypothesis accepted.
Hypothesis 2. Age is significant and has a positive effect on BHAR.	The variable «Age» is not significant at the 10% level. Hypothesis rejected.
Hypothesis 3. Altman Z-Score is significant and has a positive effect on BHAR.	The variable «Altman_Z_Score» is not significant at the 10% level. Hypothesis rejected.
Hypothesis 4. Financial Leverage (level of financial risk) is significant and negatively affects BHAR.	The variable «LN_leverage» is significant and negative at the 5% level. Hypothesis accepted.
Hypothesis 5. ROA is significant and has a positive effect on BHAR.	The variable «ROA» is not significant at the 10% level. Hypothesis rejected.

We have received results that show the features of the long-run performance of IPO in South Korea. We can draw several main conclusions from these results.

Firstly, company size has a significant and positive effect on BHAR. Therefore, the larger the company, the higher the probability of a successful long-run performance after an IPO. Other studies also show this result (Agathee, et al. 2014). Larger companies have more opportunities to invest and secure long-term growth. Such companies may pursue an aggressive M&A strategy to achieve economies of scale. In particular, companies in the technology industries often use this strategy. In addition, large companies are more ready for significant business scaling compared to small companies. An IPO is a tool for scaling a business because companies can raise significant amounts of money to implement investment projects. Small companies do not have enough resources to effectively use the IPO as a funding channel. This is one of the reasons why company size has a positive effect on long-run performance.

However, company age is not a significant variable in the model. Therefore, the time factor is not important compared to the company size factor. Even if the company is old, but this company is relatively small, such a company is likely to have a weaker long-run IPO performance compared to a large and young company. These results confirm the findings that were made by Arora and Singh (2020). Age is not an important predictor in the regression equation that these researchers built to analyze long-run IPO performance. Que and Zhang (2019) came to similar conclusions based on the results of the BHAR model. However, the results obtained do not correspond to those obtained by Malhotra and Premkumar (2017). These researchers found a positive effect of company age on long-run IPO performance.

Such differences may be related to the specifics of the Korean market. The Korean market is characterized by a high role in technology, companies are in intense technological competition. The age of the company in such conditions is not an important factor. Company size, as we noted earlier, is a more important factor.

Secondly, financial leverage has a significant impact on long-run IPO performance. Consequently, companies that have high financial risk have, on average, weaker long-run IPO performance. Financial leverage shows the balance between the debt and capital of the company. If the financial leverage is high, the company has restrictions on raising funds. Banks and other financial institutions offer less favorable terms for companies that have a high debt load. In addition, the financial stability of such companies is lower. This creates negative conditions for the long-term growth of the company. On the one hand, the high level of financial risk is a consequence of the company's aggressive investment policy. This policy created favorable conditions for growth and IPOs. On the other hand, companies with high financial risk are more limited in their investment compared to companies with low financial risk. On average, financial leverage has a negative impact on long-run IPO performance, as the results of the regression analysis show. These results are in line with the findings made by Aslam and Ullah (2017). The researchers also identified the impact of this factor on the IPO market in Pakistan.

At the same time, Altman Z-Score is not a significant factor that affects long-run IPO performance. The financial strength of the company is not the basis for the growth of the company's value in the long term. Such conclusions do not correspond to the results that were obtained by Agathee et al. (2014). These researchers found a positive effect of this factor on long-run performance. Kuantan et al. (2019) also came to these conclusions as a result of regression analysis. Some studies have shown no such effect, which is consistent with our findings. In particular, Badru and Ahmad-Zaluki (2018) did not find a significant effect of Altman Z-Score on long-run IPO performance for the entire sample. We also came to these conclusions. This may be due to the more important role of financial leverage. In addition,

a company's long-term success is more related to the company's investment strategy than to its financial strength.

Thirdly, ROA is not a statistically significant predictor of long-run IPO performance. These conclusions contradict the results that were obtained by Singh and Jain (2018). The researchers conducted an empirical study and identified a significant impact of this factor on long-run IPO performance. Our study shows that ROA is not a reliable predictor of long-run IPO performance. ROA is a dynamic indicator that is characterized by high volatility. Therefore, a high ROA before the IPO will not necessarily be maintained for 3 years after the IPO. In addition, business profitability is not fundamentally important for capitalization growth. Companies can use different investment strategies. In particular, the company may pursue an aggressive M&A strategy. Such transactions will not be profitable for the company in the short term, but they significantly increase the company's long-term prospects. Therefore, the growth of the company's capitalization can be based on aggressive expansion, which does not imply high profitability. Our research is consistent with the results that were obtained by Mutai (2020). The researcher does not recommend using ROA and ROE as a predictor of long-run IPO performance because these factors are not statistically significant in the model.

Fourthly, the industry factor was not significant in our models. These findings are consistent with the results of a study by Agathee et al. (2014). The researchers also did not reveal a strong influence of the industry factor on long-run IPO performance. We can conclude that the industry is not a predictor of long-run IPO performance.

We have formed several recommendations for investors based on the results obtained. Firstly, we recommend that investors analyze the size of a company before an IPO. Larger companies have more potential to sustain long-term growth. This indicator is a reliable predictor for long-run IPO performance. Secondly, we recommend analyzing financial leverage to evaluate long-run IPO performance. Companies that have high financial leverage have limited potential for long-term business development. This factor is unfavorable in terms of long-run

IPO performance.

At the same time, it is important to consider the limitations of the study. We used data for South Korea. Studies that have been done for other financial markets sometimes show different results. For example, Malhotra and Premkumar (2017) built a model for India and concluded that company age is a significant factor that affects long-run IPO performance. This factor should be taken into account when making investment decisions. Size selection is another important factor that must be considered. The sample size is 92 companies, which is a relatively small sample. Expanding the sample to include new years can improve the quality of the model. However, we did not include 2020-2021 to avoid distorting the model results due to the powerful impact of the coronavirus on the stock market. Accounting for this factor in future models is a promising area of research. We also do not analyze financial companies because such companies have a specific business model; many indicators of the model are not relevant for financial companies. However, analyzing the factors that affect BHAR for financial companies is a promising research direction.

Conclusion

According to the results of the study, we examined whether the long-term IPO underperformance evidenced in the US, UK and other developed markets also can be applied to the South Korean IPOs.

We made the following conclusions:

Firstly, the researchers analyzed long-run IPO performance for various countries. Most of the findings were made for developed countries, including the US and UK. There are three main hypotheses on the long-run underperformance issue in the empirical studies: divergence of opinion hypothesis, impresario/overreaction hypothesis and windows of opportunity hypothesis. We concluded, that less research has been made to discover the relationship between stock returns and the long-run IPO performance in the South Korean market and the existing studies are outdated.

Secondly, based on the empirical studies we stated 5 hypotheses for our study. These hypotheses concern the impact of 5 factors on long-run IPO performance: age, size, Altman Z-Score, financial leverage, and ROA. To estimate long-run IPO performance we used the buy-and-hold abnormal return (BHAR) method. This method is conceptually better for long-time horizons. We chose the 36-month time period because it is the most optimal for analyzing long-term IPO performance. We collected a sample of 92 companies, which have gone public from January 1, 2015 to May 5, 2016. The data collection process has been conducted through Bloomberg Terminal, Korea Exchange site, Google search and other databases. Industry classification for IPO sample firms has been held.

Thirdly, results of the BHAR calculations showed, that 64% of the companies were overperformed in the market, while 33 or 36% were underperformed. We highlighted the overall overperformance trend. Most companies showed fairly good results in terms of increasing capitalization in the long run.

Fourthly, we tested 5 hypotheses. We revealed that the company's size is significant and positive at the 5% level. Hypothesis 1 was accepted. The company's age is not significant at the 10% level. So, hypothesis 2 was rejected. We concluded that the Altman Z-Score is not significant at the 10% level. Hypothesis 3 was rejected. We revealed that the variable leverage is significant and negative at the 5% level. So, hypothesis 4 is accepted. Finally, results showed that the variable «ROA» is not significant at the 10% level. Hypothesis 5 was rejected.

Fifthly, we have formed several recommendations for investors based on the results obtained. We recommend that investors analyze the size of a company before an IPO. This indicator is a reliable predictor for long-run IPO performance. Small companies (low market value, small sales, small investments) generally are the most speculative ones, the ones with the greatest "divergence of opinion", and the ones expected to underperform the most. We also recommend analyzing financial leverage to evaluate long-run IPO performance. Companies that have high financial leverage have limited potential for long-term business development.

There are some limitations of the study. We used data only for South Korea. We did not include 2020-2021 to avoid distorting the model results due to the powerful impact of the coronavirus on the stock market. We also did not analyze financial companies because such companies

have a specific business model. Some directions are relevant for future research. Including the COVID-19 factor in future models is a promising area of research. Analyzing the factors that affect BHAR for financial companies is a relevant research direction as well.

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Accounting and Financial Issues of E-Commerce Companies on the Example of Kaspi and AliExpress.

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Abstract

The development of electronic commerce brought thoroughgoing changes to trading. However, with the development of e-commerce, a series of challenges appeared. This article takes Kaspi and AliExpress as examples and discusses what sort of issues they face from several aspects: macroeconomic and political situation, financial challenges arising from tax issues, and management and accounting challenges. In addition, recommendations are given in order to prevent or mitigate these issues.

Introduction

The section presents the basic information about the topic of electronic commerce (e-commerce) and finance and accounting problems it faces. Nowadays this term is becoming more popular among businesses, and it implies - the sale of goods and services through electronic communication over the Internet. In common parlance, e-commerce is a marketing and sales strategy that gives the opportunity to consumers to shop via social media without leaving their workplace or home (Anita, 2018, p. 21). There are plenty of types of e-commerce, mainly: business-to-business (B2B); business-to-consumer (B2C); business-to-government (B2G); consumer-to-consumer (C2C) (Bhat & Kansana, 2016).

Firstly, this paper will give a brief description of the basic overview of the online market in Kazakhstan. It will explain the type of basic risks of e-commerce and suggest some analyses of the macroeconomic risks of e-commerce. Secondly, it highlights the financial risks identification and their possible solutions. Finally, the paper will cover the possible challenges from an accounting and audit point of view.

While there is a lack of research on the cross-section of accounting and e-commerce, this is an everyday concern for a growing number of stakeholders, including business owners, tax authorities, accountants, indirectly - customers and auditors. Consequently, the main focus of the study is to clarify and analyze the various risks existing in e-commerce. It will be based on the qualitative data collection method and statistical research studies to monitor the macroeconomic, financial and accounting risks. Based on the risks identified, some recommendations will be provided in order to mitigate the obstacles. Although there are many e-commerce enterprises in Kazakhstan, they are all relatively small, and no sufficient open-source information is available for them. Thus, for the purpose of this paper, we chose one Kazakhstani and one global company, Kaspi.kz and AliExpress.

The study focuses primarily on answering the following questions: How can the economic situation in the world affect the further development of Kaspi and Aliexpress? What sort of financial tax issues appear from online applications of Kaspi and Aliexpress? What kind of management risks could exist in e-commerce companies and what are possible solutions to overcome them? How do external factors affect the financial statements of Kaspi and Aliexpress and what risks may arise in the future?

To collect the data for this study, qualitative and quantitative research methods were used. The qualitative method was used to identify the causes, effects and perceptions of the problem to answer research questions. The quantitative method provided us with data and the analysis of this data is performed in order to prove the causes and suggestions.

This study uses mainly secondary data. Secondary data are articles, and journals and are mainly collected by the researchers from the website "ResearchGate". And Google was used as the initial platform for collecting relevant articles, journals and reports. Secondary data collection was an excellent source of accurate information which helped us to figure out our content and answer our research questions. Additionally, the other secondary data are collected from the outside reports of companies we chose for analysis - Kaspi and Aliexpress. These outside financial reports by Kaspi and AliExpress, ranging from the year 2019 to 2022 were selected.

Literature review

This literature review provides the previous actual research works' analysis related to e-commerce. The review mainly answers the research questions of this study. These research selected are mainly focused on the period before the pandemic. From the point of macroeconomic factors, the Journal of Internet Banking and Commerce found out what factors influence the prospects of e-commerce. The article pointed out how much internal economic factors such as the standard of living and income of citizens, the development of a logical network in the country affect the development of e-commerce. In our work, we will show the impact of external factors such as Covid 19, quarantine, the 2022 protests in Kazakhstan and the current war between Russia and Ukraine on e-commerce using the examples of Kaspi and AliExpress and their actions on the situation. Furthermore, from a management perspective, we found out the research conducted by Ilieva, Yankova and Klisarova (2015) focused on solving issues connected with online companies, exactly by using technology effectively. They examined the topic from marketing and management aspects and the paper found that for well-analyzed decisions, information collection and customer satisfaction, electronic commerce owners should take into consideration points such as the usage of data management software and technology effectively and new techniques. Our paper has several topics with subtopics on the e-commerce risks that they can face in the inventory and transaction volume management sphere and recommendations for each risk. In addition to tax issues, Basu and Jones (2002) mentioned in their research that first, the development of first e-commerce will lead to the disappearance of middlemen, such as wholesalers or local retailers. In the past, these intermediaries could be said to be taxpayers, and their main job in the past was to control private consumers. The author also mentions that in the past some foreign suppliers in e-commerce were exempt from tax. These kinds of problems can be said to be still happening now. The tax problem mentioned in our research will be about the tax problem caused by the application

of e-commerce with the speed of Internet development. Finally, from the point of view of accounting, Anita Atanassova's research on "Accounting problems in e-commerce" (2018) previously included research on accounting problems and risks in e-commerce. In this work, it was mentioned that if earlier the problem of e-commerce was marketing, the latest technologies and logistics, then in the future there will be other problems due to tax accounting, namely tax evasion, shadow economy, monitoring, a strong dependence of e-commerce on software and data protection. In our work, we will try to cover studies such as improving control over the turnover of goods, changes in tax rules and tightening monitoring measures in this area, especially after the popularity of using e-commerce after the pandemic.

In addition, there are some critical points to mention, Kaspi Kazakhstan is actually a bank, however, the main focus of this paper is to analyze Kaspi only from the merchandising perspective.

Risk identification background

Basic Issues and challenges of e-commerce companies

The increased awareness of electronic commerce started in the 90s and it is obvious that electronic devices are changing the way how businesses are going. Business people from various companies do their work via email, conduct electronic payments and provide fast customer service. E-commerce has not only changed people's way of life but also changed the way many companies operate. But after all, e-commerce is like other new things, so there are many risks that cannot be ignored. Here are the basic two types of risks in e-commerce.

1)   Operational risks

To begin with, the most common risk encountered in e-commerce is a data security risk. For example, in traditional business, from the point of the financial information of an enterprise is basically managed by specialized staff, and relatively little financial information is released to the outside world, and only the management can manage and master the important financial information in an enterprise, information is not transmitted to the outside world, and even in order to

maintain the security of financial information in some enterprises, the computers of financial managers are generally disconnected from the network. On the contrary, in the e-commerce environment, all the accounting processing or data transmission of e-commerce enterprises is basically carried out through the network. However, Edwards (2020) suggests in the process of data transmission, the computer may be attacked by viruses or hackers, resulting in data loss, leakage, and damage, resulting in some challenges and risks to the data security of electronic commerce, and companies falling into some confusion. Then not only important data within the company will be compromised, but the confidentiality of the e-commerce consumer may also be threatened. Not only can a data breach alone cost millions of dollars, but of course, the reputational damage can also be immeasurable. For example, how would you explain to customers why someone would keep their credit card details. Of course, data security risk itself is a topic worthy of in-depth discussion, and it can also become a thesis topic. Although it has the most direct relationship to financial and accounting risks, this paper will not delve into the details of data security risks.

2) Financial and Accounting risks

Financial risk is one of the issues that any company faces during the process of business. Yahong and Feng (2017) indicated in their paper that the environment in which e-commerce companies are located is increasingly complex and changeable. Therefore, financial risk is one of the main risks faced by the majority of e-commerce companies at present, and it is also the main barrier in the future development of electronic commerce companies. Furthermore, in the e-commerce environment, the traditional audit professional functions are still applicable. As Xia (2016) pointed out in his article that it is very important to create a stable financial accounting system in e-commerce. Auditors still need to provide corresponding audit and assurance services. However, auditors are not the only profession able to offer the practice in the new field of assurance services compared to traditional financial statements. In addition, as it mentioned in the operational risks part, data security is more required in e-commerce than the traditional form of calculating, consequently this is significant to discuss e-commerce from the financial and accounting parts.

Influence of the macroeconomic and political factors

The development of the telecommunications and technological part opens up opportunities for the development of e-commerce every time. Over the past decades, e-commerce has demonstrated progress and influence on societies and organizations or vice versa, that is, external factors, such as the situation in the world, also have a full impact. Just as an example, we can cite organizations that have been influenced by external factors, opened up new opportunities for commercial firms, or influenced business activity. Many studies have shown that e-commerce is gaining popularity in developing or fairly developed countries, as the development of the country keeps pace with the development of the standard of living of their citizens. That is, an active economy depends on a high level of GDP and GNI. For example, the inability to generate frequent flows of funds at the expense of shareholders or own resources, lack of resources, and low incomes of citizens in developing countries lead to the collapse of e-commerce firms. However, various situations in the world show how people and e-commerce could and can adapt quickly with the help of modern technologies. Various situations related to various political clashes (the war between Russia and Ukraine) or any deliberate and unintended interference (COVID-19, quarantine, protest action in Kazakhstan in 2022) have affected e-commerce both positively and negatively. For example, if we take the events that occurred in 2020, or rather the deterioration of the situation due to the coronavirus and the pandemic, which affected further changes in the conduct of business and the plans of many companies. In Kazakhstan, the unemployment rate increased by as much as 5% (in 2019 it was 4.8%), and most companies, due to low incomes, began to reduce employees or reduce wages, or temporarily suspend work. However, on the one hand, 2020 was a profitable year for some companies, especially for online companies that provide online sales of goods or services. For example, the net profit of Kaspi Bank compared to 2019 from 193,123 billion tenge increased by 263,348 billion tenge in 2020, especially interest income increased by 60.578 billion tenge due to the financing of customers through Kaspi.kz or to purchase products in the Kaspi app. And as part of the income, that is, the trading platform, its income increased from 28,173 million tenge in 2019 to 38,597 million tenge. The income of the foreign company Alibaba, or rather AliExpress, the net profit of the company in 2020 amounted to 140,350 million yuan and increased by as much as 75% compared to 80,234 million yuan in 2019 due to online sales. This shows that online companies were able to quickly adapt to such a situation, and even if there were many quarantine restrictions on the part of the state, nevertheless, companies were able to quickly take measures to work. For example, when the city of Wuhan in China was completely quarantined, Alibaba was able to contact partner manufacturers for the production of masks and other medical supplies. And also to deliver stocks of the most necessary things from the warehouse, such as masks and hand sanitizers at an affordable price. The company delivered cargo to the most remote areas using drones from its JD Logistics team. Only such additional measures will allow companies not only to improve their image but also not to reduce their income in case of macroeconomic situations.

The protests of 2022 in Kazakhstan showed how quickly Kaspi can cope with the problems that have arisen. Kaspi provided access to its payment service without the Internet. Also, Kaspi shares, which fell by 40% to $ 71 in two days of protest, partially recovered their value by the end of the day.

In addition, the current war between Russia and Ukraine has an impact on everything. For example, Kaspi bought Portmone Group, which is a payment company located in Ukraine, and bought BTA Bank Ukraine to get a license. According to the Kaspi report, Ukraine has interested Kaspi in the low result of digital payments and the prospects of e-commerce. The share of online sales is no more than 8% of the total retail trade, but it is noted that the high level of smartphone use is 70%. This also gave Kaspi the prospect of repeating SuperApp, but this remains unknown due to the current situation. Alibaba Group Holding fired 40% of employees of its Russian branches. The root cause was that the current situation with Ukraine does not allow for a secure cross-border business.

Internal country specific factors

In the world, the coverage of the development

of financial technologies is about 55%, and in Kazakhstan, this mark has reached 98%, which is an extremely high result in the history of the development of financial technologies in Kazakhstan, which shows that the situation with covid has had a positive impact on development (Рынок финансовых технологий РК, 2020). The growth of non-cash transactions indicates the development of online lending and a significant increase in online trading. The main advantages of digitalization of the financial system are, most importantly, the regularity of consumption of financial services, which are associated with increased availability, reduced costs and time for transactions and reduced costs, which expands the possibilities of interaction between consumers and suppliers in the field of financial services and increases competition in the financial market. But if we look at 2019 compared to 2020, quarantine during the coronavirus did not bring anything new to e-commerce, but on the contrary strengthened the position, which was caused by an increase in the trend that was expected in 2019. The number of transactions increased by 28% during this time (Annual Report 2020/kaspi.kz). During each quarter, there was an increase in the number of transactions and the average check, which in tenge, as well as in the equivalent of the dollar, did not seem to decrease, even if the quarantine was lifted from that time. According to analysts, the growth of e-commerce in Kazakhstan was caused by quarantine, which no one was ready for, that is, the level of development of e-commerce was low due to circumstances. But the pandemic has shown how high the potential is in the level of development, which was caused by the suspension of work in many areas, the closure of some borders, etc. A high level of development of e-commerce on the market was observed among the largest representatives of this sphere and even today Kaspi.kz and Aliexpress, where they had flexible regulatory rules in modern infrastructure and a transparent legal regime.

Finance and Accounting challenges

E-commerce financial risks arising from tax issues

Sales tax payment

There is also a sales tax payment direction in which there may be obstacles for online organizations. A legal definition has been added to the Tax Code of Kazakhstan in 2018 defining the terms "electronic trade in goods", "Internet store", and "Internet platform". American economist Tanzi identifies the following institutional features of e-commerce that complicate its taxation and regulatory regulation (as cited in Kaluzhsky, 2013, p.15):

1) the absence of geographical boundaries of e-commerce;

2) anonymity of sellers and immateriality of virtual representative offices, which does not allow identifying their location;

3) the anonymous nature of electronic transactions, since payment systems, make payments for goods as private money transfers (banks), or are generally outside the legal field (payment providers);

4) anonymity of clients, which does not allow the seller to accurately determine the legal status of the client.

Generally, what kind of challenges may face e-commerce in paying taxes in the country? All of the main problems of taxation are typical for all countries of the world. One of these problems relates to the taxation of digital products and online services in the B2C and C2C segments. Firstly, it is difficult to control e-commerce companies. Now it is possible to establish the identity and location of the buyer only according to the bank card data. But if the payment is made through an anonymous payment system, it becomes impossible to identify the buyer.

The second significant problem is connected with the country's tax system regulating e-commerce. So, none of the legislation fixes the definition of e-commerce, online trading or other relevant definitions. At the same time, the terms themselves were regularly used in official documents. In addition, there is still no classification of digital products that divides them into goods and services. Many countries are developing legislation for the taxation of online commerce on their own. However, this does not bring many results, since international trade is carried out on the Internet, and appropriate international rules are needed for its effective regulation.

As possible ways to solve the above problems, there are the following suggestions identified: unification of tax legislation; high-quality data collection on e-commerce; tax legislation can be

improved by including the term "electronically provided services" in the definition of "services", to define the "place of delivery" for electronic products; to have an offshore company own an online store, which will solve many confidentiality issues; tax payments can be optimized by creating legal income.

Tax issues with e-commerce online applications

Furthermore, e-commerce taxation is an important issue for any country, businesses and consumers. From a national perspective, a lack of tax regulation will bring some ineffective influence on the development of e-commerce. In the process of development, enterprises are likely to face the problems of bank loans and listing financing. These problems have a great relationship with the taxation status of enterprises. Xavier (2014) suggests that If there is a problem of taxation for e-commerce, it will be detrimental to the future development of the enterprise. There are some e-commerce companies in the world that have encountered problems in tax management and established solutions for tax control.

When it comes to tax issues, here should be mentioned about Kaspi.kz, an online application. Akayeva and Asylbek (2021) mentioned in their article that the Vice Minister of Finance Ruslan Yensebaev said that today Kaspi Gold payments are a very popular mechanism. However, there are risks that these payment transactions are not taxable. Nevertheless, even banning this mechanism, in general, may not have a very positive effect on our economy. And deputy Prime Minister Alikhan Smailov announced new plans to cover money transfers with taxes. According to him, It is essential to focus on solving the problem of fiscalization of money transfers received by entrepreneurs from consumers through mobile banking applications. He supposes that the development of non-cash payments is proceeding at a good pace, and their volumes are expanding by double digits. But at the same time, the task is to fully cover the taxation of the activities of entrepreneurs who are required to pay the appropriate taxes. E-commerce certainly needs to be taxed, but the caveat is that it is taxed fairly and efficiently, just like traditional commerce. Just as the Kazakh government mentioned that it cannot ignore the potential revenue of taxing e-commerce, but in this case, it may be unfair to ordinary consumers. Therefore, it is the government's responsibility to propose new and effective taxation methods that allow both consumers and businesses to be taxed separately and easily.

Solution from Kaspi

Kazakhstan has long been accustomed to and appreciated the convenience and simplicity of payments using transfers. And in order to comply with both the requirements of tax legislation and the wishes of customers, Kaspi bank has developed a special Kaspi Pay application, which allows you to accept payments using the Kaspi.kz mobile application via a QR code. Kazantsev (2020) commented in his article that Mikhail Lomtadze, CEO and co-founder of Kaspi.kz announced that they have created a separate Kaspi Pay mobile application for individual entrepreneurs to enable them to accept payments via Kaspi QR from more than 8.5 million users of the Kaspi.kz super application. When connecting to Kaspi Pay, individual entrepreneurs receive a mobile POS, free account opening, instant transfers without commissions to Kaspi Gold and any Kaspi client, payments to the budget and much more. Today, more than 20,000 entrepreneurs have connected to Kaspi Pay.

However, for AliExpress there is only one option which is -AliPay. Xavier (2014) mentioned in his article that Alipay is a payment application of Alibaba in China that Alibaba uses on its websites, and Alipay handles 78 % of transactions in China for Alibaba. The author also mentioned in his research that new financial control put forward by China's central bank could become a challenge. It was supposed to limit the size of payments to processors such as Alipay, with a cap of about $800. If those rules are passed, it could become more difficult for most of Alibaba's customer base to use it. The author in addition mentioned that Alibaba's tax risks are complex. Because the company's profits are now subject to Chinese tax laws, the company is also transacting in other countries, and some of these profits may not be taxed.

Recommendations to AliExpress

As mentioned, the main task of an electronic business is to comprehensively cover the taxation of entrepreneurial activities, and

these entrepreneurs need to pay appropriate taxes. And AliExpress is a business of its own operators in multiple countries. For them, they also need a separate paid app that works outside of China to manage tax calculations and have more careful control over what sellers and buyers pay and charge. Kazakhstan journalist Askarov (2021) mentioned in his article that the Vice Minister of Trade and Integration Asel Zhanasova said from 2022, Kazakhstan will introduce a VAT obligation for foreign Internet companies that sell goods and provide electronic services to citizens of our country. In the case of an international company such as Aliexpress, which is also operating in Kazakhstan, when consumers are not buying products from companies in their own country or region, the consumer's transaction will be regulated by a series of trade regulations in the country where they are located. And this is no exception for businesses.

1) Automatic tax collection application

Government or any E-commerce business owners can develop software which is available on the web server of the state tax authority for any taxpayer or download to calculate their own taxes. The software can also set up a taxation tracking statistics function, and automatically calculate tax by transaction type and amount when each transaction is carried out.

2) Develop electronic VAT invoices

Before the development of e-commerce, invoices were collected in the form of paper, but now e-commerce invoices are likely to be changed by network leaks. Therefore, it is necessary to strengthen the development of electronic VAT invoices. For example, the enterprise file of the seller can be networked with the mainframe of the tax authority, and the enterprise can directly use the computer to issue invoices in daily sales. The tax authorities will automatically archive their sales and make decisions to calculate output tax based on the archives.

3) Security of Individual payment information

However, these recommendations are made on the premise that the payment information of any individuals should not be shared during the process. When there is any interaction through the internet between the enterprises and tax authorities the individual's confidentiality should be protected.

Therefore, in the process of electronic consumption, no matter which aspect it is, it is necessary to continuously reform the tax problems that will arise in electronic transactions, and a more effective method is to develop a more convenient and effective online application.

Management challenges of e-commerce and ways to overcome them

Inventory management

Any successful e-commerce platform relies on a professional inventory management strategy which is essential for organizing products efficiently and always maintaining stock. Indeed, it is the key to staying competitive. A lack of an effective inventory management system leads to the failure of many retail businesses. Therefore, according to the Trakia Journal of Sciences, it is important to reduce transportation costs and meet customer demands.

Nowadays, e-commerce "Kaspi" - is a popular product of Kaspi company among fans of online shopping. Through this service, merchants can offer and advertise their products online to their customers, and they can choose what they need by comparing the prices and qualities of goods to purchase. Due to the huge flow of orders, Kaspi online store sellers prefer to use the 1C program, through which they can manage their stocks of goods and their prices in that store. Here are some of the benefits of using this program in inventory management:

- saving time for entering data for all goods in stock;

- the convenient and clear interface of the processing program for the user;

- preventing data entry errors.

Furthermore, the Alibaba company has all the goods stored in the largest Tsainiao warehouse, which is located in China. From this warehouse, sellers make direct shipping through the online platform www.alibaba.com to all over the world.

As a result of an oversupply, excess inventory can lead to a cost increase such as product damage, obsolescence of items and stolen items. Consequently, the inventory management process provides an opportunity for the company to track all inventory with greater accuracy, increase operational efficiency and continue to grow.

The following thing the organization has to pay attention to is the truth that stock administration in e-commerce can cause some issues. Marketing expert Arkoya (2019) recognized the following three major stock administration challenges and arrangements:

1. Managing multiple warehouses and channels. Organizations usually start with a single sales channel and a warehouse. The business area will grow as owners create more channels for selling and more warehouses for storing goods. Without a stock management program, it may be difficult to keep track of sales activities through a variety of channels (Wildberries, OLX, Kaspi.kz, etc.).

2. Lack of information analytics. Stock data is one thing, but using it fully is quite another thing. In some cases, being familiar with the amount of an item that a company owner has at all times may be useful, but it would be more important to know how that item's availability changes across channels, over time and among warehouses.

3. Manual sales management. This, by itself, is not going to cause too many obstacles with stock. Nevertheless, if the company's owner tracks the company's sales manually, then he should upgrade it. Because, when he expands the organization, it will be simply understood that it is impossible to manage everything manually.

As a way of tackling these challenges, business owners can use inventory management software and technology effectively. This could save time and energy by allowing an online inventory management system to do the calculations for people.

Additionally, from the business information center - capital.kz, there are following management models that have been created according to international standards. They have important characteristics, so companies need to choose the one that is right for them.

1. Just in time model. In an on-demand model, when someone needs a product, it will be produced and shipped at the same time, as the order and the storage costs, product wear, and maintenance costs can be saved.

2. Wilson model. Sets a fixed order value for vendors, no matter what is required. So, if the order is larger, it will take longer to reorder, and the company will save on that cost. So, it is based on striking a balance to place multiple orders with a supplier and sell a lot of products, so it doesn't stay in stock.

3. ABC Model. Classifies goods with three letters: A – valuable, B - for the necessary and low cost and C for numerous and very cheap products. Thus, priority is given to the most important goods, and that they may be more valuable (A) in comparison with other goods. And when it comes to inventory management, a higher flow rate can be set here.

Transaction volume management

In this section, we take into consideration the e-commerce development in Kazakhstan in the case of transaction volume. Retail e-commerce continues its rapid growth, and new restrictions to combat the COVID-19 pandemic in Kazakhstan ultimately contribute to strengthening consumer behaviors to shop online. In turn, offline and online trading players continue to transform, adapt, and improve the customer path by improving the quality of services and strengthening partnerships. On the part of consumers, there is an increase in confidence in online platforms and a willingness to purchase more expensive goods already online (Lim, 2021, p. 14).

In concordance with the annual report of the Kaspi company from "Profit.kz"(2021), the number of transactions made in Kaspi reached 179.6 thousand at the end of last year, and this proves an increase in the number of online purchase transactions by 11 times compared to 2020. Among Kaspi Pay services, Kaspi QR takes the biggest chunk in terms of online transactions, holding 80 per cent at the end of last year. Looking at Alibaba's trading volume, last year enabled many Kazakh manufacturers and online stores to increase their international sales and expand their export sales volume. Today, Kazakhstani companies with a "Supplier Gold Account" on the Alibaba platform sell more than 4,000 products.

Statistics on the volume and transactions of e-commerce in Kazakhstan show that last year the e-commerce sales volume totalled 26 US dollars. However, in the same year, there was a decline of 9 per cent in the number of sales transactions. Consequently, despite the small amount of demand and transactions, the sales volume of all e-commerce companies in the

country showed good growth in the market. Compared to the last trimester of 2020, there was a 20 per cent increase in sales in the first quarter of 2021 y.

If we consider the number of transactions of all the e-commerce companies in Kazakhstan for last year, the dynamics of the change in the number of transactions in the first half of 2021 show a trend opposite to the volume of sales. For example, in 1Q2021, the number of transactions increased by 20% compared to 4Q2020, while sales decreased by 9%. In 2Q2021, the number of transactions fell by 13% (compared to 1Q2021), while sales increased by 21% (Berdimbet, 2021, p. 5).

According to the analysis of the development of the E-commerce market in Kazakhstan, quarterly changes in the number of transactions for the sixth month of 2021 are also opposite to quarterly changes for half of the 2020 year (as cited Zhanbozova et al., 2021, p. 39):

- There was an increase in the number of transactions in the first quarter of 2021 by 20% compared to the fourth trimester of 2020, and a decrease in 2020 of 39% compared to the 4Q of 2019.

- In the second trimester of 2021 y., there was a decrease in the number of transactions by 13% compared to the first quarter of 2021, but an increase of 32% in that period compared to 1Q of 2019.

Picture 1 - Dynamics of changes in the number of transactions by quarter
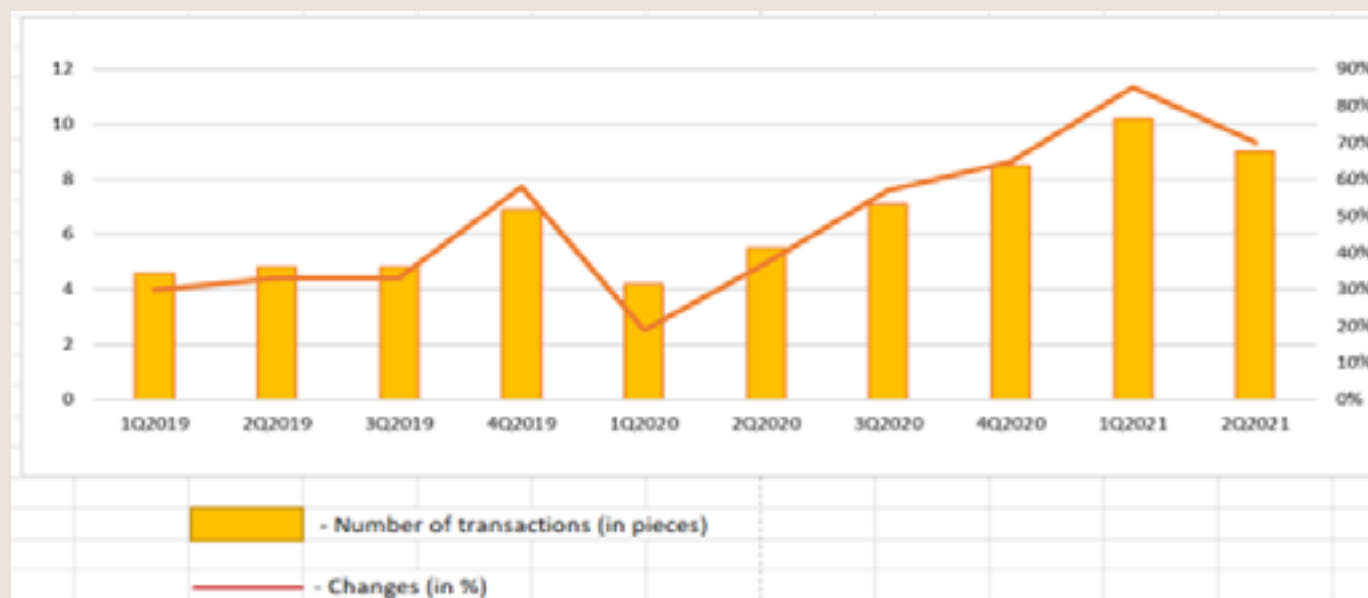
As picture 1 shows, in 1Q 2021, relative to 4Q2020, the growth of transactions and at the same time a decrease in sales led to a drop in the amount of the average check. It can be assumed that consumers began to buy fewer goods in one receipt or purchase cheaper goods in this period.

The reason for this may be due to the improved delivery quality. Kazpost, for example, has improved its services (Sarsenov, 2020, p.6). A major benefit of optimizing processes and services among market players is an increase in transactions, which leads to fast and free delivery not only within the city but also between cities.

As we see from picture 1, according to some factors the change in the volume of e-commerce transactions is different. There are identified the factors that affect the purchase and sale process and the volume of transactions, and they can be considered as e-commerce problems. For instance, the product that the customer is interested in is not available; the price of the product is incorrect; the complete set of the product is incomplete; low level of service and no response when ordering the product and current Internet users consider the lack of a quick; difficulties with returning or exchanging the ordered goods.

To conclude, Panzabekova, Zhanbozova and Zhumanazarov (2021) illustrate several methods that help increase the volume of transactions and sales of e-commerce (p. 147-153):

- to correctly find the needs of your customers by choosing goods and services;
- to provide potential customers with more specifics and a complete description of the product;
- to simplify the order form and facilitate payment methods for your customers;
- to increase the company's rating with the help of customer reviews; to make different promotions or discounts on goods or services to attract more customers;
- to create convenient ways to deliver goods to customers.

Accounting for payment or transfer of funds for the wrong period and errors with inventory accounting and income tax

Accounting for Inventory

Inventory allocation has never been easy, especially for large companies, forecasting, planning and distribution of goods make the whole system more complicated. Also, for this process, a lot of expenses go away — this includes the costs of shipping goods around the world, staff salaries, maintenance costs and others. In this part, we will focus more on Alibaba than on Kaspi bank, since it is considered an international company and it has more goods in circulation. Alibaba is not a manufacturing company, however, the delivery of goods in China and foreign countries brings the main income and thus increases the number of international buyers. This application is one of the most downloaded and popular platforms for buying goods worldwide. If we talk about the risks that such large companies with this asset may face, then these risks may be related to the amount of inventory, whether there was any theft of goods, whether the inventory transaction was registered in the system and the ledger, as well as whether the correct date was recorded, and other risks. Aliexpress, in the delivery of goods (direct sales) to the client, acts as a principal, but not for setting prices, but for controlling the goods before they are handed over to the client. As the company develops and increases profits every year, the risks increase accordingly, namely, the management of all inventory, supply chain management, as well as new regulatory requirements and obligations. When a company sells goods, the invoice of this transaction can be entered into the system on the same day, but the goods are delivered on a different date, so the company must decide which date to specify: the date of sale or delivery of goods. If the company decides to reflect the delivery date in the system, the product will be available to the company, and there may be cases where another customer buys the same product, so the company must clearly define how they sort the goods. There can always be inconsistencies in accounting, and the company must create a system that will take them into account, and one of the ways is to create a virtual warehouse, a system with several warehouses. This system simplifies the filtering of goods and allows you to divide goods into categories, since the company also sends goods abroad, it is very important to sort goods by taking into account the goods. For example, goods that are shipped to domestic regions or abroad, goods that are on the way, and those that have not yet been delivered, and that have been in stock for a very long time. And the company cooperates with many suppliers, and therefore it is important for the company to divide the goods into consignment stocks that the supplier has transferred to Aliexpress, and if the goods have not been sold for more than one year, then they should be returned back to the supplier and all this should be carefully monitored.

If we talk about the delivery of goods during different economic situations, then in time COVID-19 the volume of deliveries of goods due to logistical problems has become more difficult, and the inability to respond quickly to these risks can affect the timely delivery of goods to the customer, which can affect customer relations. For example, during the pandemic in China, there were fierce measures and intensified measures in many port cities, which reduced the shipment of goods from Chinese ports by 20%, and this may put pressure on the delivery of goods and affect the risks of incorrect determination of the delivery date and operation. In order for the risk not to affect the income and reputation of the company too much, we must quickly follow the events. In major cities like Beijing, Shanghai, Henan and other cities, there were fierce promotion measures, and in other distant cities there were limited movement and travel restrictions to major cities, which also complicated the delivery conditions. And only, negative testing

for COVID-19 can remove these restrictions and allow the goods to be delivered, and if coronavirus is detected in the delivery workers, then the goods may not be delivered on time. During the coronavirus outbreak, the company officially announced to its customers that they were temporarily suspending for an indefinite period and it was unknown when the delivery would be, and because of this there were complaints from customers. In February, Alibaba officially warned about the decline of e-commerce, as measures at that time in China were very tense. If you look at the company's financial statements (Picture 2), you can see that in 2020 the cost of sales increased by 36% compared to 2019, and the reason for this growth is the increase in the value of stocks by 42.954 million yuan (Picture 1). And also, the second big expense is an increase in logistics costs in the amount of 15.994 million yuan. Unlike other online companies that do not produce, but deliver finished goods and work as a whole, such as Amazon, Alibaba has divided its business into three main businesses: Aliexpress, Taobao and Tmall. Each application provides different types of goods for buyers. Aliexpress and Taobao is the place where the company earns its main income and where it allows medium and small enterprises to supply their goods. The small application allows large and branded enterprises to sell their goods more. This shows that companies cooperating with very many enterprises through three applications increase the complexity of managing supplies worldwide and controlling them. A company can have 5 million orders at a time, which means the same number of deliveries and warehouses with a large area is needed to store such a number of goods. For example, Alibaba has warehouses all over the world and in China, there is a warehouse located in the city of Wuxi and 700 automated robots are installed there, which automatically collect all goods for shipment and deliver them to another part of the warehouse for couriers. This process helps the company to reduce the time to prepare the goods for shipment and reduces the risk of not sending the goods on time. All the technological improvements of the company, as well as the opening of branches in the nearest destination, logistics costs and an increase in warehouses, can reduce the risk on the stock and the volume of shipment of goods.

Picture 2- Cost of sales Alibaba (numbers from company's financial statements)

Cost of sales Alibaba

| 107,044 | 206,929 | 282,367 | 421,205 |
| RMB 2018 | RMB 2019 | RMB 2020 | RMB 2021 |

Income tax accounting

Profit tax is a mandatory expense for every company, all enterprises must pay corporate tax because without it there will be no business. If the company does not pay the tax on time or will not be able to pay due to low profits, the consequences will be very serious. In Kazakhstan, the tax rate for legal entities is 20%, and in China, it is 25%, but there may be a low rate of 15% if the enterprise is encouraged by the state itself in favor of the country. The more profit a company has, the more tax will be paid. For example, in Alibaba, revenue and net income increase every year, so the company pays a lot of income tax. Since Alibaba is a company with ties to foreign countries, they have to pay taxes outside of China, that is, they have to take into account tax rates and additional taxes expenses of other countries. If you look at Alibaba's financial statements, you can see a 24% increase in income tax, that is, in 2019 there was a payment in the amount of 16.553 million yuan, and in 2020 up to 20.562 million yuan (this is 2.904 million US dollars) (Picture 3). Some large subsidiaries, such as Alibaba (China) Technology Co., Ltd, Taobao (China) Software

Co., Ltd, Zhejiang Tmall Technology Co., Ltd and others, were able to receive a 15% tax rate, as they were able to be included in the list of companies with high technology and engaged in software development security. And also, other subsidiaries located in Hong Kong pay a profit tax rate of 16.5%, which also reduces the tax expense. If the company does not pay corporate tax or income tax, the consequences can be very serious and affect the reputation of the company. In China, for non-payment of a large amount of tax, false tax returns or concealment of non-payment of tax, not only the payment of a fine can have consequences, but also the risk that directly responsible persons, such as the general manager, financial director, chief accountant, can go to prison for more than three years. If you look at a Kazakhstani company or rather analyze one of the examples of Kaspi Bank, then even if the company does not perform fully commercially, and the marketplace is only one source of income, then they pay the total tax at the established tax rate of 20%. If you look at the table below (Picture 4), you can see that income is growing every year in a separate segment of the marketplace, which also increases the total income of the company, which means that tax payment also increases every year. For example, in the company's financial statements, you can see an increase in tax payments. In 2020 the expense was 42,017 million tenge, and in 2021 it has already increased significantly to 98,588 million tenge. Since this is a significant amount, it is very important for the company to pay this type of tax, and if it is not temporarily paid or evasion of payment, it can lead to a large fine.

Competition in China is much tougher than in Kazakhstan, at the present time, this competition is becoming even tougher due to the development of technology, the ability of people to order goods via a mobile phone, due to the majority of the economic situation in the world, and restrictions from the state. Since commercial companies do not produce anything, it is very important for them to cooperate with other companies and increase the volume of goods to choose from, which means that the more contracts you conclude with companies, the more goods and an advantage over competitors. Also, both companies have their own websites and platforms where each presents products in different categories, if Kaspi marketplace you will see their characteristics,

reviews and also the opportunity to take the goods in installments of 3-6-12-24 months, then Alibaba has a special Taobao Live in which buyers can view the characteristics of the goods and ask any question about the goods. In 2021, according to Alibaba's financial statements, 150 million customers used the company's platform and made a purchase in one year. This number of potential customers is very attractive for small and medium-sized entrepreneurs, so many of them are ready to cooperate with Alibaba. For example, last month Alibaba signed an agreement with about 160 companies and among them there are popular brands like Timberland, Decathlon, Fjällräven and others. Since e-commerce is developing at a very fast pace, as we emphasized earlier, new laws and regulations have been created in China because of this situation. For example, in 2014, on January 26, a regulation was created on the procedures of online trading platforms, that is, it included rules such as transmitting information regarding a transaction about a product being sold and entrepreneurs themselves to the "Ministry of Commerce, People's republic of China". On January 1, 2019, the law on electronic commerce was promulgated, and this includes requirements such as protecting the interests of buyers, updating information about buyers and sellers, creating archives, and most importantly, providing information related to taxation. This means that if an individual making a purchase through e-commerce must pay value-added tax and consumption taxes depending on the types of goods, then Alibaba must be a tax agent in relation to such a tax. If the company does not follow these rules or does not take measures to protect the interests of the buyer when finding a product that meets the requirements of the buyer or the security of the client, it may be fined in the amount of 2,000,000 yuan (today it is approximately 29 thousand dollars). Also, in 2021, the rules regarding prices in online commerce were revised, if the platform reveals collusion with others in order to manipulate the market price of a product, deceive consumers when making transactions with false information about price reductions, price discrimination, then a fine of up to 10% of revenue during the period of violation or suspension of activity is for this. All these strict laws and regulations from the state will affect the company's activities. If a company wants not

to violate all these regulations and not pay heavy fines, then they should hire employees who will be responsible for this work, such as collecting data, updating, checking tax payments and checking the activities of the organization and their goods. As for income tax, we decided to calculate the effective tax rate in order to better understand what rate the company pays and offer our own recommendation. The effective tax rate is the total tax rate paid by the company. Companies usually do not provide information regarding the effective tax rate in the financial statements, but we can calculate this value using the information in the report. To calculate this rate, we need the company's income before tax and the total amount of tax paid.

Alibaba 2021 effective tax rate: Income tax expenses 29, 278/ Income before income tax and share of results of equity method investments 165,578 (RMB)= 0.176= 18% in this calculation, we can see that the company paid in the total income tax rate of 18% and not the 25% rate in China.

Alibaba 2020 effective tax rate: Income tax expenses 20, 562/ Income before income tax and share of results of equity method investees 166,645= 0,12=12%

Alibaba 2019 effective tax rate: Income tax expenses 16,553/ Income before income tax and share of results of equity method investees 96,221= 0,17=17%. We emphasized earlier that the company was able to reduce its tax rate by using some encouragement from the state and trying to direct its subsidiaries to improve and develop technology and new innovative ideas. At the moment, I would like to note that if a company does not violate any laws and regulations related to e-commerce, and does not pay large fines, which can also affect the company's reputation, and actively cooperates with the state, then the company will be able to solve some problems. For example, in the future, also reduce the tax rate for current and new subsidiaries, which also contributes to net income. However, this scheme also has its own risks, since the constant introduction of innovations and improvements in technology, such as warehouse robotics and the use of drones, can increase research and development costs, which also increases the overall expense. Many projects and improvements cannot guarantee success and the company will always face risks associated not only with development but also with external factors or strict laws and regulations, this applies not only to Alibaba and Kaspi, but also to other companies, and everything will depend on the company itself and their ability to further develop and implement a new system and quick adaptation.

If we talk about the situation with Kaspi Marketplace, then this is one of the most useful and convenient platforms and one of the most popular programs. This platform is very easy to learn and especially adults can quickly learn how to use it, and thus there are more users of such platforms. This situation has also influenced the creation of laws and regulations regarding e-commerce in Kazakhstan, as well as discussed in Part "2.2.6 Sales tax payment" changes in taxes. In 2020, the approval of the rules on the protection of information regarding the client when buying goods on online platforms, and the collection and processing of personal data with the consent of the client was considered. Also, companies creating a platform for other manufacturers or companies and for customers must inspect the company and the product and withdraw the product that does not meet safety requirements. All these measures may become tougher in the future, and therefore Kaspi already at the present time when the measures have just begun to show effect, should also begin to take measures to create a team or a responsible person who will be responsible for checking the quality and safety of the goods and checking suppliers. And also in the Kaspi Marketplace, as everyone knows, they can buy goods in installments and on credit, and then their own risks may also arise. In cases of buying goods on credit, then, in this case, the company will be very important to the customer's credit history, because in cases of delay provisions and the risk of non-repayment of money will be created, so the credit history can slightly prevent such risks. However, in cases of installments, this is not considered, and the client may not pay the installment on time or stop paying for an indefinite period, in such cases, a bank may block such clients because this risk may arise more than once. In this part, we also calculated the effective tax rate to look at the paid total income tax. Kaspi Bank marketplace 2021 effective tax rate: Income tax expenses 93.588/ Operating income 528.802 (KZT) = 0.176 = 18% in this calculation, we can see that the company

paid the total income tax rate of 18% and not the 20% rate in Kazakhstan.

Kaspi Bank marketplace 2020 effective tax rate: Income tax expenses 54,476/ Operating income 317,824 (RMB) = 0,17 = 17%

Kaspi Bank marketplace 2019 effective tax rate: Income tax expenses 42,017/ Operating income 239,140 = 0,175 =18%. Since there is not so much competition in Kazakhstan compared to China

and e-commerce is not the main activity of the company, accordingly, the risk is not as great as in Alibaba. However, for the future development of the company and not the violation of laws and acts related to e-commerce, the early said to improve the system for the preservation and processing of customer information to prevent information leaks.

Picture 3- Changes in the amounts of net income, revenue and income tax expense from 2018 to 2021 of Alibaba
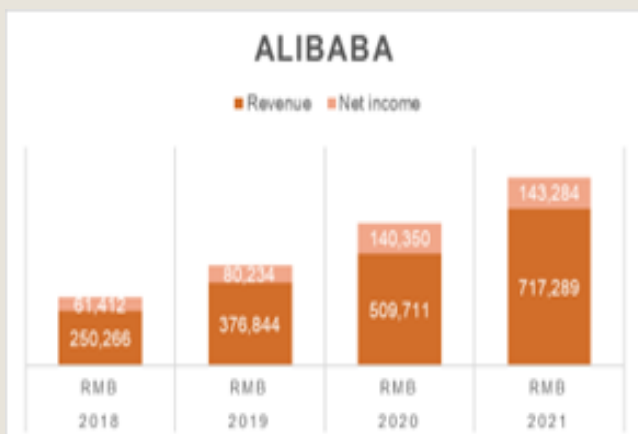
Picture 4- Changes in the amounts of net income, revenue and income tax expense from 2018 to 2021 of Kaspi Bank.

Conclusion

This research aimed to identify the existing e-commerce risk of Aliexpress and Kaspi from macroeconomics, financial management and accounting aspects. Based on the secondary qualitative and quantitative research method it can be concluded that independent external economic situations such as the coronavirus, the war between Russia and Ukraine, and the most unexpected strikes that occurred in January in Almaty were able to push big changes in companies related to e-commerce.

Furthermore, e-commerce also faces various management risks like inventory and transaction volume. Next comes the challenges

of inventory management. The point we figured out is that organizations should reconsider manual sales management because when the organization scales, it is impossible to manage everything manually in a digital environment. Therefore, to overcome these challenges, inventory management software and techniques can be used effectively. In addition, there can be some international standards such as the ABC model, Wilson model, and Just in time model, where the general idea is to prioritize the production of the most important items so that items do not remain in inventory. Another financial management risk that e-commerce is facing is transaction volume such as difficulty

in returning and replacing goods; poor service; unavailability of products that customers are interested in, several methods can be used to address these barriers, such as improving the company's rating through customer reviews; offering promotions or discounts on goods; services to attract more customers and create convenient delivery of goods and to protect the client's personal data and monitor the payment of taxes, it is very important to put an independent responsible person who will be separately responsible for each section and control the process of collecting information and protecting it.

From the tax perspective, a major issue is the lack of tax legislation data in the country and furthermore tax evasion risks because of the electronic online applications. Suggestions such as the unification of tax legislation; high-quality statistical data collection in the area of e-commerce and the use of an offshore company as the owner of an online store could be the alternative solutions for this.

Furthermore, in the future, companies should pay attention not only to technology but also to the protection of confidential information of their customers. This will comply with the rules (regulations) of the country regarding e-commerce. Due to the sharp development of this area, it attracts more attention from the state, especially tax audits and information security checks. Therefore, companies should aim to create data protection.

Limitation and further research

This study has its limitations. The main limitation is to analyze the e-commerce risks from an operational perspective. We mentioned the operational risks of e-commerce as one of the basic challenges that enterprises could face. However, more detailed information did not contribute because operational aspects could be far from our research questions. Furthermore, the limited analysis of the e-commerce market of Kazakhstan, due to the limited and inaccessible information about these companies. Therefore, this study does not explore the Kazakhstani market in detail, however, we chose Aliexpress as an example in addition to comparison, e-commerce either serves the Kazakhstani customers.

In addition, the research is needed to determine more methodological work to expand the theory, framework or model that we have addressed in our research. It could be interviews of small e-commerce companies in the Kazakhstani market, and to explore how they overcome any macroeconomic, financial management risk or accounting risks compared to the huge e-commerce companies. Furthermore, can be carried out in other aspects and areas such as management and the IT-sphere. In order to provide a more detailed and accurate view of e-commerce to a reader.

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Prospects for the Development of Green Finance in Kazakhstan.

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Abstract

Currently, Kazakhstan is gradually implementing a policy of greening the national economy. Kazakhstan, owning a huge territory, while having no access to the sea, due to huge raw materials reserves, was able to become a competitive country on the world stage in a short period of its independence, exporting oil and gas. At the same time, increasing the capacity of production enterprises, and a caring attitude toward the environment and the environmental agenda were not the primary achieving goals, in contrast, economic growth, increasing the income of the population, and attracting foreign investment were prioritized. All this led to extensive economic growth, which could not but affect and especially affected the ecology of those regions where production capacity is concentrated. For Kazakhstan, an environmentally responsible approach to production is more important than ever, because a rapid increase in the capacity of mining enterprises can lead to irreversible consequences for the country's natural resource fund. It is important to analyze the most attractive areas of production for landscaping, develop standards for defining a green project, establish legal regulations of green financing, and make investing in environmentally friendly production more attractive than in a conventional project. This thesis reveals the current situation of the green financial system of Kazakhstan, compares it with the green financial systems of the leading countries - China and the USA, and also gives forecasts and recommendations for further development.

Research methodology

The study was conducted using a mixed-method and is based on both primary and secondary data with reliable references.

The qualitative analysis was based on secondary and primary data and analyzed the current situation of green finance in Kazakhstan. In addition, the weaknesses and strengths of Kazakhstan and international green financing were investigated. Besides, an interview with an official representative of the AIFC Green Finance Centre was conducted, thanks to which we determined the relevance of our research, learning more about the work of the center and the issue of green bonds. Thus, qualitative analysis is aimed at understanding general data, and observations and conducting comparative analysis.

The quantitative part of the research was based on the primary data. With the help of quantitative analysis, it was possible to demonstrate the development of green finance in Kazakhstan based on benchmarks. Statistical methods such as forecast and correlation analysis were used for this purpose. Sources such as the Statistics Committee of the Republic of Kazakhstan, the Climate Bonds Initiative and corporate statistics were used. The collected information is presented in the form of tables and graphs with detailed explanations in the following sections.

The data were collected from reports of national and international organizations, legislation, scientific publications and other open sources. All explanations of the results were devoted to understanding the significance of the results for this thesis.

Green Finance

What is Green Financing

Presently, one of the significant and worldwide pressing issues is Climate Change. Scientists understanding the seriousness are very worried about the current situation. So plenty of developed countries are trying to resolve this issue with the help of available resources and laws. In order to use the resources more effectively, Green Financing was introduced. In other words, green financing plays an important role in the fight against climate change. And the recent global pandemic has contributed to the development of green finance and opened up many prospects for improving the quality of life in general.

"Green Financing is a loan or investment that maintains environmentally-friendly activity, such as purchasing ecologically harmless goods and services or building eco-friendly infrastructure." Simply, Green financing uses

financial products and services, such as loans, insurance, stocks, private equity and bonds in green or eco-friendly projects.

2.2 The ways of implementing Green Financing

The easiest and most understandable way of implementing Green Financing is ESG principles. ESG principles could help to increase awareness about Green Financing and its usefulness in general. The abbreviation ESG could be deciphered as "ecology, social policy and corporate governance". In a broad sense, this is known as socially responsible investing or sustainable investing. Thus, the ESG principles can be used as a first step toward green financing.

In addition, sustainable development is broadly defined as: "development which meets the needs of the present without compromising the ability of future generations to meet their own needs".

But implementing green projects can be expensive. Although, in the future, green financing may also include financing for solving environmental problems related, for example, to the transition to electric vehicles. Thus, green financing can help to make the right decisions in the interests of the environment.

As the risks associated with environmentally friendly projects increase, over time it can be expected that investments in green projects will become the norm. But there is a problem that private sector investors are unwilling to invest because of the long payback periods, lack of experience in this area and the buoyancy of prices for green products at the moment.

2.3 Why Green Finance is important

The world needs big investments in clean energy systems. Developing countries are all the more in need of significant investments in green projects, such as water supply and sanitation in fast-growing urban areas.

Turning directly to the circumstances occurring in Kazakhstan, it can be noted that the country has very low electricity prices compared to other countries in the CIS and Europe. This is because investments in various indirect subsidized tariffs for coal producers are unattractive, and therefore, new plants or their modernization cannot receive financing in the required volumes. It is known that Kazakhstan is a huge unexplored territory that has significant potential for the development of renewable energy sources, open for the study and use of resources. The energy stability of the country directly depends on ensuring the overall balance of electricity from renewable sources, which is its value.

In May 2018, auctions were held on the latest projects in the environmental theme, more specifically in the field of renewable energy sources by the main authorized body of the government, the Ministry of Energy of Kazakhstan. During the implementation of the projects, tariff reductions were achieved in accordance with the latest global trends and the involvement of the most advanced international corporations in the field of renewable energy implementation. As a result, the total investment amounted to about 1 billion US dollars.

Green Finance in Kazakhstan

Since the day of independence, Kazakhstan has achieved great achievements. GDP growth has been more than 7% per year over the past 20 years. The standard of living has increased 10 times more in one generation, and the country is also classified by the World Bank as a middle-income country.

In addition, Kazakhstan is improving the level of the business structure, creating large-scale infrastructures and implementing programs of structural economic reforms. As a result, there is a flow of foreign direct investments, which leads to a slow but steady increase in the country's competitiveness.

One of the biggest problems that hinders the improvement of the country's economy is the threat of climate change associated with emissions and energy. To date, the time of energy consumption in Kazakhstan exceeds the norm of energy consumption. At the same time, it occupies one of the first places in the world in terms of emissions, as it is a frequent source of greenhouse gas emissions in Central Asia. Climate change has already affected the country, causing drought, deteriorating agriculture and desertification.

The main solution to this problem and the path to success is the transition to sustainable growth. Green growth will bring with it a different infrastructure, efficient use of all resources, and improved resources, including food security. This transition will help support

and revive Kazakhstan's industry, citizens, economy, and eliminate threats to climate change adaptation.

In order to continue on the path of development and improvement, Kazakhstan needs to make a second revolution on the way to a low-carbon future.

This includes almost all political programs:

• How to diversify the economy through natural resources and oil.

• How to reduce overall greenhouse gas emissions and energy intensity.

• How to create new impetus for green growth while strengthening the political and institutional framework.

In connection with the pursuit of diversified and sustainable growth, the country has implemented development plans, national programs for the foundation and long-term development.

Kazakhstan has created an organizational and legal framework for the transition to "Green Economy" by enacting many of legislative documents, including "The Environmental Code" (2007) and The Act on Promotion of the Use of Renewable Energy Sources" (2007). Further, Kazakhstan is the first Central Asian country who created "The Concept of Transition to a Green Economy" (2013).

In the address of the President of the Republic of Kazakhstan in December 2012 was been discussed the country's development strategy until 2050. The President was said about his main goal: "Build a welfare society based on strong nations, developed economies and universal job opportunities, with Kazakhstan entering the top 30 of the world's most developed nations".

Moving to Environmental Law Tasks of the Republic of Kazakhstan:

The highest level of environmental protection through the implementation of municipal legislative acts that were aimed at preventing environmental pollution, ensuring protection, and providing suitable criteria for the life and health of people.

The vision of a transition to a "Green Economy" by 2050 can serve as an important document for an agreement between the Nature Conservation Agency and UNDP to address existing environmental problems. Adapting to climate

change and addressing the challenge of reducing carbon dependence worldwide are other important challenges that need to be addressed by advancing appropriate governance systems and promoting sustainable and renewable energy development. The concept points to an increase in the efficiency of asset use and proposes measures to modernize the existing foundation, and more broadly, to protect the environment to improve living conditions in Kazakhstan. The concept analyzes existing natural disasters, and in order to eliminate them, it is necessary to identify successful approaches and measures that are consistent with activities around the world.

The AIFC Green Finance Center prepared a draft resolution of the Government of the Republic of Kazakhstan on the classification of "green" and sent it to the Ministry of Ecology, Geology and Natural Resources. Astana International Financial Center (the "Center") The Green Finance Center (the "Center") issued a resolution to the Ministry of Ecology on the "green" classification ("Classification"), geology and natural resources of the Government of the Republic of Kazakhstan.

The development of a classification mechanism for green projects is a key element of the AIFC Administration's legislative initiative to develop a "green" financial system in the Republic of Kazakhstan. The Green Classification provides clear guidance for determining whether eligible activities and projects are environmentally sustainable and an important part of a country's green ecosystem.

On December 6, 2016, former Prime Minister Askar Mamin stressed in his speech that Kazakhstan was one of the first countries in the world to ratify the Paris Agreement. As part of the implementation of the document, the Republic of Kazakhstan plans to reduce greenhouse gas emissions by 15% by 2030. To this end, Kazakhstan updated its Nationally Determined Contribution (NDC) and adopted new environmental legislation.

Climate change is an extraordinary global problem that transcends national borders. This challenge requires coordinated decision-making and international cooperation at all levels to help countries transition to low-carbon economies.

To combat climate change and its adverse

effects, 197 countries adopted the Paris Agreement at COP21 in Paris on December 12, 2015. The agreement, which came into force in less than a year, is a way to significantly reduce global greenhouse gas emissions, limit global temperature rises in this century to 2 degrees Celsius, and at the same time maintain it at 1 degree. The purpose is to find and limit it to 5 degrees.

To date, 189 countries are members of the Paris Agreement. One of these is Kazakhstan.

The former Prime Minister pointed out that President Kassym-Jomart Tokaev announced a goal to make Kazakhstan carbon-neutral by 2060 at the December 2020 Climate Ambitions Summit. According to calculations, this will reduce the expected damage from the mentioned risks by more than 2 times. Modeling results showed that by 2060 Kazakhstan will achieve an economy-wide balance of zero emissions. Most of the emissions will be avoided, and the remaining emissions will be captured by carbon capture and storage technologies and absorbed by vegetation and soil. Undoubtedly, the implementation of measures to decarbonize the economy will lead to a transformation in the fuel and energy complex. In 2017, the fuel and energy basket consisted of 54% coal, 24% oil and 22% gas. Model calculations showed that by 2060 the share of fossil energy resources in the structure of primary fuel and energy resources will decrease by 3.4 times and amount to 29%.

EXPO 2017 Astana - Future Energy became the first international exhibition in the CIS. "Energy of the Future" reflects the most relevant to humanity rational use of energy and natural resources, decline greenhouse gas emissions, use of renewable energy sources, transition to green technologies also raises the issue availability of electricity and poverty reduction. This event resulted in attracting the best technologies and solutions in the field of green economy to the Republic of Kazakhstan, also increasing the status of Kazakhstan on the world arena in the field of emission reduction greenhouse gases and climate change.

Summing up, Kazakhstan is moving towards improvement and sustainable development.

Timing of Kazakhstan's transition to a green economy (2013-2050)

2013-2020

Optimization distribution and efficiency resources
Development of green infrastructure

2020-2030

Rational usage natural resources large scale introduction of new RES and energy saving technologies

2030-2050

Full transition to green models growth transformation traditional industries economy and development of new industries based on RES.

International agreements

It cannot be said that Kazakhstan is just embarking on the path of greening the economy, because so far a lot of work has already been done and projects have been implemented, not only for the state but also of international importance. Examples of such global initiatives of Kazakhstan can be the conducting 2017 of the specialized international exhibition Expo, which was held under the slogan "Energy of the Future", the Green Bridge partnership program initiated by the first President of Kazakhstan Nursultan Nazarbayev in 2010, Kazakhstan's ratification of the Paris Agreement in 2016, as well as such important government decisions as to the adoption of the Environmental Code in 2007, the Law on Support for the Use of Renewable Energy Sources in 2009, as well as the Concept of Transition to a Green Economy in 2013. International agreements the main purpose of which is the enhancement of ecology conditions around the world signed by Kazakhstan are not just formal documents. They set clear goals, conditions and time limits for the implementation of plans and projects under these agreements. For example, one of the main objectives of the Paris Agreement is to keep the global average temperature to 1.5 degrees Celsius. In addition, under the Paris Agreement, all countries that have ratified this agreement will have to provide general reporting on the results of combating the effects of climate change from 2024. The Paris Agreement also pays special attention to developing countries, for example, article 9 of the Code clearly states that developed countries can provide financial resources and support developing states, including Kazakhstan, for measures to

prevent climate change. Kazakhstan's accession to such important environmental projects encourages the government to openly define long-term plans to prevent sharp climatic fluctuations. Thus, President Kassym-Jomart Tokayev set a goal for Kazakhstan to achieve carbon neutrality status by 2060 and reduce greenhouse gas emissions by 15% by 2030. The Green Bridge partnership program initiated by Kazakhstan has also become an important step for the state in promoting the idea of updating sustainable development. The importance and value of this program lie in the fact that it was joined by such large countries as Russia, Germany, Sweden, as well as Kyrgyzstan, Georgia, Mongolia, Belarus, Montenegro, Latvia, Albania, Finland, Hungary, Bulgaria, Spain, a total of 15 countries, including Kazakhstan and another 16 non-governmental organizations. The countries that have signed the charter of the program continuously exchange technologies and best practices for greening the economy. The key focus of the Green Bridge Partnership program is the role of financial and economic mechanisms in the fight for greening. Within the framework of this partnership program, a project was implemented to open the first green village of Arnasai in 2015, located near the capital of Kazakhstan, where innovative green technologies are used and all conditions are created for combining the best environmentally friendly practices. In addition, the Green Bridge approved and developed the NGO standard "System of voluntary certification of real estate objects "Green Standard of Kazakhstan" in 2016.

The role of international banks in the development of green finance in Kazakhstan

Along with the above-mentioned international and regional partnerships, promising green projects are becoming more and more attractive for foreign capital and investment. Based on the fact that green projects are a riskier investment than conventional "non-green" projects, Kazakhstan banks refuse to invest in such an initiative. Therefore, large international banks, such as the World Bank, the European Bank for Reconstruction and Development (EBRD), and the Asian Development Bank (ADB) can provide budget support for such projects. The European Bank for Reconstruction and Development (EBRD) plays a special role in the development of Kazakhstan's energy sector and the promotion of environmentally friendly enterprises. Currently, the number of active EBRD projects in Kazakhstan is 123 enterprises. In the past 2021 alone, the EBRD invested $630 million in 18 projects throughout our country, 40% of the financing was related to "green investments" (The data is taken from the Internet resource kapital.kz, article dated 27.01.2022). The activities of the Asian Development Bank (ADB) in Kazakhstan are currently focused on sustainable recovery after the coronavirus pandemic, reducing Kazakhstan's dependence on raw materials exports, and addressing issues directly related to climate change. Various agreements are signed between the state and international banks that encourage the greening of the economy. For example, in 2014, the Government of Kazakhstan and the International Bank for Reconstruction and Development (a credit institution of the World Bank) signed a grant agreement for the implementation of the project "Improving Energy Efficiency in Kazakhstan".

China's and USA's experience

Despite the active support of the state and the sharp increase in climate change especially in recent years, which has led to global activation in greening national economies, Kazakhstan is just beginning to follow the path of sustainable development and careful use of natural resources, it is important to take into account the experience of those countries that have succeeded and already have positive results of green financing and make relevant methods for further applications in our country. To analyze the policy of green financing, we chose two countries – China and the USA. The reasons for choosing these countries were their role on the world stage, the degree of influence on the economy of other states, the size of the gross domestic product and, of course, the standards applied by these countries for the development of green finance. According to the statistics of gross domestic product from the World Bank (2020), The United States of America and China occupy the first and second places, respectively, in the overall ranking of countries by GDP. Another reason for choosing these countries is their initiative and a high degree of involvement in promoting green finance at the international

level. The authorities will have to evaluate the models and initiatives taken by these states and choose the most optimal strategy for the development of green finance for Kazakhstan. The study of the strategies of the above countries in the field of green financing will allow for a comparative analysis of the "green" way of development of Kazakhstan, identify strengths and weaknesses, and reveal best practices for making changes and adjustments. In a short period of time, China was able to become the second-largest economy in the world, due to the increase in industrial production, the development of the textile industry, coal metallurgy, as well as pharmaceutical and electronic industries. Chinese goods are in demand all over the world primarily due to their affordability (low prices). Of course, such a large number of manufacturing enterprises concentrated in China cannot but harm the environment and human health. It is for this reason that China in the 2010s set a course for greening the national economy and initiated the idea of greening the IFS in 2016 during its presidency of the G20 (Arkhipova, 2017, p. 15). The budget policy of green financing in China clearly defines that national "green" projects should be financed only by 10-15% at the expense of the state, and by 85-90% through the involvement of private funds and investments (Green Finance Task Force Report, 2015, p. 21). Kazakhstan is trying to adhere to the same approach in the allocation of the budget for green projects. According to the Concept of Kazakhstan's transition to a "green economy" (2013), for the implementation of the economic "greening" plan, a large share of investments, as well as in China, should be attracted at the expense of private investors, but this Concept does not indicate a percentage ratio.

The most popular tools used for green financing

The most important instruments of green financing are a "green" loan and a "green" bond. The most active participants in global syndicated lending by borrower countries are the United States (1st place in the rating and 34.5% of credit resources), the United Kingdom (2nd place and 8%), as well as China and India (6th and 7th places, respectively, and 4% each) (Arkhipova, 2017, p.10). Global syndicated loans are especially popular in the implementation of green projects directly related to construction, infrastructure and transport, agriculture and

timber processing, as well as in the promotion of clean energy. However, the share of green loans is still significantly lower than the usual bank loans that are not aimed at implementing environmentally friendly projects. According to the G20, only 5-10% of bank loans in a small number of countries can be classified as green (G20 Green Finance Synthesis Report, 2016, p. 6). China also holds a leading position in issuing green bonds. China's Shanghai Pudong Development Bank and Bank of China are among the largest green bond issuers.

Common environmental problems of China and Kazakhstan and prospects for the development of alternative energy sources through green financing

One of the urgent environmental problems of both China and Kazakhstan is a sharp increase in air pollution indicators, in China – especially in those areas where manufacturing enterprises are located, and in Kazakhstan – in the capital and in Almaty, due to the growth in residents of these cities, the increase in transport infrastructure, the concentration of thermal power plants increasing their production capacity, especially in the cold season. In addition to Nur–Sultan and Almaty, air pollution is at a high level in such cities as Karaganda, Temirtau, Atyrau, Aktobe, Balkhash, Ust – Kamenogorsk, Zhezkazgan and Shymkent. In China, due to the high population density and insufficient territorial resources for an even distribution of residents, the situation with air pollution is also in a deplorable state. So only in 8 out of 74 large cities the air is habitable and does not exceed critical pollution levels. The energy sector of China is concentrated on the dominant position of coal generation. China is the largest country in the world producing and consuming coal. Therefore, in order to improve the environmental situation, the government introduces a reduction in the production of certain enterprises, restrictions and prohibitions on the construction and commissioning of new coal-fired power plants, as well as the closure of some of them. Coal mining is also an important and integral part of the economy of Kazakhstan. Just like China, Kazakhstan is among the top ten countries in terms of coal reserves. The main coal deposits are the Karaganda and Ekibastuz coal basins. Coal is the main raw material for heating the municipal sector. However, it is predicted that by 2030 coal mining will be

sharply reduced and replaced by alternative energy sources (Samruk – Kazyna report, 2018, p.22). Currently, the demand for coal in the domestic market is much less than the production capacity. Therefore, it is important to carry out planned monitoring of all enterprises, determine which of them need modernization and reduce the production capacity of some of them. Promising industries for investment and an alternative to coal are gasifications and nuclear power. The atom produces carbon-free energy generation, that is, without emissions of environmentally harmful substances. Currently, Kazakhstan is actively considering the need to build a nuclear power plant and a final decision should be made already in the current 2022. According to the calculations of the Ministry of Energy of the Republic of Kazakhstan and based on international experience, the construction of only one power unit can cost $ 5 billion.

The influence of domestic and international banks on greening the financial system

China plans to develop a green finance system by introducing measures that restrict investment in polluting enterprises and make them unattractive, as well as by significantly increasing institutional mechanisms that encourage green investment. It is planned to create a Chinese Environmental Development Bank, as well as other local green banks. In Kazakhstan, the level of investor involvement in green financing is not as high as in China, so the creation of a separate bank for issuing green loans and bonds is not necessary. It is important to carry out landscaping of already existing banks. Currently, the body representing green finance in Kazakhstan is the AIFC Green Finance Center, established in 2018. However, in recent years, banks have also been taking active steps to switch to ESG financing. Thus, the Halyk Bank of Kazakhstan, within the framework of the agreement on green lending, issued a green loan for a total amount of 7.9 billion tenge. At the expense of the funds received, Kaz Green Energy will begin the construction of a bioelectric power plant in the city of Zhezkazgan. Also, a green credit line in the amount of $20 million tenge was signed between the EBRD and CenterCredit Bank. In addition, the EBRD's Green Economy Financing Facility project has been launched in 2020, the main task of which is to support and encourage the development of green technologies in Kazakhstan.

The main points that contributed to the success of the Chinese green financial system:

1)   Analyzing the experience of China, we highlighted that one of the first steps that laid a stable foundation for the development of green finance in this country was the classification of green instruments (bonds and loans), as well as a clear taxonomy of the green projects themselves, which will be directed through the above financial instruments investment. In Kazakhstan, as in China, at the end of 2021, a taxonomy of projects that can be financed through the use of green financial instruments was officially approved if these projects meet certain criteria. Such clearly defined classification and legally fixed definitions allow for avoiding inefficient allocation of financial resources and making sure that the investor will be directed specifically to the green project.

2)   The next important point that contributed to the development of the green finance market in China was the presence of independent monitoring organizations that regularly monitor the process of issuing green bonds. Such an institution checks whether the issued bond really meets the green standards. In China, there are not one, but seven bodies involved in the regulation and monitoring of green finance: In order for such an independent monitoring organization to start working effectively in Kazakhstan, it is important that institutions providing green financing services, advisory assistance on green investment to all interested parties involved in issuing green bonds (AIFC Green Finance Center) adhere to the principle of transparency and accessibility of accounting documents.

3)   In addition, government incentives have become an important factor in the development of the green finance system in China. The state is trying to create all conditions for attracting investment in green projects. An example is the provision of a corporate tax credit for the interest received on green bonds, the creation of free admission of foreign investors to the national financial market, and the introduction of a system of control by banks over the level of risk of socially significant and environmental projects.

USA's experience

Unlike China and Kazakhstan, the United States has firmly entered the "green" financial market,

we can say that it has successfully adapted to the conditions of a new segment of the "green" financial system, which has allowed over the past 13 years to issue "green" bonds worth over $ 211.7 billion and outstrip China, which over the same period issued "green" bonds worth $ 127.3 billion and became its main competitor.

In the structure of the distribution of the received US investments, most of the amount was directed to the energy sector of the economy, which amounted to about 80%, and the remaining resources were directed to construction and transport. Considering the specifics of the distribution of "green" investments in the USA, China and Kazakhstan, it should be noted that the energy segment of the economy is the most attractive. However, if we compare the distribution of "green" investment funds on a global scale, it can be noted that "green" finances directed to the energy sector in 2020 accounted for about 35% of all green finance funds in the world, and in 2021 this indicator remained at the same level (Huang, H. & Zhang, J., 2021).

After analyzing the general trends in the development of green finance in the USA and China, it follows that the most attractive industry segments are energy, construction, transport, and less attractive are the agricultural sector, waste recycling, industrial segment and solving water problems. In many ways, the global distribution structure of "green" finance differs from the priorities of the United States, China and Kazakhstan, which are focused on solving the problems of the energy sector of the economy. For Kazakhstan, such globality in the approach of green financing is explained by high penalties for carbon dioxide emissions from thermal power plants, which dominate the structure of energy sources in the republic.

However, such an approach in the distribution of green finance does not change the extremely low level of electricity production from RES (Samruk – Kazyna report, 2018).

At the same time, it should be noted that Kazakhstan's activation in the green finance market began in 2020 and its development coincided with the pandemic period, therefore, a comparison of the effectiveness of behavior in this segment of the financial market will not give objective conclusions reflecting the progressiveness of its development in comparison with the leaders: China and the USA.

Data collection

At first, data on the volumes of green financing in Kazakhstan and other countries were collected. In this study, the green bond market represents the green finance sector. Because among all the instruments of green finance (green lending, subsidies and quotas), they are the most popular and developed in the context of global trends. The United States and China were taken as benchmarks. These countries are the world's best practices, according to which Kazakhstan creates its own strategy.

The collection of information on the volume of green bond issuance gave an insight of the trends in the development of the green market. A Table 1 was compiled on the volumes of green bonds issued by three countries in the period from 2015 to 2021. It is important to emphasize that the number of available observations was not very large, due to the lack of quarterly or semi-annual data, for this reason, the stability of the model may be in question. But the annual data also gave a general understanding of the growth of the market.

Table 1. Green bond market volume, $ billions, 2015-2021
Source: Climate Bonds Initiative reports

	2015	2016	2017	2018	2019	2020	2021
China	1	23,6	22,9	31,1	31,3	23,8	55
USA	10,5	30,3	42,4	34,1	51,3	52,1	77
Kazakhstan	0	0	0	0	0	0,0324	0,081

The volume of bond issuance in Table 1 is expressed in billions of dollars. Information on China and the United States was taken from the annual reports of the Climate Bonds Initiative. It needs to be noted that there is a Climate Bonds Taxonomy, which indicates whether a particular bond fits the definition of a green bond. If they correspond to the taxonomy, they are included in the CBI database for green bonds. These bonds are called internationally-aligned green bonds.

China is a major player in the global green bond market, but not all bonds issued by it are included in the CBI database due to differences in green projects allowed in accordance with China's internal guidelines and international definitions. The types of projects that are considered environmentally friendly by domestic, but not by international investors, include: improving the efficiency of coal use, electricity infrastructure using fossil fuel energy, clean coal and improved coal efficiency, large hydroelectric power plants, landfill disposal and etc. As a result of non-compliance with the standards, part of the financing amount was not taken into account, so there are sharp jumps between some years.

As for US green bonds, they are in line with international definitions. There are no variables for Kazakhstan from 2015 to 2019, because this was a relatively new and unexplored area of finance for the country. Only with the opening of the Green Finance Center in 2018, the prerequisites and measures for the development of the green finance market were created. It should also be noted that all green bonds issued in Kazakhstan comply with international standards.

According to the collected data, the United States was the first largest country to issue green bonds with a cumulative value of about 297 billion US dollars on the domestic and foreign markets. China was the second-largest country, with a cumulative value of about 188 billion US dollars and Kazakhstan ranks third with a cumulative value of about 0,113 billion or 113 million US dollars.

These data were further used in event research.

7.1 Data analysis

Based on the collected information, we made a forecast in order to demonstrate the further growth of green finance in Kazakhstan. Taking into account the development of green finance in Kazakhstan now, as the first hypothesis, we can assume that the volume of financing in Kazakhstan will grow in the same trend as in the United States over the past six years. The hypothesis was based on the US benchmark since China turned out to be not quite a stable model due to data jumps.

First, with the help of the forecast function in Excel, we built a Table 2. According to the definition of the Microsoft website, "the FORECAST.ETC function calculates or predicts future values based on existing (historical) values using the AAA version of the Exponential smoothing algorithm (ETS). The predicted value is a continuation of the historical values for the specified target date, which should be a continuation of the timeline".

Table 2. Kazakhstani green bond market volume forecast, $ billions, 2020-2026

Year	Green bond volume
2020fact	0,0324
2021fact	0,081
2022forecast	0,13
2023forecast	0,18
2024forecast	0,23
2025forecast	0,28
2026forecast	0,32

Thus, the total volume of the green market for the projected five years will be approximately 1 billion dollars.

But, according to the hypothesis, it is necessary to imagine what the growth would be if it were similar to the growth in the USA. In order to project the growth of the USA in Kazakhstan, we superimposed the average annual growth of America on the forecast of Kazakhstan (Table 2). Based on the green bond volumes in the USA (Table 3), the average growth rate in the USA was 51.45%.

Table 3. Growth rate of the USA green bond market, $ billions, 2015-2021

Year	Green bond volume	Growth rate
2015	10,5	
2016	30,3	188,57%
2017	42,4	39,93%
2018	34,1	-19,58%
2019	51,3	50,44%
2020	52,1	1,56%
2021	77	47,79%

We can assume that the current growth rate of green bond volume in Kazakhstan at the current stage of development of green economy is considerable with the average growth rate of the USA in the same stage of development of the green economy in the period 2015-2020. In addition, the option of market development as it was in the USA is also possible in Kazakhstan, since the average annual growth of the USA according to available data was 51.45%, in Kazakhstan this indicator is 150%.

Table 4. Kazakhstani green bond market volume forecast scenarios based on average USA green bond growth rate, $ billions, 2021-2026

Year	Optimistic scenario	Realistic scenario	Pessimistic scenario
2021	0,08100	0,08100	0,08100
2022	0,12673	0,12268	0,11863
2023	0,19827	0,18580	0,17373
2024	0,31020	0,28140	0,25444
2025	0,48532	0,42619	0,37264
2026	0,75930	0,64548	0,54574

Chart 5. Kazakhstani green bond market volume forecast scenarios, $ billions, 2021-2026
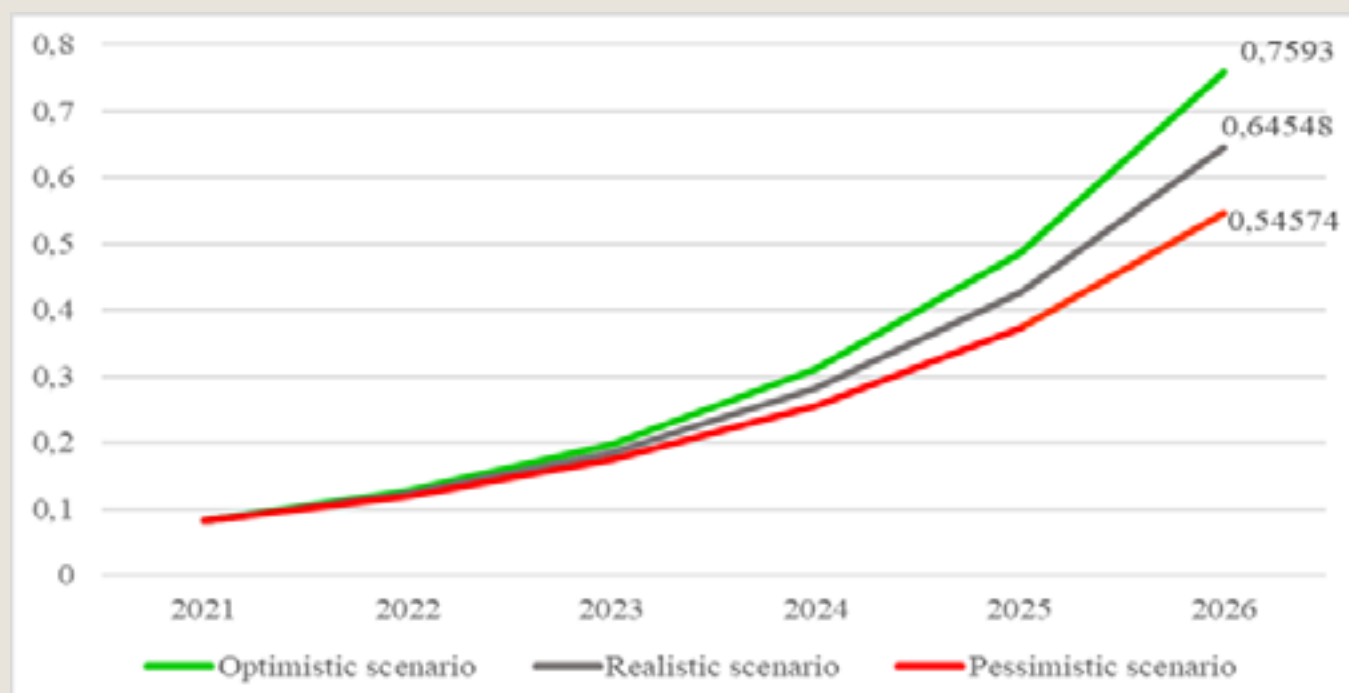
As can be seen from Table 4, we have built not only the forecast itself but also possible negative and positive outcomes of events. In this analysis, we gave them the names of realistic, optimistic and pessimistic scenarios. Calculations are made taking into account the 95% confidence interval. In a realistic scenario, the 5% deviation in the formula was represented as 1, in a pessimistic as 0.95, and in an optimistic 1.05. That is, optimistic and pessimistic scenarios were obtained as a result of taking into account a deviation of 5%, more or less respectively, from the value of the previous period.

According to the second forecast, the total investment volume will be about 1 billion 600 million dollars by the end of 2026.

The renewable energy industry is in high demand among other sectors of the green economy. Therefore, as a second hypothesis, we assume that there is a connection between the development of green financing and an increase in the share of renewable energy sources in the total energy volume. For clarity, we will conduct this analysis on both Kazakhstan and the USA.

To study this hypothesis, we conducted a correlation analysis using the CORREL function in Excel. For the analysis, in addition to data on the volumes of green finance, data on the share of renewable energy (RES) in the total energy sector were also collected.

Table 6. The share of RES in total U.S. energy, 2015-2021

Year	The volume of green bond market, billions $	The share of renewable energy in the total volume of energy, %
2015	10,50	13,80
2016	30,30	15,60
2017	42,40	17,70
2018	34,10	17,60
2019	51,30	18,30
2020	52,10	20,60
2021	78,00	22,70

Correlation	0,964202298

Table 7. The share of RES in the total energy volume of Kazakhstan, 2015-2021

Year	The volume of green bond market, billions $	The share of renewable energy in the total volume of energy, %
2015	0	0,50
2016	0	1,10
2017	0	1,20
2018	0	1,30
2019	0	1,60
2020	0,0324	2,80
2021	0,081	3,50

Correlation	0,916421426

In both cases (Table 6, 7), there is a correlation coefficient above 90%, which means that there is a strong interdependence in the growth of these data sets. That is, it is possible to predict changes in one variable by the behavior of another correlating variable.

As a result, after analyzing the data sets and making a forecast based on them, we have

demonstrated that the future of green finance in Kazakhstan has great prospects for development following the benchmarks. Thus, the first hypothesis was confirmed. Also, based on the high correlation coefficient, we can conclude that the growth of the green bond market has a great impact on the share of RES in the total energy volume of Kazakhstan. So, the results of the correlation analysis confirmed the correctness of the second hypothesis.

8 Conclusion

As mentioned above, Kazakhstan has all the prospects for the development of green financing within the country. Despite the fact that green projects are often expensive and difficult to implement due to a number of reasons, there is every chance that Kazakhstan will take a leading position in the global flow to improve the planet in the environmental aspect. The long-term experience of other developed countries can help in this in many ways.

Thus, if Kazakhstan continues to support the growth of green financing and implement the policies and standards of foreign countries, it has all the prospects for the development of this industry, and consequently, the green economy. Thus, it was concluded that with the proper development of green finance, green energy will grow and develop proportionally.

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Multifactor Model of Banking Industry Stock Returns: Kazakhstani Market Perspective.

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Abstract

The purpose of the provided research is to analyze the dependence of stock's profitability on certain macroeconomic and industry variables using a multi-factor model. We selected companies in the banking sector based on the availability of their data on the Kase Stock Exchange. These data were mainly taken with the maximum period from January 2017 up to December 2021 in order to capture as much time as possible. Further, to study this topic, the R programming language and several additional libraries for data cleaning were used. The results show that market returns account for variations in stock returns, but the inclusion of other economic variables increased the explanatory power of the model.

Introduction

Background

Short introduction of multi-factor

The securities market plays a valuable role in the country's economy. In addition to traditional models that were based on equilibrium, there is a multi-factor model for asset pricing. It is used to explain both a portfolio of securities and individual security. It compares several factors to examine the relationship between variables and results. Models are evaluated by historical

figures (Chen, 2020).

Multi-factor models fall into three categories: statistical models, fundamental models and macroeconomic models. Employment, inflation and the interest rate are key factors in comparing security returns in a macroeconomic model. In fundamental models, there is the analysis of the correlation between a security's return and also its earnings, debt levels and market capitalization. In statistical models, the returns of different securities are differentiated based on the statistical execution of each security (Chen, 2020).

1.12 Short introduction of the Economy

Kazakhstan is the largest developing state in Central Asia, possessing a significant reserve of natural resources. After the collapse of the Soviet Union, the country has undergone a severe socio-economic crisis and was one of the first to form a national economy on the basis of market principles. To that end, a large-scale privatization program had been launched, involving enterprises in the commodity sectors. The main feature of the private sector and privatization is the dominant involvement of the central and regional bureaucracy, which reduces the importance of legal norms. The oil and gas sector is the main catalyst for strong economic growth that has attracted a large inflow of foreign capital. However, the speedy growth of the oil and gas industry has made our economy highly dependent on oil exports and the instability of the black gold price (Arnabekova, Temirkhanov, & Ibraimova, 2017). In order to reduce this dependency, measures have been taken to diversify the economy, with the key objective of accelerated industrialization through a shift away from the commodity sector. At the moment, Kazakhstan is on industrial and innovative development, where the main focus is on an export-oriented economy with high added value. Given the increasing global economic competition, the new development path will make it possible to adapt to a rapidly changing environment. Today, Kazakhstan, as a country adhering to the principle of multi-vector, is an active participant in the leading international organizations. Overall, the country has been able to strengthen its position on the world stage, thanks to its resource potential and prudent economic policies. Also, Kazakhstan has set a goal to join the world's top 30 most developed states by 2050.

1.13 Background of banking system

The financial and banking system of Kazakhstan is recognized, according to countless experts, which bureaucrats and bankers love to brag about, as one of the most advanced and stable in the CIS. Banking reform originated in early 1991 when the Law "On banks and banking activities in the Kazakh SSR" was adopted.

The banking system of Kazakhstan experienced rapid growth and prosperity and later suffered a crisis. The state's presence in the economy and the monetary sphere was reflected in the form of predominance in the banking sector, and the state budget also depends on world energy prices, and this, in turn, shows a direct correlation. Just like in other countries of the world, a two-tier banking system is developing in Kazakhstan.

The first level is the central bank, which is responsible for monetary policy activities in a large country. Its main instrument is the base rate. This, in turn, allows the National Bank to keep the tenge exchange rate under control and influence the economy. Today the base rate has exceeded 13.5% (Kapital.kz, 2022)

An increase in the base rate leads to an increase in the rate on deposits and loans. This makes loans less affordable, people borrow less and spend less, and food prices are starting to stabilize. The size of the base rate is also related to the level of economic stagnation in the country. A high rate strengthens the national currency and lures foreign investors into the national debt. If compared with advanced countries, then the central bank rate and the level of economic stagnation are small, because these countries are investors themselves.

The second level is commercial banks, they provide a standard list of services, as well as most banks around the world. In our thesis, we selected three secondary banks that have been trading their shares in KASE over the past 5 years.

In 1993 Halyk Bank was reorganized from the Sberegatel'nyy Bank into an independent structure, which belonged to the government of Kazakhstan. In 1995, the Bank was transformed into a Joint Stock Company, at that time there was a radical change in leadership, which laid the foundation for the principle of universalism. From the end of 1995 to this day, Halyk Bank

of Kazakhstan has been the largest operating bank in the republic and continues to operate in different sectors (Amphibia, n.d.). Since 1998, the Bank has been listed on the Kazakhstan Stock Exchange.

JSC Bank CenterCredit - is one of the first commercial banks in the country, which was implemented in 1988. The 5th largest bank in Kazakhstan, which began its activities. Net profit equals 8.57 billion tenge (Forbes, Bank CenterCredit)

Forte Bank is a modern financial institution that has been on the market in Kazakhstan for 8 years. In 2015, as a result of the merger of Soyuz Bank JSC, Temirbank JSC and ForteBank JSC. Initially, the priority direction of the bank's activity was the provision of services by individuals. Currently, Forte Bank performs a full range of banking services for both individuals and commercial companies. In early December 2020, the renowned international publication The Banker awarded the Bank the Most Excellent Bank in Kazakhstan award for the 3rd time. Forte Bank's Net income was 53 billion (Forbes, Forte bank).

The purpose of this paper is to examine the dependence of stock returns on specific macroeconomic and industry variables using a multi-factor model.

Literature review

Stock returns are extremely vulnerable to both basics and anticipations. According to research, the equity market is more responsive to external and internal forces because of financial deregulation (Saqib, Babar, & Kashif, 2011). The external factors include political conditions, price controls, inflation, price of stocks, exchange rate etc. The internal factors influencing the profitability of the stock can be financial performance, quality of management, size of the company, type of funding etc. There are plenty of research studies related to the impact of intrinsic and extrinsic factors on stock return. This study will examine both of them.

A study by Tobias Olweny and Kennedy Omondi (2012) explored the effects of exchange rate fluctuations, interest rates, and the level of determination of the instability of stock return on the Nairobi Stock Exchange. They applied conventional data over a decade of empirical methods using EGARCH and TGARCH models

(p. 34). Therefore, the result showed that the factors that arise in the volatility of stock profitability are the rate of interest and supply level. It turns out that after a price fall, volatility increases more than after a price increase of the same amount.

Javid, Attiya Yasmin & Ahmad Eatzaz (2008) took 49 stocks traded on the Karachi Stock Exchange over a ten-year period to examine the macroeconomic variables that explain fluctuations in expected stock returns. They used the CAPM-with-GARCH-M conditional multivariate model which showed that risk-reward ratios improved very little over the period. The results proved the conditional multivariate CAPM. Economic variables like return on assets, growth in consumption, inflation risk, and interest rate considerably affect fluctuations in anticipated stock returns. But it also turned out that market returns, currency risk and oil price risk have a limited impact on asset pricing (p. 114).

Benakovic D., Posedel P. (2010) analyzed the performance of fourteen shares of the Croatian capital market over a five-year period. They bogged down 14 stocks to assess sensitivity to such impacts as supply, IPI, interest rate, the market index and the price of oil. The research showed that interest rate, oil price and IPI are more sensitive factors, while inflation does not matter much (p. 39). They then applied a cross-sectional regression with estimated sensitivity, which determined the most sensitive factor on stock prices. It turned out to be the market index.

Alexey Shabalin (2006) estimated the change in the value of securities of the Russian stock market with the help of the GARCH model using shares of the company traded on the MICEX stock exchange. The researcher drew attention to the following factors when forecasting the dynamics of the Russian stock market: cost, net profit, macroeconomic indicators, world stock indices, and European and American currencies. According to the results of the identification of GARCH models with minimal balance sheet volatility, the riskiest were ordinary shares of Sberbank, and the least risky - ordinary shares of JSC "Sverdlovenergo".

Wongbangpo and Sharma (2002) conducted a study to examine the role of specific economy-wide factors in explaining variations in stock

returns in ASEAN stock markets (Indonesia, Malaysia, Philippines, Singapore and Thailand). Researchers observed relationships in the long and short-run among the price of stocks and variables like GNP, CPI, Money Supply, interest and exchange rate (p. 27). Given that the stock return cooperates with main economic factors in the long and short perspective, adequate governmental policies in economy and finance can produce outstanding results in both of them.

Al-Tamimi, Alwan & Rahman (2011) observed the interaction between fluctuation in macroeconomic indicators and stock prices in UAE. They carried out a study on 17 companies from 1990 to 2005. The results of the regression model demonstrated a positive and insignificant connection with independent variables such as GDP, and money supply, whereas the connection with CPI and interest rate was negative and substantial (p. 3).

Jareno and Negrut (2015) determined the impact of five macroeconomic factors like GDP, CPI, IPI, long-term interest rate and the unemployment rate by applying Pearson correlation coefficients. The results suggested that the equity market of the USA demonstrates a positive and significant linkage with GDP and IPI variables, as well as an inverse and material relationship with variables like unemployment and interest rate (p. 325).

A study was conducted in Kazakhstan(Kazakhstan Stock Exchange) examining the relationship between stock profitability, rate of exchange, interest rate, consumer price index, and oil price(Brent) (Niyazbekova, Grekov, & Blokhina, 2016). According to the results of Engle-Granger Cointegration Test, the rates of exchange and interest, CPI and the price of Brent crude are interconnected with KASE, which means that there is a long-lasting relationship between the stock index and selected variables (p. 1265). Moreover, results showed that the stock index can be considered as the key benchmark of the economic climate in the country.

Rahman, Sidek &Tafri (2009) applied traditional and complementary tests to investigate the position of different economic factors at the macro level in explaining variation in stock prices in the Malaysian stock market. The researchers found that all selected factors - money supply, interest and exchange rate, IPI and reserves - contribute significantly to this relationship (p. 95). Additionally, according to variance decomposition analysis, the stock market has a stronger connection with IPI and reserves in contrast to the money supply, exchange and interest rate.

Shohani Upeksha Badullahewage (2018) documented the macroeconomic determinants (inflation, GDP, interest and exchange rate) of Sri Lanka stock market volatility (p. 33). The analysis showed that all these factors substantially affect stock market indicators. Among all factors, inflation and exchange rates were found to have a relatively stronger effect on the stock market (p. 39). The Colombo Stock Exchange has undergone enormous changes in its operations over time when listed factors have crucially contributed to its performance (p. 41).

Muneer, Butt & Kashif (2011) analyzed the strong relationship between stock returns variation on Karachi Stock Exchange and 6 macroeconomic and 1 industry variables (p. 267). The study covers 10-year data for chosen firms and independent variables (p. 267). For the purpose of risk-return analysis, the descriptive statistics of time properties and the GARCH model were used (p.268). In order to summarize the given results, checks were made on the yield of the shares of each firm and the totality of data for the entire industry. The results show that market returns are the most substantial and positively related variable and account for much of the stock return fluctuations, both at the bank and industry levels (p. 273). For the other variables, they occasionally explain fluctuations in banks' stocks and thus provide additional power in explaining the model.

It is important to note that the research above served as a model for our own study because it was distinguished by its clarity and literacy. After reading and carefully studying the work of Pakistani researchers, we have a picture of what our work should look like. Our team followed a similar logic, and we used roughly the same methods for our research.

We have reviewed the stock exchanges of the following countries: Kenya, Pakistan, Croatia, Russia, Indonesia, Malaysia, Philippines, Singapore, Thailand, UAE, USA, Kazakhstan and Sri Lanka. Summing up the results of the literature review, we found that in all the works macroeconomic factors to some extent

explain the variation in the yield of shares on stock exchanges. For the most part, we can observe frequent interaction with the following independent variables: market return, interest rate and exchange rate. In some of these papers, researchers have concluded that there is a relationship in the long and short-run between macroeconomic factors and the stock market.

This study complements the existing writings by assessing the impact of macroeconomic and industry variables on the stock returns in the banking sector using the regression model in the developing market of Kazakhstan. Thus, it is essential to know how stock returns in Kazakhstan respond to these variables.

Methodology

Research Philosophy

Research Philosophy is the foundation of the research because it tells about the system of beliefs that the researcher has about the phenomenon under study. According to Crotty (1998), the research paradigm you have chosen will show how deeply you understand research issues, applied methods and how you interpret obtained results. There are two major research philosophies known as positivism and interpretivism.

The positivist paradigm is based on the idea that only knowledge gained through direct observation is factual and reliable. Observations should be quantifiable to enable statistical analysis. Usually, positivists form a hypothesis that can be partially or fully proved or disproved. Positivism seeks to examine the presence of relationships between two variables rather than see what causes them.

A second main paradigm is an interpretivism, also called anti-positivism. Interpretivism states that only through the subjective interpretation of and intervention into the reality that reality can be fully understood. In this case, the preference is given to qualitative methods, such as interviews or participant observation.

The most appropriate research philosophy for our research is positivism. We used the existing theory, known as the multi-factor model, and further tested it in the banking industry of Kazakhstan. For this purpose, data on the profitability of shares of four banks and data on macroeconomic and industry variables were collected.

Research approaches: deduction and induction

Researchers typically use two widespread ways of reasoning termed inductive and deductive. Referring to Trochim (2006), induction is switching from individual to general, whereas deduction starts from the broad and ends with the specific.

Research with inductive reasoning commences with gathering data that is related to a subject of interest. As soon as a considerable amount of data has been collected, the researcher will back away and overview the data. At this point, the researcher searches for regularities in the data, working towards a theory that could clarify those regularities. Therefore, they move from a set of data to theory.

Researchers applying a deductive approach, use the same steps as the inductive one, but in the opposite order. As reported by Jones and Gratton (2009), this method of reasoning includes testing a predefined theory. By applying this approach, the researcher makes a hypothesis based on existing theory. Also, the use of only absolute facts makes this type comparatively more complex.

The main objective of our research is to test the stock returns variation to particular economy-wide and industry factors by using a multi-factor model. Since we will construct hypotheses from a multi-factor model and then collect and study data to examine those hypotheses, the research would be in a deductive way.

Quantitative choices

Research can either be conducted with a qualitative or quantitative effort. The method chosen should mostly depend on what the research question was and what the researcher wants to know.

Qualitative research can be defined as research conducted in a natural environment. The researcher is essentially becoming a data collection tool. The research of this type should include the collection and analysis of the words of the participants (Cresswell, 2005). This incorporates working on complex and time-consuming data analysis and taking part in social research without clear guidelines (Cresswell, 2005). The results are constantly

changing and evolving as more data is collected (Cresswell, 2005). According to Cresswell (2005), this research method applies inductive thinking, as it moves from observations of specific events to sweeping generalizations and theories.

Quantitative research often leads to the use of statistical analysis to connect what is already known and what can be obtained from research. Referring to Trochim (2006), this type of research requires an in-depth understanding of the relationships between variables employing descriptive or inferential statistics. The first type hinges on the utilization of descriptive statistics, where the researcher can make judgements about the population and define its settings (Trochim, 2006). The second type of statistics is built on the first one and the assumptions that extend to the population from a particular sample (Trochim, 2006). By applying one of these types, the researcher can either reject the hypothesis or determine the effect size (Cresswell, 2005).

In this case, the quantitative method seems more suitable for research because it will give us the opportunity to study the relationship between the return of stocks and variables deeply. The data that we have are the monthly stock prices of 4 secondary banks listed in KASE and indicators of macroeconomic and industry variables such as CPI, IPI, market index, risk-free rate, money supply, exchange rate, oil price and credit portfolio during 01.01.2017-31.12.2021.

Theoretic framework

Theoretic framework - multi-factor

Minimizing the number of variables and determining correlations between them are the main goals of factor analysis. Among macroeconomic factors, interest rates, inflation risk and credit spreads were used. Multi-factor models provide increased flexibility and allow you to:

• create portfolios that modify, if necessary, the characteristics of a certain index;

• execute full risk and return distribution for actively managed portfolios;

• understand the relative risks associated with returns on equities, fixed income instruments and other asset classes;

• assure that the overall equity portfolio meets active risk and return which is comparable with

active commissions (CFA Program Level II, 2022).

The most commonly used models for establishing a multi-factor model are the combined model, the sequential model, and the intersection model. In a combined model, several single-factor models are integrated to make a multi-factor model. For instance, stocks can only be divided by momentum on the first pass. Other factors such as volatility on subsequent passes will be used to classify them. In the sequential model, stocks are categorized by one factor in sequential order. Stocks for a particular market cap in sequence can be analyzed for various factors like cost and momentum. In the intersection model, stocks can be distributed based on the intersection of their value and momentum (Chen, 2020).

3.2 Data Selection

All the data used in this study were taken from various Internet sources, such as the websites of the National Bureau of Statistics, the National Bank of Kazakhstan, KASE and other reliable sources. The data covers the period from January 2017 to December 2021, because full information is available only for these last 5 years. We also took data purely for 2021, because this year Kaspi Bank began listing on the Kazakhstan Stock Exchange. The reason for the separate inclusion of this bank is the fact that its shares are also listed on the London Stock Exchange in parallel. The R programming language and several additional data-cleansing libraries, as well as data visualization packages, were used to explore this topic.

Referring to the availability of data, the following second-tier banks were selected for the study: Bank CenterCredit, Forte Bank, Halyk Bank and Kaspi Bank. They are among the top 10 largest banks in Kazakhstan and are listed on the KASE stock exchange. Also, they are in the list of banks, which are not subsidiaries of foreign banks. For example, Jýsan Bank was dropped because it stopped listing from the beginning of 2019. Bank CenterCredit, Kaspi Bank and Forte Bank are about the same size, while Halyk Bank is the largest bank in Kazakhstan and occupies about 32% of all assets of the banking sector in the country. All the above-mentioned banks have their own share capital structure. As a result, it can be seen that more than half of the companies are occupied by individuals owning

banks directly or through holdings.

The economic variables include Market Index (KSE 100 Index), Exchange Rate (Ex Rate), Risk Free Rate of Return (RFR), Money Supply (M2), Consumer Price Index (CPI), Industrial Production Index (IPI), Credit Portfolio and Oil Price.

In addition, for the purposes of this study, changes in returns on the KASE stock exchange on which these banks are quoted were used. The main idea is that the changes in the market are immediately reflected in the share price, as confirmed by some studies (Muneer, 2011). Additional data have been collected on the Consumer Price Index (CPI) and the Industrial Production Index (IPI), as the increase in these indicators leads people to feel money shortages and to withdraw money from bank deposits or take out loans. Therefore, it causes changes in bank assets and serves as a signal to the market. By the same logic, the data were taken for the exchange rate (Ex Rate). We also used a risk-free rate, as the central bank influences the key rate through risk-free government bonds. When interest rates rise, banks start lending less, which reduces the bank's efficiency and can be a signal to investors. We took TONIA as a reasonable risk-free rate. Because it is the indicator of second-tier banks of the Republic of Kazakhstan and the foreign exchange market. For the same reasons, the money supply was chosen, which reflects the amount of money circulating in the country's economy. In addition, general changes in the loan portfolio of second-tier banks (CreditPortfolio) were taken into account. The credit portfolio is an important indicator because it can be used to assess the effectiveness and future prospects of the bank. The last value was the change in the value of oil (the price of oil) due to the fact that Kazakhstan is an oil-dependent country. Since over a certain period of time in future periods, the price of oil affects the microeconomic and macroeconomic variables, we took real Brent oil in US dollars. The price of our oil is set based on reference grades, in our case, it is Brent since the quality of our black gold is similar to the quality of the Brent brand.

3.3 Regression analysis methodology

In this study, a regression model was used. A regression model is a statistical method that examines the influence of one or more independent variables on one dependent variable. This model, in addition to statistics, is also used in machine learning. As a dependent variable, the return on the share price was used instead of the share price itself, this is due to the fact that all banks have different stock price ranges at the moment. The final model as a whole looks like this:

$$Return_i = \beta_0 + \beta_1\, MarketIndex + \beta_2\, CPI + \beta_3\, RFR + \beta_4\, ExRate + \beta_5\, IPI + \beta_6\, MoneySupply + \beta_7\, OilRrice + \beta_8\, CreditPortfolio$$

$Return_i$ is the return on shares of bank;

$\beta_1\, MarketIndex$ is the profitability of the exchange in our case KASE;

β_2 CPI and β_5 IPI are consumer and industrial inflation values;

β_3 RFR is the risk free rate;

β_4 ExRate is the difference between the rates for the period;

β_6 MoneySupply is the money supply in circulation;

β_7 OilRrice is the difference between oil prices over the period;

β_8 CreditPortfolio is the change in the loan portfolio of second-tier banks.

Results and Discussion

Regression analysis results and discussions

For the purposes of this study, thermal correlation maps were first made to consider which variables strongly affect each bank. Table 1 shows the banks that have a research period from 2017 to 2021.

Table 1: Correlation of variables from 2017 to 2021
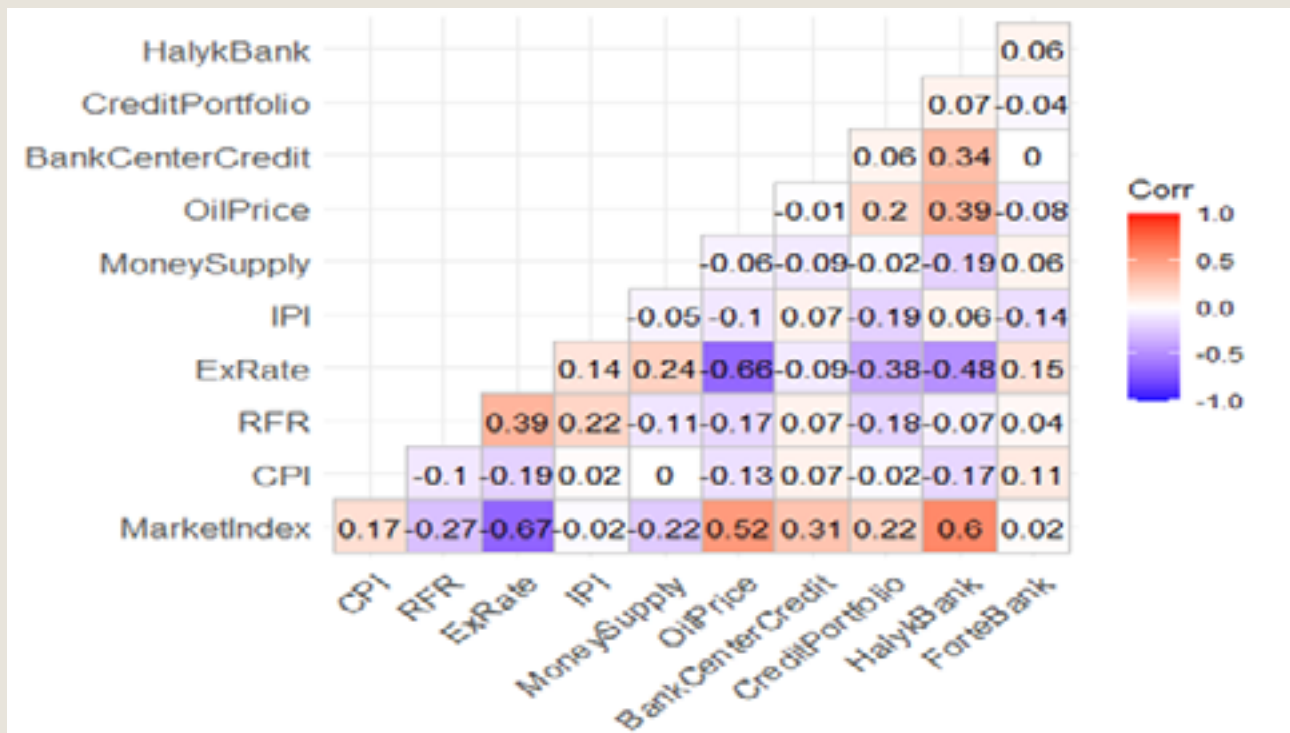
As we can see, Bank CenterCredit has a very slight positive relationship with Market Index. In turn, the shares of Forte bank do not correlate with independent variables at all. As for Halyk Bank, you can observe a positive association with factors like Market Index and Oil Price and an average negative relationship with Exchange Rate.

Table 2: Regression results from 2017 to 2021

	Bank CenterCredit	Halyk Bank	Forte Bank
Market Index	0,817***	0,884***	0,820
CPI	-0,005	-0,102***	0,112
RFR	0,121	0,105	0,029
Exchange rate	0,135	-1,065**	2,509
IPI	0,001	0,002	-0,011
Money Supply	0,014	0,070	0,034
Oil Price	-0,146	-0,085	0,106
Credit Portfolio	0,059	-0,161	0,052
Constant	0,004	0,066***	-0,027
Observations	60	60	60
R^2	0,163	0,494	0,101
Adjusted R^2	0,031	0,415	-0,040
Note:	*p<0,1;	**p<0,05;	***p<0,01

Source: Author estimations

The first thing to notice from the results of the created regression is the difference in the obtained values of R squared. R squared is a value that shows how our chosen independent variables explain the changes in our dependent variable. As can be seen, most of all our model explains Halyk Bank and a little Bank CenterCredit, but nearly does not explain Forte Bank values. It is important to note that R squared has drawbacks. This value is very much affected by the number of selected variables. In other words, the more variables we take, the more R values there will be, which can lead to distorted results. To solve this problem, it is recommended to take adjusted R squared, as it is not so affected by the number of selected variables. After that, we can say that the variables chosen by us very poorly explain ForteBank.

The reasons may be different, but we assume the following.

In the case of Forte Bank, the cause could be that the profitability of the bank (our dependent variable) did not change at all in some periods (Figure 1). This may be explained by the weak demand for the bank's shares.

Figure 1 - Forte Bank stock change

We can also see that our chosen macro-economic factors do not explain the change in return of Bank CenterCredit shares. In turn, the changes of return on Halyk Bank's stocks respond significantly to the changes in the independent variables. The reason for this may be that it is the largest second-tier bank in Kazakhstan.

If you go back to understanding the indicators on the table, then the stars next to the numbers mean whether the obtained values are significant, that is, shows how far the results are obtained randomly. For example, three stars tell us that we can get such results with a chance of less than 1% when using the Student's t-test.

According to the results of this study, it is clear that the price of oil is not a significant indicator that affects changes in the prices of banks' shares, which does not coincide with the results of other studies (Mohammed, S. S., Di Li, Akram, S. H., 2021). Also, such an indicator as the level of the money supply is not material and influences the bank in absolutely different ways that differ from the data of other researchers (Hel Ajmi Jameel Al-Dhaimesh, 2020). In addition, it can be seen that changes in the risk-free rate do not have any impact on the price of shares of these banks.

Figure 2 - Return
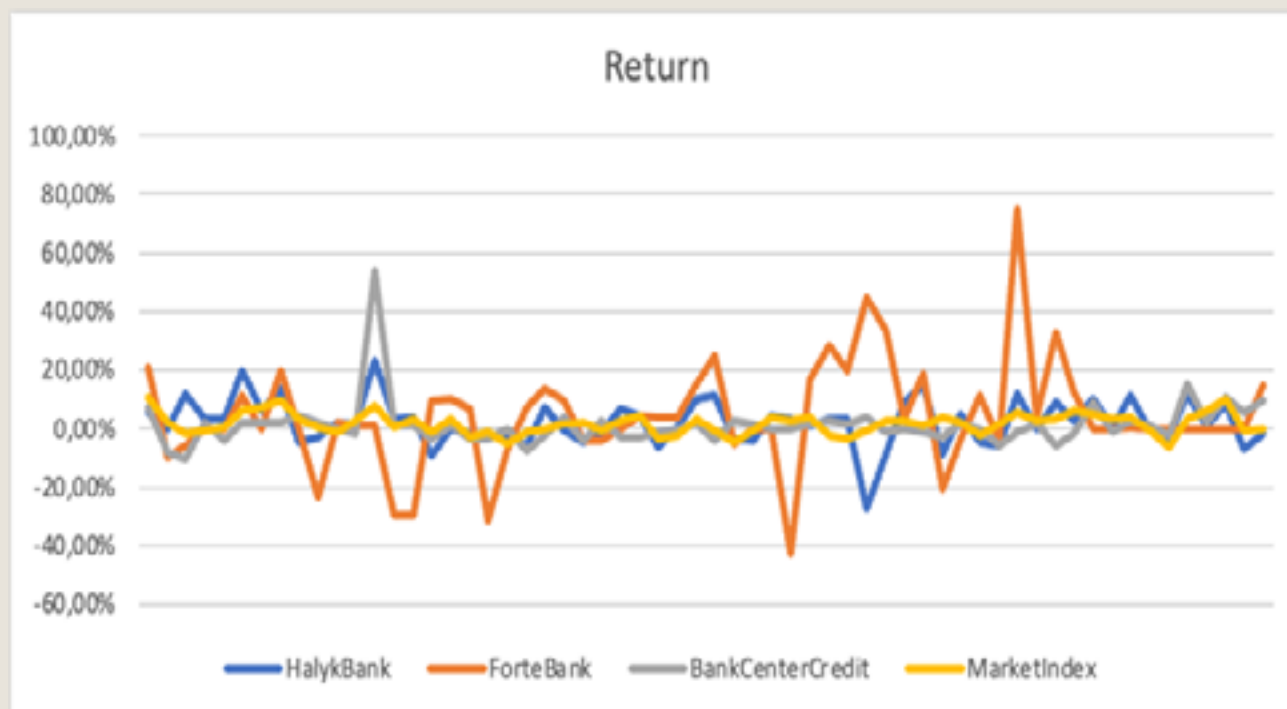
Now look at the results for Forte Bank. We can see that the bank has no significant data. This may be due to the fact that the stock prices of Forte Bank were unchanged at some points, as mentioned above. Also, a consequence of this may be the market value of the stock, which costs within 5 tenge and a slight change in this value has a very strong impact on the yield. All this can be seen in Figure 2 above. Another reason may also be that the majority of Forte Bank shares do not participate in the auction, but are held by a single large shareholder with a share of 90.6 per cent.

The Bank CenterCredit results are broadly similar to Forte Bank, but the share price is affected by a fairly large change in the yield of the KASE stock exchange. Based on our table, the increase of KASE stock yield by one per cent boosts Bank CenterCredit's yield by 0.817 per cent.

Halyk Bank is the only bank among three banks whose shares are explained by independent variables in a significant manner. According to the table, the share price of the bank is influenced by positive changes in the yields of the KASE exchange the same results were obtained from other researchers (Faff and Chan,1998; Joseph and Vezos, 2006; Ibrahim, 1999; Saqib, Babar, Kashif, 2011). Thus, a 1 per cent increase in the yield of the stock exchange goes up the yield of Halyk Bank's shares by 0.884 per cent. At the same time, the growth

of consumer inflation negatively affects the stock price of the bank, and with the same results came other researchers in their works (Cozier and Rahman, 1988; Ibrahim, 1999; Saqib, Babar, Kashif, 2011). Thus, the rise in inflation by 1 point reduces the yield of Halyk Bank shares by 0.102 per cent. There is also a negative correlation between the exchange rate, which can be explained by the fact that people in Kazakhstan, due to several currency devaluations, usually go to cash their deposit accounts in order to convert them into foreign currency. In this regard, we can say that the boost in the exchange rate decreases the yield of Halyk Bank's stock by -1.065 per cent.

Table 3: Correlation of variables for 2021
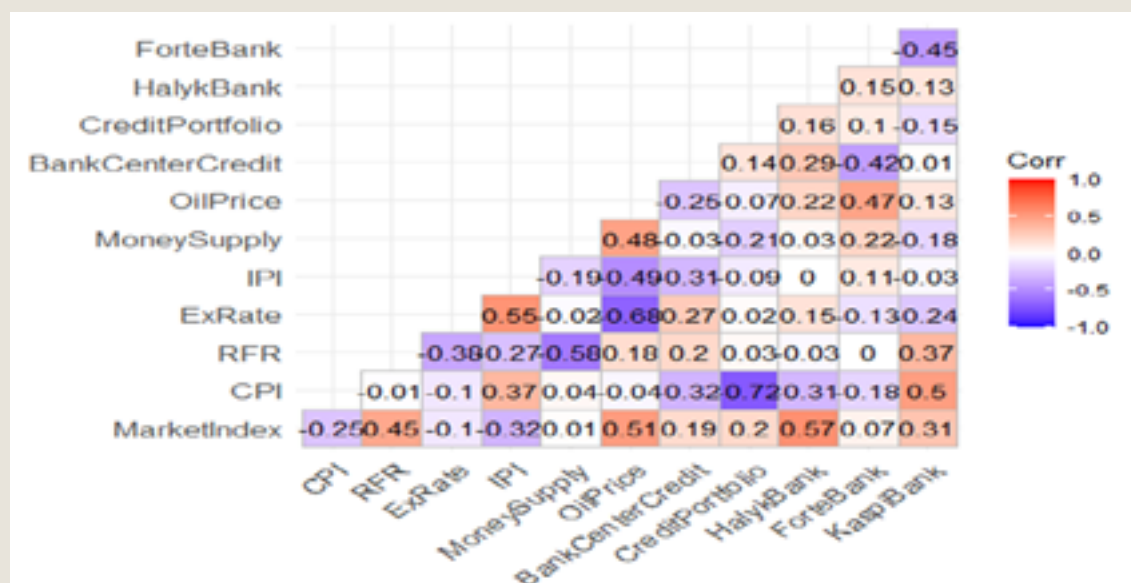
In addition, thermal correlation maps and regression were made, which included data for 2021 only. From table 3 above we can see that all banks except Forte Bank have a Market Index relationship. It is also noticeable that Halyk Bank, compared to previous years, lost its connection with the rest of the values. Among all banks, Kaspi Bank stands out, which has a positive correlation with CPI and RFR.

Table 4: Regression results for only 2021 year

	Bank CenterCredit	Halyk Bank	Forte Bank	Kaspi Bank
Market Index	0,445	1,290	-1,973	1,227
CPI	-0,066	-0,183	-0,149	0,779
RFR	0,426	-0,459	0,347	0,080
Exchange rate	0,142	-1,215	8,453	0,548
IPI	-0,012	0,010	0,020	-0,021
Money Supply	1,954	-1,031	-1,158	-0,634
Oil Price	-0,784	0,046	2,015	-0,123
Credit Portfolio	-0,012	-0,221	0,113	0,527
Constant	0,089	0,132	0,045	-0,421
Observations	12	12	12	12
R^2	0,590	0,589	0,679	0,622
Adjusted R^2	-0,502	-0,506	-0,175	-0,385
Note:	*p<0,1;	**p<0,05;	***p<0,01	

Source: Author estimations

As can be seen from the table above, the data showed no significant results for any bank, so their interpretation makes no sense. Then we can say that the variables chosen by us very poorly explain Kaspi Bank. We assume that the shortage of substantial data for Kaspi Bank can be explained by the fact that there is a small period for research, as mentioned above. The second reason could be that in addition to the Kazakhstan stock exchange, the bank is also listed on the London stock exchange. From this fact may follow that the shares of the bank depend to a large extent on the change in the foreign stock exchange rather than on KASE.

Conclusion and Recommendations

Conclusion

The research tests a relationship between the dependence of stock returns and specific macroeconomic and industry variables using a multi-factor model. The regression model was used, which was divided into two parts. The first part of the study consists of correlations of variables of three banks: Halyk Bank, Forte Bank and Bank CenterCredit, which were listed from 2017 to 2021, and in the second part of the research, data from Kaspi Bank for 2021 were additionally added. The conducted research allowed us to draw the following conclusions.

The profitability of Halyk Bank shares has a positive relationship with the Market Index and Oil Price, as well as an average negative relationship with the Exchange Rate, while Bank CenterCredit has a very small positive relationship with the Market Index, and in turn, Forte Bank has no relationship at all. As you can see, most of our models explain Halyk Bank and a little bank CenterCredit well, but the practical one does not explain the values of Forte Bank and Kaspi Bank in any way.

However, the conducted research allowed us to find out that this is due to the fact that Kaspi Bank has only recently started listing, so we were forced to take a very short time in the second part of the research. In the case of Forte Bank, the reason is the low growth in the profitability of shares, since in some periods the profitability of shares did not change. Another reason may be that most of the shares are owned by a large shareholder who owns 90.6% of the shares. Also, it follows from the above that a very large percentage of variables is explained by Halyk Bank, since it is the largest second-tier bank.

If we summarize the selected variables, the data found and analyzed allow us to reveal that of all the variables, the risk-free rate has no effect, while the price of oil is not a significant indicator that affects the prices of banks' shares. Most of all, variables such as Exchange Rate and Market Index were able to have the greatest impact in comparison with other variables. Thus, based on the results obtained, it is concluded that the profitability of the KASE exchange positively affects the share price, while the growth of consumer inflation negatively affects the value of the bank's shares. Consequently, an increase in the exchange rate by 1 per cent reduces the profitability of the stock, and an increase in inflation by 1 point reduces the profitability of

Halyk Bank shares.

In the course of an additional investigation, in which data from 4 banks were taken only for 2021, it was also concluded that the results did not show any significant results for any bank, unlike the first regression.

5.2 Recommendations

Based on the work done, and its conclusions and results, below are some recommendations that will be of interest to those involved in the Kazakh capital market. The study tests a multi-factorial model at the firm and industry level, which is being tested by 4 secondary banks from one sector of the economy due to the lack of banks trading on the stock exchange over the past 5 years, but the work can be expanded by considering other banks.

The model of this study consists of 6 macroeconomic variables and two industry variables, but this list can be expanded by using some economic indicators that are not yet available. For example, you can add a banking spread, and show the difference between the lending interest rate and the deposit rate, thereby showing the size of the bank's profit margin. In this study, the banking spread was not added due to the unavailability of information.

Also, the first regression covers the last 5 years, however, for a more detailed and accurate analysis, it is advisable to take the last 5-10 years, since information on banks accumulates and, in particular, it is possible to deduce an exact correlation between the profitability of shares of Kaspi Bank and other variables.

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Evaluation of Bank Lending Practices and Credit Management in Kazakhstan.

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Abstract

Back in 1987, the banking system of Kazakhstan
had two banks. Kazakhstan's banking system
has been developing since independence
and has achieved incredible results. Thus,
Kazakhstan occupies a leading position in the
field of financial technologies developed by
banks that are part of the banking system. In
this article, we evaluate the banking system
of Kazakhstan, namely the practice of bank
lending and credit management. We tested
hypotheses to evaluate the system of bank
lending. To do this, we resorted to quantitative,
qualitative and empirical methods. In this
study, we found out the main reason for the
differences in the lending system, the factors of
the lending system that determine profitability
and efficiency; which segment of lending brings
the greatest profit; the relationship of banking
indicators such as NPL with net profit, loan
portfolio and return on assets, and finally, the
relationship of the introduction of prudential
standards by the National Bank for the entire
banking system of Kazakhstan.

Introduction

Kazakhstan's banking industry has been
growing successfully in many areas for many
years, approaching the level of development of
Eastern European banking systems, which have

now formed part of the European and Global Banking systems. According to the Kazakhstani Monetary Policy, there is a two-level system, where the first level is regulatory institutions represented by the National Bank of the Republic of Kazakhstan and the Agency, and the second is commercial banks (second-tier banks).

At the beginning of the 90th, there were more than 200 second-tier banks in Kazakhstan, and the main goal of the National Bank was an improvement the current situation at that time. Kazakhstani banking system has been reformed and commercial banks have accepted international standards. Followed by that, STBs are required to meet international criteria in terms of capital adequacy, liquidity, asset quality, management level, accounting, and introduction and transfer of information (Myrzakhmetova & Nurabaeva, 2016). All indicators depend on a high-quality credit portfolio created by lending practices and affected by the credit management of the bank.

The main indicators of lending practice effectiveness are profitability and quality of assets, which consist of liquid assets, securities, and different types of loans. A major element influencing bank profitability is non-performing loans (NPL), which have a strong pressure on the balance sheet of the bank and may exacerbate the problem with the loose lending environment (Klein, 2013).

With regards to effective credit management, it is the capacity to manage customer credit limits wisely and efficiently. Companies must have a deeper knowledge of consumer financial strength, credit score history, and changing payment patterns to avoid exposure to bad debt, over-reserving, and bankruptcies (Moti et al., 2012).

Bank lending practices and credit management are crucial factors in the economy which affect financial stability and economic adjustment operations in the country (Allen & Wood, 2006).

Followed by this, our research is based on analyzing STB data, building regression models to establish relationships between variables and their impact on the profitability of the bank, and identifying the efficiency of the banking system in Kazakhstan.

Research questions

- What are the reasons for different lending practices among commercial banks in Kazakhstan?

- How do retail lending, individual and corporate lending practices operate in Kazakhstani second-tier banks?

- To what extent exists a relationship between ROA, NPLs, liquidity, risk exposure and financial ratios, and how do they affect profitability?

- To what extent do commercial banks of Kazakhstan follow the principle of lending and policies (prudential standards)?

Purpose of the study

The purpose of this study is to evaluate lending practices and credit management of the second-tier banks of Kazakhstan based on an analysis of statements, and a comparison of banks' performance, and to identify the efficiency of the Kazakhstani banking system at large.

Specific Objectives

i. To assess the current banking system, policy, and credit management in Kazakhstan.

ii. To determine a probable existence of the significant relationship between the bank loan, credit management and profitability.

iii. To investigate and analyze how retail, individual, and corporate lending operates in Kazakhstan.

iv. To examine the correlation between ROA, NPL, profitability and liquidity in commercial banks.

v. To establish an extent of the accordance Kazakhstani STB end-period statements to the principles of lending and policies.

Hypotheses

H1: The main reason for the difference in banking activity is own strategy of every STB, which is oriented toward high-performance and profitability;

H2: The main reason for the differences in lending practices is the loan rate, as well as the scoring process that determines the criteria for borrowers.

H3: Different segments of lending practices allow for variate revenue, while the retail sector

is the biggest profit contributor.

H4: There is a negative correlation of NPL with profitability and capital adequacy.

H5: The adoption of Basel Standards by the National Bank has led to a rapid reduction in the number of commercial banks and increasing effectiveness of the Kazakhstani banking system.

Literature review

Background

Providing lending for the borrowers is a crucial profitability generator for the commercial banks, which could engage in huge risk creditor and debtor (Alabi et al., 2019). As the most important income contributor bank lending is based on some principles, which influence loan policy and credit operation. Some of the principles are profitability, purpose, safety, diversity, and liquidity. The purpose of the loan from the borrower side should be productive and rational to determine the risk and effect of interest rate on the loan. Diversity helps to minimize the risk through investing in different fields. Adedoyin and Sobodun (2009) stated that "lending is undoubtedly the heart of banking business".

With regards to the credit management of the banking sector, it has a cardinal difference from the past. In order to remain on aggressive terms dictated by the market, the banking sector has developed a large number of strategies aimed at managing loans. A large number of funds were lost due to the inefficiency and incompetence of the banking system, as well as many banks were liquidated and closed. The current banking system of Kazakhstan is a dynamically developing result of past mistakes and the introduction of innovative solutions in the field of financial technologies and credit management. (Akwu, 2013).

The majority of bank profits come from taking on credit worthiness. Banks collect savings and other forms of money, which they take into account when making loans and buying debt instruments, generating income that is above their capital and overhead expenses, resulting in profitability. The sector has the potential to detect, evaluate, analyze, control, regulate, and manage credit risk. Credit risk is crucial to meeting strategic goals and optimizing financial results in a satisfactory manner.

When economic growth slows or deflationary factors arise, banks that operate with riskier lending practices often see a rapid increase in credit repayment offences, failures, reorganizations, bankruptcies, and losses. The hazards of careless or unsound financial intermediation procedures that resulted in a negative consequence could appear clear after the fact. Many article investigations into recent financial crises, on the other hand, have highlighted lending "red lights" and hazards that were present prior to the collapse but were either overlooked, disregarded, or ignored (Zamorski, 2017).

Regulation of the banking system of Kazakhstan.

Kazakhstan currently has a two-tier banking system. The National Bank is the state's central bank, and it represents the banking system's higher (first) level. The Law of the Republic of Kazakhstan on the National Bank of the Republic of Kazakhstan establishes the National Bank's tasks, principles of operation, legal position, and powers. Except for the Development Bank of Kazakhstan, which has a specific legal position specified by the Republic of Kazakhstan's legislative act, all other banks represent the lower (second) level of the banking system.

Despite the two-level system, there is an Agency for Regulation and Development of the Financial Market of the Republic of Kazakhstan, which contributes to the stability of the financial system and the development of financial markets, exercising control and supervision of state regulations, financial markets and financial organizations, and others within their jurisdiction. Unfortunately, after the crises of 2007-2010 prudential regulations adopted by the NBRK and Agency were not compelling and sufficient and did not have the correct security solidness of the keeping money framework. As the result, supervisory and regulatory authorities decided to enhance requirements for calculation and prudential standards.

Basel-I was easily implemented in the Kazakhstani banking system, while the implementation of Basil-II was not applied. The reason was that this system (Basel II) is based on internal models of banks, and in 2007-2008 it did not suit the banking system of Kazakhstan.

The first trial to implement Basel III was in 2013, but banks asked to postpone this procedure because of the Kazakh regulator ahead on this issue the European countries and the United States. In 2015 it was a second trial of introducing the last Basil standard. Based on the annual report (2015) of NBRK (National Bank of the Republic of Kazakhstan), the average capital adequacy ratio was approximately 12.6%, which is even higher than Basel III prudential capital requirements (7%). Despite this fact, the wisest decision was to slow down, because the Basel standards are rather applicable to developed economies, whereas Kazakhstan is still among the developing countries where the issue of economic diversification is acute. In Europe, the completion of the transition to Basel III is scheduled for 2019, and for Basel III, Kazakhstan has too much probability of tenge falling and the appearance of issues with national currency liquidity.

As the result, nowadays Kazakhstan keeping money framework is still as it was formally prepared to comply with worldwide necessities. Fair the presentation of unused prerequisites will diminish the productivity of managing an account operation, which antagonistically influences the execution of bank liquidity (Sadibekova & Sairambaeva, 2015).

Before the crisis of 2007 Kazakhstani banking system was considered one of the best in the CIS. During that time banking reform was carried out, a two-tier system was created, which was well adapted to the market economy, and legislative and methodological bases were created considering the experience of developed countries, and the basic principles of control and regulation of the Basel Committee were introduced.

Table 1. Amount of the STB in Kazakhstan during the period of 30 years.

Year	1991	1996	2001	2006	2015	2021
Kazakhstan	72	101	48	39	35	22
foreign banks (non-residents)	-	3	3	19	16	14

The reasons for the declining tendency of second-tier banks for 30 years were revocation of licenses, mergers with other banks, conversion to a branch, voluntary liquidation, and other reasons. A reduction in the number of second-tier banks has a negative impact on the level of banking competition. In comparison with 1996, there is a growth of 5 times in the number of foreign banks in Kazakhstan. Such beneficial growth tendencies have a positive influence on the economic development of the country.

In 2021, several significant changes took put within the banking segment of Kazakhstan. The number of STBs diminished from 26 to 22 (in comparison with 2020). 12 of them are with foreign capital, the share of which is only 17.1%. The reasons for market players' decrease were different. For example, after financial crises, difficult circumstances pushed ATF Bank to participate in the Program for improving the financial stability of the banking sector, where it was given a loan at a rate below inflation, at 4% per annum and with a maturity of 15 years by NBRK. Taken debt was paid only for half, while the bank identified a need for additional reserves based on the results of the AQR. 99,76% were acquired by Jusan bank. Another reason for bank liquidation is a violation of prudential standards due to lack of liquidity as it happened to AsiaCredit Bank and Capital Bank Kazakhstan (Bassarova, 2022).

2.3.   Regulation of the banking system of different countries

After the global crisis in 2008, the implementation of Basel III was a demonstration of successful "healing" and stabilizing of the banks for the Basel Committee, customers and regulators. Basel III was introduced in many countries around the world, which was a challenging process for the majority of them. Basel III was introduced to improve the efficiency of banking and risk reduction. Last experience in the implementation of the Bank of International Settlements (BIS) by the European Union allowed them to become more consistent and smoothly move from Basel II to Basel III.

EU was trying to regulate the situation, prevent "gold plating" and provide equal rights and rules, in order to remove chances for regulatory arbitrage (Chabanel, 2011). Thus, analyzing the Basel III conducted among European banks, some conclusions are drawn. Based on the report from the European Banking Authority on monitoring the results can be seen the impact of the Basel III on key risk indicators of banking activities. For example, starting from 2018 we can see a decline in market risk from 0.7 to 0.2 in 2020. However, the CVA indicators remain roughly at the same level (BASEL III MONITORING EXERCISE – RESULTS BASED ON DATA AS OF 31 DECEMBER 2020, 2021). The USA, which successfully skipped the adoption of Basel II, decided to facilitate the Basel III implementation process with the help of the Dodd-Frank Act and accept the situation as a fresh start on the basis of Basil I.

In comparison with the EU and US, which are the most developed and well-prepared countries, a situation with the adoption of the last Basel Standard in Russia, Africa, Eastern Europe, the Middle East and the Asia Pacific less comprehensible. Some of the countries

should introduce all three standards together, because of the absence of any of them before. Other countries were trying to move toward the Internal Rating Based (IRB), in order to change the calculation approach of credit risk (Chabanel, 2011). There was also parallel implementation of the Basel Standards and other regulatory legacies in some countries, which was a suppressing and difficult process.

Such a situation in the world allowed to STBs practice handling the mix of all three Basel Standards and continue their business by taking into account geographical location and demands of the local regulators.

Statistics

Market share

Based on the market-share data for January 1st 2010, Kazkommertsbank is the main leader with a 21% market share. The second and third places are shared by Halykbank and BTA with a market share of 17% and 16%. This chart shows 33 banks in the group of others. The group of others make up the main part of the market at 23%. The data was taken as of January 1st 2010 (Figure 1).

Figure 1. Market shares of STB in 2010.
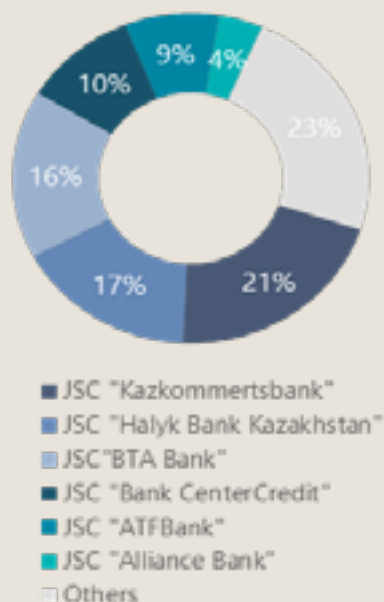
Figure 2. Market shares of STB in 2015.
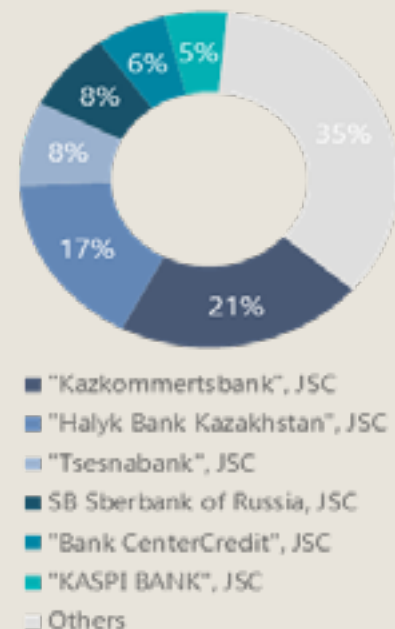
In 2015, Kazkommertsbank is still the market leader with a share of 21%. In second place is HalykBank with a share of 17%. Moreover, these two banks are far ahead of the others. As Tsesnabank, which is in the third place, has a share of only 8% (Figure 2).

Figure 3. Market shares of STB in 2020.
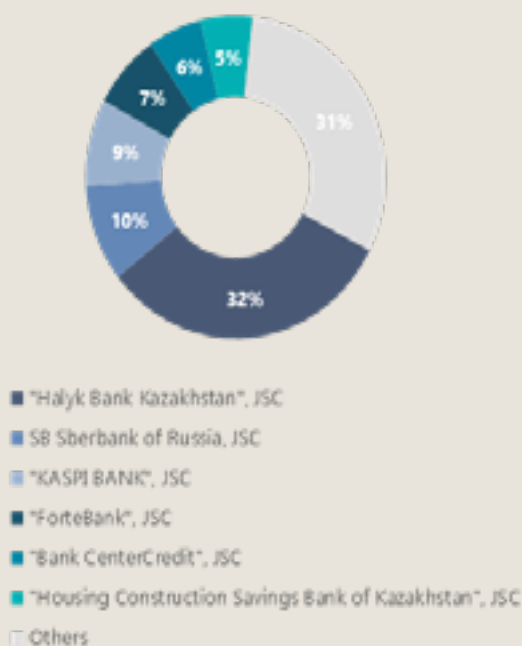
Figure 4. Market shares of STB in 2022.
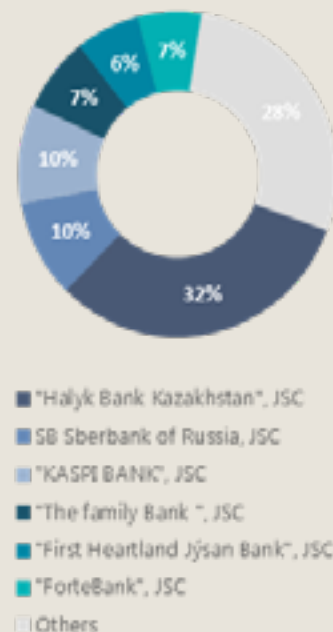
For 5 years the market situation has changed. In 2020 the market leader is Halyk Bank with a share of 32%. This is most likely due to the fact that in 2018 Kazkommertsbank, a bank with a leading position, joined Halykbank. This share is even higher than the total share of 20 banks. Halykbank is three times bigger than Sberbank which is in the second place with a share of 10% (Figure 3).

By 2022 the situation remains approximately unchanged. Halykbank also remains the leader. Moreover, Sberbank and Kaspi remain the main leaders apart from Halykbank (Figure 4).

Assets, credit portfolio and non-performing loans

Despite a reduction in the number of market players among STB at the end of 2021 was reached the historical maximum of assets and the credit portfolio excided own best results performed 6 years ago.

Figure 5. Annually and quarterly amount of total asset

According to the results of 2021, the total assets of all STBs were equal to 37,622 billion tenge, which is the highest indicator for the whole period of the banking system's existence. In comparison with the last year (2020) assets significantly increased by 20,7% and continued to keep a constant growth rate for almost five quarters (Figure 5). In a more detailed observation of assets' growth, it is visible that the most part of the increase is represented by five STB leaders such as Halyk Bank, Family Bank, Sberbank, Jusan Bank and Kaspi Bank. Almost 31% of total growth was reached by Halyk Bank, which enriched its own assets by more than 11,600 billion tenge by the end of 2021. In addition to the five high performing banks, there are two more represeters of the high-quality assets and credit portfolio conditions such as Forte Bank and Bank Center Credit.

Figure 6. Credit portfolio of STB.

Figure 7. Change of credit portfolio annually and quarterly

With regards to the volume of the loan portfolio, at the end of 2019, 2020 and 2021 it significantly increased by 13.02%, 3.48% and 27.9% respectively (Figure 6). The strongest growth occurred at the end of 2021 in the amount of 4.4 trillion tenge from the total credit portfolio of 20.2 trillion tenge (Figure 7). In the fourth quarter, the volume of the portfolio increased by 2.1 trillion tenge. Of these, about 1.25 trillion tenge fell in December 2021. This was the maximum monthly increase in the indicator for at least the last 6 years.

Figure 8. Amount of total NPL, including NPL over 90 days, by quarters and years

In 2021, there is a significant decrease in loans with overdue payments. As of January 1, 2022, their size amounted to 1 trillion 063.8 billion tenge, which is 464.9 billion tenge, or 30.4%, less than a year earlier (Figure 8). The current figure is the lowest since at least 2016.

The decrease in the volume of arrears against the background of the growth of the loan portfolio has led to the fact that the quality is at a multi-year (if not historical) maximum. According to the National Bank of the Republic of Kazakhstan, as of January 1, 2022, the share of overdue loans is 5.3% against 9.7% a year earlier. The decrease in the share was noted during 9 of the 12 months of the year. The strongest was in June: from 9.8% to 7.13%.

Methodology & Data

Loan rate and terms comparison

To assess lending practices, it was decided to compare the terms of bank loans. The sample consists of 6 banks such as Halyk, Eurasian, Forte, Jusan, BCC and Family bank that offer an identical product: a cash loan to an individual without collateral. Calculations of the banks were made through the use of online calculators and by using the PV Annuity formula and the effective annual rate:

$$PV = PMT \times \frac{1-\left(\frac{1}{(1+r)^n}\right)}{r},$$

and converted formula to figure out cash flows:

$$CF = \frac{PV \times r}{1-\left(\frac{1}{(1+r)^n}\right)},$$

where PV – the present value of an annuity stream, PMT – tenge amount of each annuity payment, CF – cash flows of annuity stream, r – interest rate, n – number of periods in which payments will be made. As principle was taken 1,000,000 tenge and as period were taken 12 months.

Correlation

According to the hypotheses of this research, there is a need to identify the main reasons for the differences in lending practices and establish a relationship between ROA, NPL, profitability and other indicators.

In order to accept or reject these hypotheses, there were applied the sampling procedure by selecting 7 leading second-tier banks from 2017 to the first quarter of 2022. The first reason for the narrow scope is the insufficiency in data of other commercial banks, which creates obstacles in determining correlation and building a regression model. The second reason is in market share size of these banks. Observing the whole commercial banks industry estimated that Halyk, Kaspi, Sberbank, Forte, Jusan, BCC (Bank Center Credit) and Family bank represent more than 70% of the whole STB segment in the last years.

In an attempt to find the relationship between two quantities (and more) in different aspects

the following variables were taken:

T_NPL – *total non-performing loans of the 7 banks*

T_NI – *total net income of the 7 banks*

TA – *total assets of the 7 banks*

TL – *total loans of the 7 banks*

ROA – *return on assets (average)*

AV_LIQ - *Current liquidity ratio (average)*

AV_CA - *Capital adequacy (average)*

AV_RE - *Maximum risk exposure for a single borrower, for any other borrowers (average)*

AV_LCR – *liquidity coverage ratio (average)*

AV_SFR – *net stable funding ratio (average)*

INF_R – *inflation rate (by month, from 2017 to March 2022)*

GDP – *gross domestic products (by month, from 2017 to March 2022)*

The list of variables above is figured to be valuable for understanding correlation and building a regression model. As a measure of analysis of bank performance, there was taken ROA and other eleven variables due to their high significance in the banking.

Based on the data of 7 banks there were calculated mean, median, maximum, minimum and standard deviations of the range of variables:

Table 2. Descriptive statistic.

Variables	Mean	Median	Maximum	Minimum	St. Dev
TA	19157.991	18264.450	29684.200	12753.280	5044.998
TL	10642.052	10193.030	16838.230	7344.330	2468.193
T_NI	13900.963	13026.490	35432.160	1310.650	8894.149
T_NPL	1200.426	1257.800	1637.230	817.800	233.307
ROA	0.731	0.692	2.012	0.080	0.446
AV_LIQ	3.014	2.540	5.262	1.447	1.119
INF_R	0.068	0.070	0.120	0.048	0.013
GDP	0.035	0.047	0.117	-0.117	0.043
AV_CA	0.211	0.210	0.250	0.150	0.017
AV_LCR	2.859	2.774	4.337	1.889	0.620
AV_SFR	1.570	1.600	1.716	1.299	0.097
AV_RE	0.145	0.143	0.189	0.122	0.013

The dataset above allows to estimate the relationship between ROA and other variables to identify the effect of the inflation rate, GDP, and other significant indicators such as liquidity, capital adequacy, risk exposure etc. on the bank's performance via the correlation formula:

$$r_{xy} = \frac{\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{(n-1)s_x s_y},$$

where r_{xy} – correlation between two variables, $\bar{x}$ and $\bar{y}$ are sample means of X and Y, s_x and s_y uncorrected sample standard deviations of X and Y, n – number of observations.

Multiple Linear Regression Model

"The multiple linear regression model is the most commonly applied statistical technique for relating a set of two or more variables" (Jobson, 1991).

The building of a multiple regression analysis model is developed from the given formula:

$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_n X_n + \varepsilon,$

where y – dependent variable, X_i – independent variable, β_i – parameter, ε – error.

Based on the descriptive statistics above, the first step to do is to provide analysis for each quantitative variable via examining of skewness coefficient, kurtosis coefficient and histogram. To complete the first step, there is a need to download the data table in the R-studio. The next step is preparing a scatter diagram and interpreting the results. Using the correlation between variables, which were calculated before, there is a necessity to identify at least one useful result for making a prediction via hypothesis test. Following that, it should be done forward selection to figure out the best performer. This approach is measured by Residual Sum of Squares (RSS) and R-adjusted (R^2). R^2 is going to be calculated to measure the extent of variance between variables by the following formula:

$R^2 = Corr(y, \hat{y})^2$

The last step is analyzing the results of regression and summarizing them to get a conclusion with the matrix scatterplot.

Methodology

The data resources were collected from the official website of the National Bank of the Republic of Kazakhstan, First Credit Bureau, and commercial banks. Analysis was provided from several perspectives: regulatory, business process, and statistics. Approximately 22 commercial banks were used to evaluate the lending practices through analyzing financial statements, comparing strategies, and building statistical models.

A mixed method was used to investigate these research objects. This method includes a quantitative method and a qualitative method, which is likely to lead to more accurate research results. However, most of our results come from the quantitative method.

The quantitative methods include the analysis of financial indicators and statements of all second-tier banks in Kazakhstan, statistical study of bank development and bankruptcy, determination of financial ratios and their significance, and correlation, in order to establish the existence of the relationship between the main financial indicators (NPL, liquidity, financial ratios, and risk indicators). For example, we found a correlation between the general indicators of the NPL coefficient and net profit. Indicators with high correlation can show the interconnection of financial instruments and help to manage them to achieve certain results. All calculations were done in Excel with formulas and graphs. Also, we used Word for structuring tables and R-studio for creating regression models and visualization.

In the case of the qualitative method, some data were borrowed from recent scientific papers that have direct or indirect relevance to our topic. The main sources were google scholar, scholarly journals, online libraries, and scholarly websites of private universities around the world. Also, calls were made with the lending department of banks, to determine the basic conditions for obtaining cash loans to individuals. Such conditions include age, citizenship, salary, interest deductions and the offered interest rates. Online interviews were also conducted with bank employees to analyze the service of banks. All data obtained were recorded in writing.

Analysis, findings, and results

Hypothesis 1.

The main reason for the difference in banking

activity is the own strategy of every STB, which is oriented toward high performance and profitability.

In order to test the hypothesis provided above, there were observed three high-performance banks according to the statistic for the year 2022. There was compared own strategy of each bank considering the mission of the bank, strategy concept, performance for the previous year, key strategic objectives for the coming two years, key business areas and financial statements from the official websites.

Kaspi bank

Mission: "To improve people's lives by developing innovative products and services".

History of Kaspi. Kaspi, as the largest IT bank, began its journey in 2012 with the creation of payment of bills for various services and an electronic wallet, thereby creating the foundation for a further ecosystem. In 2013, Kaspi began to increase the number of terminals for using these services, created in 2012 - payment of bills and replenishment of electronic wallets. In 2014, the marketplace, the Kaspi Bonus system, and online consumer lending appeared. The following year, in 2015, a Kaspi Gold debit card and a delivery service at the Marketplace appeared. In 2017, the Kaspi application was developed, which included P2P and phone number transfers, which also combined all parts of a huge ecosystem. Then a huge number of innovations were created, such as the introduction of QR systems, smart ATMs, POS terminals and the Face ID system.

The ecosystem consists of:

1)   Payments
2)   Marketplace
3)   FinTech

Table 3. Kaspi's revenue streams

Payments, YOY	Marketplace, YOY	Fintech, YOY
RTPV – 60%	GMV – 50%	TFV – 21%
Revenue – 59%	Revenue – 40%	Revenue – 43%
Net Income – 73%	Net Income – 39%	Net Income – 39%

Source: Kaspi Bank Investor Relations

Table 4. Kaspi's income statement by revenue streams for 1Q 2022 (in millions KZT)

	Payments	Marketplace	Fintech
Revenue	63 587	32 673	170 483
Cost of Revenue	6 537	3 596	64 644
Net Revenue	57 050	29 077	105 839

Source: Kaspi Bank Investor Relations

According to Kaspi bank's strategy, it can be understood that the strategy is to create necessary, convenient, and technological products. They are the pioneers of the modern banking industry in Kazakhstan. By creating an ecosystem, without which it is difficult to imagine modern banking, Kaspi has attracted many loyal customers who trust this bank. As practice shows, in the case of a large financial ecosystem that unites payment systems, smart ATMs, an application with many functions, such as ticket purchase, online banking, etc., customers prefer to save time and resources and use only one bank, which complies to the criteria above. For example, it is observed that Kaspi does not have the best conditions for lending and deposits, while other banks on the market offer more favorable conditions. But since customers use the entire ecosystem, they voluntarily attract loans and invest in deposits under not the best conditions. Therefore, it can be concluded that Kaspi, having its own strategy aimed at creating technological innovations in the field of financial technologies, which is ultimately focused on high-performance and profitability, brings results.

Halyk bank

Mission: "To create a territory of reliability, comfort and trust for our customers and partners".

The strategy of Halyk Bank is aimed mainly at

meeting the needs of its customers. Halyk Bank, as part of its main mission to meet the needs of customers, also develops IT solutions for its customers, without which it is impossible to imagine the modern banking industry. Halyk is no longer focused on innovation, but on creating a comfortable, reliable bank. Thus, according to the strategy of Halyk Bank, the Bank provides a wide range of services and affects all important aspects of the consumer.

Table 5. Amount of Halyk Bank clients.

Clients (mln)	1. 2020	2021
Retail clients	8.4	9
HomeBank clients	6.2	8

Source: Halyk Bank Investor Relations

	4Q 2020	3Q 2021	4Q 2021
Number of digital loans issued	104 000	256 000	398 000
Number of online deposits	17 000	32 000	42 000

Source: Halyk Bank Investor Relations

According to the strategic goal of customer focus, the Bank confidently follows this goal and according to dynamically developing products and increasing number of customers, it can be concluded that all the services developed by the bank are aimed at meeting the needs of customers, which is part of their own strategy aimed at high-performance and profitability.

Forte bank

Vision: "Become the most popular ecosystem of services in Kazakhstan, transforming into a technology company and creating a new team formation".

Mission: "Forte is a reliable partner in your financial daily life".

Forte bank's products:
- ForteMobile App
- ForteMarket
- ForteForex
- ForteKassa
- ForteBusiness
- ForteFood
- ForteID
- ForteKey
- ForteTravelQaz
- ForteLogistics
- ForteSpace
- ForteE-com

Table 7. Amount of Forte Bank mobile users.

Mobile users/Years	2018	2019	2020
Legal entities	24 184	32 902	44 665
Individuals	423 600	707 900	979 200

Source: IR(forte.kz)

As it can be seen in the company's vision, the Bank aims to become the most popular ecosystem of services in Kazakhstan aimed at digitalization of the Bank. The bank began digitalization relatively later than other banks, in 2020. And by their huge number of products created relatively recently, it can be observed that Bank has an aggressive market entry strategy that reflects the company's vision. The positive dynamics of Forte Bank users tell us that the Bank's strategy of aggressive market capture, which is aimed at profitability and high performance, has worked.

Based on the review of the strategies of high-level banks, it can be concluded that it is the strategy that determines the main banking activity, which is aimed at high performance and profitability. Kaspi's case shows that the

Bank is focused on creating innovations, Halyk is more focused on creating a comfortable and reliable product, and Forte has aggressive plans to capture the market by creating a variety of banking products.

Hypothesis 2.
The main reason for the differences in lending practices is the loan rate, as well as the scoring process that determines the criteria for borrowers.

Table 8 provides the conditions of each bank for a loan to individuals without collateral, respectively, differences in lending practices. The first line shows the annual effective rate in monthly terms, which affects the formation of the loan.

Table 8. Six STBs' loan terms comparison (scoring conditions).

	Halyk Bank	Kaspi Bank	Forte Bank	Eurasian Bank	Bank Center Credit	Jysan Bank
EAR	27.4%	54.60%	23.99%	22.9%	29.40%	26.8%
EAR monthly	2.04%	3.70%	1.8%	1.73%	2.20%	2%
Monthly PMT	94 802	104 724	94 555	93 017	95 563	94 559.6
Total PMTs	1 137 624	1 256 688	1 134 660	1 116 204	1 146 761	1 134 715
Overpayment	137 624	256 688	134 660	116 204	146 761	134 715
Pension contributions	6 months	-	6 months	6 months		
Min amount	20 000	20 000	100 000	20 000	-	30 000
Max amount	7 000 000	1 000 000	7 000 000	7 000 000	7 000 000	6 000 000
Min period		3 months	6 months	-	6 months	
Max period	60 months	48 months	60 months	72 months	60 months	36 months
Fine	0,50%	0,50%	0,50%	depend on loan		
Collateral	no need	no need	no need	no need	no need	no need
Salary		specify wages				minimum wage
Age	-	-	-	18-65	21-68	18-70
Resident	RK	RK	RK	RK	RK	RK
Fine for early payment	no	no	no	no	no	no

The largest rate, overpayment and monthly payment as it can be seen, has Kaspi Bank. (Appendix 1.1) This is because Kaspi has the least demanding characteristics of the borrower (scoring process), and the greater the risks, the greater the repayment.

The BCC bank does not have the ability to open a debit card, respectively, to issue a loan online without interconnection with the banking website. In the rating, this bank ranks the penultimate place in benefit with a monthly payment of 95,563, the effective annual rate from the official BCC website was taken as the basis for calculating the PV Annuity loan. Then there was the Halyk Bank (Appendix 1.2), surprisingly, with a monthly payment of 94,802.

The next ones are Jusan (Appendix 1.3) and Forte Bank (Appendix 1.4) with almost identical monthly payments and rates. It can be also noticed that in the options of the Forte Bank loan, you can choose the type of payment in equal shares, which reduces the total

overpayment on the loan. The application of the Eurasian Bank does not allow you to open a debit card online, which subsequently means that it is impossible apply for a loan online. Therefore, when calculating this loan, their effective annual rate from the official website was also taken as a basis. The values may vary. And if we proceed from a conservative approach and exclude the Eurasian Bank from the sample, since its monthly payment was not calculated using an official online calculator, Forte and Jusan have the most favorable conditions for online loans to consumers.

There are some differences in lending practices between second-tier banks. In the aspect of issuing loans, the differences in lending practices are, as could be seen, mainly in the annual effective rate, and the scoring process that determines it. Thus, the hypothesis about

the conclusion of a credit difference in the loan rate and the scoring process was confirmed.

Hypothesis 3.

Different segments of lending practices allow for variate revenue, while the retail sector is the biggest profit contributor.

In order to determine the volume of retail lending in the banking sector, it is necessary to analyze the structure and quality of the loan portfolio. Thanks to the created table you can see the volume of loans by different segments from 2018 to 2022. Loans in the loan portfolio are divided into several segments, such as corporate loans, retail loans, loans to small and medium-sized businesses (this only applies to companies registered in Kazakhstan), and others.

Table 9. Loan portfolio by main segments.

Bank loans (principal)	01.01.2022	01.01.2021	01.01.2020	01.01.2019	01.01.2018
Corporate loans	18%	24%	28%	29%	31%
Retail loans	50%	45%	43%	36%	31%
Loans to small and medium-sized enterprises	27%	27%	27%	33%	34%
Others	5%	4%	2%	2%	3%

According to this table, we can conclude that in the last 4 years the bulk of the loan portfolio of the banks is retail loans. Only in 2018, the main type of loans were loans to small and medium-sized businesses. It accounted for 34% of the total portfolio, while retail loans accounted for 31%.

Figure 9. Volumes of different types of loans in the loan portfolio

Today, retail loans dominate the loan portfolio and makeup 50% of the total portfolio. Volumes of all types of loans at the beginning of 2022, can be seen in the pie chart above (Figure 9). And since the main resource that creates revenues is the loans issued by banks, the indication that the main share of the loan portfolio falls on retail loans confirms the hypothesis that retail loans create the main share of income.

Hypothesis 4.

There is a negative correlation between NPL with profitability and capital adequacy.

According to the hypothesis above, the interval of correlation between NPL and profitability should be equal to [-1;0) without considering zero. Such assumption was based on the logic of the opposite effect of NPL and income on each other. If NPL is growing, then people do not repay their debt and less interest come to the bank's account, and income does not have any growth.

To prove the given logic, there was a necessity to build a multiple regression model. Firstly, there were created histograms and scatter plots (built with each independent variable) for analyzing the mass of relative compactness (Appendix 2.1 and Appendix 2.2 respectively), and a matrix of scatter plots to identify the existence of a relationship between variables and the possibility of multicollinearity (Appendix 2.4).

There were tested three models with different amounts of independent variables. The second and third models are more precise and accurate because every variable was logarithmic further (see in Appendix 1.7). Interpretation of the multiple regression examined through the

F-statistics (p-value), which is < 2.2e-16 and considered as highly significant. Such p-value means that there is at least one significantly related value to the outcome. The selection of valuable variables was based on the results of the t-statistic, which shows the extent of association between variable and outcome. Of the set of eleven variables, there were taken only seven, which are the most significant for the regression model and four of them not. Further, there was provided accuracy assessment of the model by identifying RRS and adjusted R-squared. Based on the last model (third) with the seven variables, the adjusted R-squared is equal to 0.9959, which is very close to 1 and shows the high accuracy of the created model. In addition, the standard error of the model is equal to 0.04664, which also means the high accuracy of the multiple regression model. Tables of descriptive statistic results containing confidence, standard error, t-statistic, and other outcomes are provided in Appendix 2.3. As the result, the matrix scatters plot of multiple linear regression shows that there is a need to reject our null hypothesis and state an alternative one: "There is no significant relationship between NPL and profitability, and mostly negative correlation with capital adequacy". Despite the main variables mentioned in the hypothesis above, there could be made a conclusion that other indicators such as liquidity, inflation rate, GDP, capital adequacy, LCR and SFR have a more significant relationship with NPL (positive and negative). From the matrix in the appendix, it could be also noticed that among all variables the most significant relationship with the profitability (ROA) is represented by SFR.

Figure 10. Correlation between financial indicators
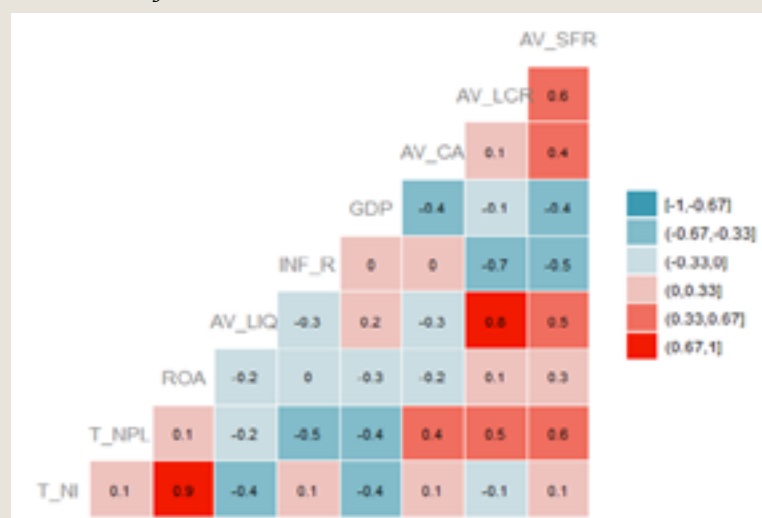
Regarding the NPL, it is one of the most important indicators of a credit portfolio. According to Figure 10 provided above, bank performance could be represented by ROA, which has a negative but not that strong correlation with liquidity, GDP, and capital adequacy. As is visible on the correlation table, LCR and SFR are the most performing variables, which have a stronger relationship with other indicators. The reason for this relationship could be explained by referring LCR and SFR to the Basel III representatives (introduced in 2018), which allow banks follow to recommendations and keep standards of the world's best practices with the aim of high performance in the future.

Hypothesis 5.

The adoption of Basel Standards by the National Bank has led to a rapid reduction in the number of commercial banks and increasing effectiveness of the Kazakhstani banking system.

In 2017, 31 banks in the territory of the Republic of Kazakhstan officially had permission for banking activities. At the beginning of 2022, the number of banks decreased to 22 banks. The banks that stopped their activities are Kazkommertsbank JSC, ATFBank JSC, Qazaq Banki JSC, Bank "Astana" JSC, AsiaCredit Bank JSC, Capital Bank Kazakhstan JSC, Eximbank Kazakhstan JSC, Tengri Bank JSC, Bank ExpoCredit JSC.

 The reasons for the closure of banks were very different. Certain banks were merged or absorbed by other banks. For example, in 2018 Kazkommertsbank JSC was merged with Halyk Bank of Kazakhstan JSC, and ATFBank JSC was merged with First Heartland Jusan Bank JSC, etc. However, in five years six banks stopped their activity completely. Two banks that became bankrupt, are Qazaq Banki JSC and Eximbank Kazakhstan JSC.

Also, one of the important factors was the fact that in 2018 Basel III was introduced, which led to a tightening of prudential standards and for this reason, some banks were not able to comply with the new prudential standards. Among such banks are Bank "Astana" JSC, "Capital Bank Kazakhstan" JSC, "Tengri Bank" JSC, "AsiaCredit Bank" JSC. Since these banks systematically, i.e. three or more times within 12 months, violated the prudential standards, the National Bank was forced to revoke their license for banking activities. These violations can be seen in the published files of the National Bank, where you can monitor the status of compliance with prudential standards of all banks of the second level. The reports recorded that, for example, JSC Bank "Astana" from 1.05.2018 to 1.09.2018 did not comply with prudential standards.

Conclusion

The purpose of this thesis was to assess the lending system and banking activities in Kazakhstan. Initially, making a generalized analysis, certain assumptions and hypotheses related to banking activities were revealed.

Banking is an important part of the economy as it is a tool that supports the financial world of the population. Inefficient operation of banks and their bankruptcy, especially of large banks, can lead to a crisis for the whole country. Thus, the government itself, represented by the National Bank, has the responsibility to maintain the efficiency of lending and banking performance. Thus, this work is aimed at studying the whole system in order to identify all possible risks of having a negative impact on the banks of the second level.

The initial idea was that each second-tier bank has different strategies and objectives. And just these strategies directly affect the efficiency and profitability of the bank. As it turned out the strategies of banks are quite different and all of them are at different stages of development. For example, Kaspi is focused on FinTech and trying to provide the best technology and is always in search of new innovations for maximum client convenience, while Halyk is more focused on credit quality and service.

Talking about the market, many banks aim at retail businesses, which is logical in general. Over the last four years, this segment has been accounting for the biggest part of volumes and brings more profit compared to other sectors. Currently, retail loans make up 50% of the total loan portfolio of all second-tier banks.

As it was revealed that for increasing the client base the bank should improve the crediting conditions and scoring process. This will contribute to the growth of loans and thereby increase the profitability of the bank. At the moment the best credit conditions are provided by Forte Bank, but the scoring process is much

easier and more accessible in Kaspi.

The National Bank directly affects the activity of banks as it is a regulator. Depending on the situation it takes certain measures. Thus, the National Bank defined the prudential norms to regulate the system and keep it in a stable state. Standards include the maintenance of financial indicators at certain levels. These indicators include liquidity, authorized capital, the level of non-performing loans and so on.

The original logic was that non-performing loans have a negative correlation with profitability, the higher NPL the less ROA. To test the correlation clearly, it was necessary to use monthly financials for 5 years. By constructing a correlation and multiple regression model through R-studio, it was found that in fact, non-performing loans have no fairly negative correlation and there is no significant interaction with profitability indicators.

Prudential regulations are tightening over time. For example, since the Basel standards were introduced in 2018, prudential regulations have been tightened. Such measures reduce the risks of a banking crisis. However, not all banks can follow the new standards, for this reason, banks begin to lose their license. Thus, since 2018, four banks such as Bank "Astana", "Capital Bank Kazakhstan", "Tengri Bank", "AsiaCredit Bank" had their licenses revoked due to non-compliance with prudential norms.

The points identified from this research, indicate that compliance with prudential standards does improve the capacity of banks, but the banks themselves should not forget that their profitability also depends on the individual strategy of the bank and the way they attract customers.

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Work-Life Balance: Analysis and Perspectives of Female Engineers

Botagoz Nalgozhina

Abstract

A lot of research is devoted to studying the role and influence of work-life balance on all aspects of employee productivity, however, the low representation of female engineers in Kazakhstan shows a different picture, where the main problem is to achieve that very balance. Work-life balance is the process of balancing multiple roles of a person, in particular work and family, which is defined as a positive interaction without compromising any responsibilities. Using the results of unstructured interviews with 27 female engineers in Kazakhstan, an assessment was made of the level of work-life balance of women in the field of engineering, where there are a number of stereotypes about the "male" profession. There is a direct relationship between work-life balance and job satisfaction, as well as between work-life balance and the commitment of women engineers to their profession. However, this study revealed some peculiarity between the respondents' answers about the existence of work-life balance in their lives and the real picture, where the main place is given to the very preference of women in choosing the main role for themselves at this stage of life. Ultimately, the results of the study highlighted the importance of further research into this issue and the implementation of a friendly work-life balance policy at the organizational level.

Introduction

Work-life balance combines multiple human roles, in particular work and family, which is defined as positive interaction without compromising role responsibilities. Maintaining a healthy work-life balance among employees is directly related to the productivity of medium and large enterprises, which is an integral part of the development of the economy of the whole country.

Kazakhstan, as a developing country where women make up 51.5% of the total population (Bureau of National Statistics, 2021), needs to pay attention to harnessing and preserving women's potential by supporting friendly work-life balance policies. Job engagement, satisfaction, and commitment to the profession of female engineers in a field where male engineers have a significant lead (Hamzah, 2020) all depend on how well women manage to combine multiple roles at the same time (employee, wife, mother, friend). , sisters and others) and how companies are involved in this process.

This article presents an analysis of a study of the work-life balance of female engineers and the prospects for improvement, which directly affect women's job satisfaction and their commitment to their profession. In particular, the results of the interviews demonstrated the presence of a work-life balance among female engineers, mainly working in western Kazakhstan. However, the real picture in life and in the presence of a high workload of respondents indicates the opposite, indicating the application of preference theory and the influence of culture on women's perception of stress and the presence of role conflict. The data obtained allows HR specialists to offer different kinds of recommendations for improving the performance of organizations.

Aims

The overall aim of this study is to determine the level of work-life balance of female engineers and to identify the relationship between work-life balance and its impact on job satisfaction and commitment to the profession of Kazakhstani women engineers. Achieving this aim was achieved through the analysis and study of modern literature, as well as interviews with representatives of the female half of specialists working in the engineering environment. This paper also highlights the interests and plans of Kazakhstani women in relation to their current career prospects.

There are also practical aims in this research. Firstly, the attitude of female engineers in Kazakhstan to the work-life balance and what is important for them in terms of satisfaction with their chosen profession and in terms of their further desire to remain in the technical environment. Secondly, this study is intended to demonstrate the real practices of companies

in which the respondents work, as well as the successful experience of foreign companies in relation to work-life balance policies, which will ultimately help Kazakhstani companies and HR professionals in building a favorable policy in relation to women engineers and work-life balance.

Research objectives:

- Determine the level of work-life balance among Kazakh women engineers.

- To study the relationship between job satisfaction and work-life balance.

- Explore the relationship between work commitment and work-life balance.

- Identify solutions that exist to maintain work-life balance for female engineers.

Research questions:

- What is the level of balance between work and personal life among Kazakh female engineers?

- How does work-life balance affect job satisfaction and commitment to the profession of women engineers in Kazakhstan?

- What should Kazakhstani companies do to maintain a balance between the work and personal lives of their employees, namely women engineers?

Research hypothesis:

Hypothesis 1: Work-life balance has a positive effect on job satisfaction among Kazakh women engineers.

Hypothesis 2: Work-life balance enhances the work commitment of Kazakhstani women engineers.

Scope of study

The analysis focuses on Kazakhstani women aged 25 to 39: married, single, with or without children. The study focuses on respondents who work only in an office in the city of Atyrau. This city is located in the western part of the Republic of Kazakhstan, where foreign and Kazakh companies mainly operate in the oil and gas, energy and construction industries.

Literature review

Introduction

A lot of research is devoted to the study and application of work-life balance in Western countries, where surveys and interviews show a high level of conflict among women between the work role and the role of mother or wife (Williams, 2017; Meeussen and Van Laar, 2018). In Kazakhstan, this issue is no less relevant, where there is a significant lack of information and research that could be a starting point for many organizations to take the necessary measures to solve a common problem.

According to Kovyazina (2019), each female employee devotes more than 2 hours to housework, and a male employee about 30 minutes. As a result, the difference is 12%. When it comes to women working in a male-dominated engineering environment, the presence of stress and anxiety, which affects both job satisfaction and job commitment, plays a key role in the application of work-life balance policies in companies.

The growing economy and the relevance of gender equality define a new path for Kazakhstani women, who should be perceived as in-demand employees, whose productivity is not lower than that of a male employee.

Promoting the idea and encouraging work-life balance among working women is one of the measures presented in the Concept of Family and Gender Policy until 2030 in Kazakhstan, one of the stages in the implementation of the Gender Equality Strategy (Asian Development Bank, 2018). This study highlights the importance of further exploring this issue and implementing work-life balance friendly policies at the organizational level.

Balance between work and personal life

Many studies and articles are devoted to the topics of study, impact, advantages and disadvantages of work-life balance; however, it is still difficult to give a precise definition of the term itself. In their paper, Kalliath and Brough (2008) offer six ways to define work-life balance:

1. Work-life balance is a set of personal roles where there is a possibility that family responsibilities can negatively influence the achievement of work goals by reducing time and effort on productivity in the workplace.

2. Work-life balance is the achievement of a level when a person can consider himself/herself an excellent specialist and at the same time an excellent family person, devoting an equal amount of time to two roles and equal satisfaction from fulfilling his/her immediate duties.

3. Work-life balance is a state of compatibility of several roles, in which the peculiarity lies in the fact that a person himself/herself determines what is a priority at the moment of his/her life - family or work.

4. Work-life balance is the complete absence of any conflict in the performance of different roles.

5. Work-life balance is a person's self-control over the acceptance of which role is most important for a given period of life.

6. Work-life balance is the achievement of satisfaction in the performance of all role responsibilities through the correct balance between effort, time and a minimum level of conflict.

Considering all options, in this study, work-life balance is perceived as an individual's perception of work and any non-work-related activities, which is defined as a positive interaction in accordance with current preferences and goals in a person's life. It is important to emphasize that this designation applies not only to those who have a family and responsibilities for the care of children and parents but also to those employees who find it important to maintain a balance between work and personal interests, such as hobbies, sports, friends.

The study of work-family balance began as early as the 1970s, with the greatest interest in this subject in the 1990s (cited in: Ramarajan et al., 2017). However, a more significant contribution to the issue of work-life balance and women was made by Hakim (2005), using five significant moments in history that allowed women the right to choose and have previously unavailable opportunities that give impetus to the development of work-life balance:

- The beginning of the time when women were able to regulate the right of fertility with the use of contraceptives;

- A historical moment that gave women equal access to professions and specialities;

- Increasing the choice of white-collar professions previously inaccessible to women;

- The right to choose a flexible work schedule if you wish to combine other roles;

- The expansion of new ideas and values in women according to their preferences, which especially influence their choice in building a career.

Since then, there has been a trend towards an increase in the number of working women, but at the same time, women continue to fulfill their responsibilities related to motherhood and household chores.

As a result, despite research into this conflict, women continue to experience stress, which is reflected in their performance as employees, as well as job satisfaction and career commitment.

The reasons why female employees are more likely to experience conflict between work and family life may be how often and how much women have to work overtime, inflexible working hours, a negative corporate culture, or misunderstanding among senior management (Rangarajan, 2014). As a result, the problem of retaining female staff is acute.

Today, there is a widespread tendency to be the perfect mother, who reads a lot of books about the upbringing and development of children, participates in all children's activities. The desire to meet the standards of the ideal mother clashes with the demands of employers for ideal workers, which inevitably leads to conflict (Meeussen, Van Laar, 2018). However, scientists have come to the positive effect of the desire to be an ideal mother. Employees who have high ambitions on the labor front have the same high ambitions on the maternal front. Perhaps the individual perception and attitude to their responsibilities, both work and family, make a woman strive for success in all roles. However, this does not change the picture that women's representation in leadership positions or in male-dominated professions remains low. One answer to why this continues to happen comes from Hakim (2006), who argues that work-life balance policies do not have a positive impact on gender equality among working women and men. An example is the experience of two countries, Sweden and the United States. In the first country, the idea of work-life balance and its application in practice in companies is very popular, but only 1.5% is the number of women in leadership positions. At the same time, this figure is 11% in the USA, where work-life balance is not as implemented as in Sweden. A work-life balance policy is necessary and has many advantages, but it cannot completely eradicate gender inequality.

The consulting company Kontakt InterSearch Russia conducted a survey among 987 senior

executives. The proportion of women who participated was 45%, of which 59% said they had made the decision to sacrifice their family for their careers, and 51% were women who felt guilty about not spending enough time with their family (Forbes Women, 2021).). There is another study where 28% of working parents in the US cannot find time for their children because of work, 40% say they don't even have time for a husband/wife, and 53% say they can't make time for their children due to work due to workload (quoted in Andreassy and Thompson: Family and Work Institute, 2008). It should be concluded that such problems exist in other countries as well.

Women in engineering

The conflict between specialists and a wife or mother has always been difficult for working women, but the problem becomes more acute for women working in technology. It is no secret that there are many stereotypes that engineering is considered masculine; it requires strength and an analytical mindset. In engineering, this issue is even more relevant, as women face many stereotypes and barriers. Using the results of Fouad and Singh (2011), only less than 50% of women do not want to pursue an engineering career after completing an engineering degree. This trend is evidenced by the data of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan (2017), where women employed in industry and construction make up 12.2%, and men - 28.5%.

There is clearly a significant shortage of women in the energy sector in Kazakhstan, with only 25% of the total workforce being women, although there is also a positive upward trend (Calderone et al., 2019). If we talk about the electricity, gas and steam industries in Kazakhstan, women make up 30% of oil and gas production - 20%. A report by the European Bank for Reconstruction and Development and the KAZENERGY Association (2019) notes that only less than 20% of women hold technical and production positions. The fact that women consistently make up less than 20% of the workforce in the energy sector reflects the underrepresentation of women in technical positions in this field and the underutilization of the potential of women engineers.

One of the reasons why there are so few women in the tech industry has to do with women's perceived approach to work itself. Company owners are subject to stereotypes about the soft style of managing a team by a female leader, predominantly consisting of sentimentality and sympathy. Considering that the industry itself, for example, the oil industry, is considered an area where work continues non-stop and there is a need to control several projects at the same time and manage several teams. However, this is not entirely true, as evidenced by Wajcman's (1996) study of 108 female executives and 216 male executives from five oil, gas, chemical and IT service companies. The result demonstrates the opposite - women led a more aggressive method of management, in particular, the "Thatcher factor" is noted, when female managers were noted for faster problem solving and a stricter approach to managing a firm than male managers.

The topic of work-life balance also applies to women working as engineers in the construction industry. In researching why women are less skilled in construction than men are, Watts (2009) came to the issue of work-life balance. Interviews with 31 women construction workers about constant delays at work, 70 hours a week, a culture of lack of support from colleagues and management-exacerbated increases in stress and burnout among respondents. With regard to unmarried women builders, the issue was also relevant.

Another factor considered negative is 11% of companies with flexible hours and family support programs. It turns out that only 4 out of 36 companies surveyed reported that they are going to accommodate their employees in terms of changing work hours or providing vacation.

The impact of work-life balance on job satisfaction

Job satisfaction is a positive outcome for any employee when there is a harmonious balance between his/her expectations and what he/she gets from their job (Rama Devi and Nagini, 2014). For example, this applies to salary expectations, relationships with management and colleagues, conditions and workplace, corporate culture, etc. Job satisfaction is demonstrated by the attitude of employees toward their work and responsibilities, "this is the degree to which people like (satisfaction) or dislike   (dissatisfaction) with their work"

(Spector, 1997).

The decisive influence of work-life balance on job satisfaction has been proven by many studies (Rama Devi and Nagini, 2014; Kanwar et al., 2009). If a woman can maintain a healthy balance between work and family or personal life, this only increases her level of job satisfaction. In most cases, women blame the ongoing conflict between work and family for this (Williams, 2017); however, the companies themselves play an important role.

Any female employee will have a high level of job satisfaction if she feels and sees support from a manager who understands the importance of a healthy work-family balance (Sumaiti, 2010). It should also be noted that all employees might have different needs in terms of role functions; therefore, there are cases where the application of work-life balance policy instruments does not increase job satisfaction.

As Clarke (1995) suggests, wages are not the most important factor in women's choice of work. When looking for a job, women are most often interested in working conditions, how flexible the policy is regarding work schedules, and whether there are programs to support working mothers. Thus, according to Bender et al. (2005), the longer a woman stays in the office after work, the lower her job satisfaction.

It is no secret that the number of women in the world ratio is greater than that of men. However, nevertheless, women have to combine several roles simultaneously with the role of a specialist. In addition, job satisfaction plays an equally important role in this matter. However, studying the issue of job satisfaction between women and men in the UK, Clark (1995) concluded that despite the same conditions and positions at work, women have higher job satisfaction than male colleagues. Moreover, the likely reason may be the expectations of women themselves. It turns out that a woman has a high level of satisfaction with work tasks already from the fact that she works as an engineer, from the fact that she was accepted into the world of a "male" profession. The consequence of such data may be the low expectations of female engineers from the company and leaders in the implementation of a work-life balance policy.

The impact of work-life balance on work commitment

Given the economic crisis during the pandemic, which affected almost all countries of the world, the issue of staff turnover, and, as a result, rising unemployment can have a significant impact on any country's economy. Therefore, the topic of commitment to the profession is acute, not only because it concerns the country's economy, but also the question of the attractiveness of working in a given company, in a given industry.

Dedication to work is defined as loyalty and interest in one's work, arising from increased satisfaction with the results of one's functional duties. More often than not, professional commitment is a combination of how engaged an employee is in their job and how well they feel about their profession (quoted in Hamzah in Meyer, Allen, & A. Smith, 2020).

At the beginning of the 2016-2017 academic year, the proportion of male students in the field of engineering science and technology is 65.9%, and women - half (34.1%) (Committee on Statistics, 2017). Even with this percentage of young women pursuing engineering education, the proportion of those who will be employed in the future is very small.

According to the publication of the Asian Development Bank (2018), the proportion of Kazakhstani women working in the construction industry is only 3.3%, while the proportion of women employed in the mining industry, as well as in transport and warehousing, is less than one-fifth all workers. It turns out that while working, female employees leave their profession, and one of the reasons may be the emerging conflict of roles. The issue of work-life balance is important if we are to harness the high potential and intelligence of the female population as tech professionals. Ultimately, there is a positive relationship between job satisfaction and job commitment, where the former has previously been shown to be influenced by work-life balance policies.

Conclusion

To date, the issue of work-life balance is no longer new and many studies and articles have been devoted to this topic, however, barriers to the implementation of the work-life balance policy are still relevant. Cieri et al. (2005) identified the most important barriers to making the work-life balance process work for the benefit of employees and the company. Significant attention is paid

to the organizational culture of companies (maintaining the performance of work tasks after working hours, paying more attention to work than personal interests) and lows the level of communication processes and training in work-life balance strategies.

Companies that care about their employees and pay equal attention to the working conditions of female engineers should recognize the importance and practice of a favorable work-life balance. In turn, this will lead to high levels of job satisfaction and commitment to the work of an irreplaceable workforce.

A report provided by Ergon Associates (2019) highlights the importance of implementing work-life balance policies, especially in the energy sector, and provides real-life examples from leading companies. For example, the Brazilian hydropower company Itaipu introduced flexible working hours for employees to help mothers balance work and childcare. Also, the mining company SAP uses a program where some employees can work both in the office / on-site and remotely, taking a holistic part in meetings and important projects.

In a study of a group of British female engineers, Fernando et al. (2018) suggest four types of supportive assistance to keep women engineers in the workplace. One of the most effective is the presence in the company of a woman who demonstrates the positive side of the balance between work and family. Seeing an example of real success in front of them, other female engineers may subsequently change their attitude and cling to the hope and belief that it is possible to avoid role conflict and build a brilliant career in a more male-dominated field.

Research by Hofstede (1984) suggests the existence of two types of cultures - individualistic (Australia, Canada, USA, UK) and collectivist (Korea, Thailand, Japan, Hong Kong). Consequently, Kazakhstan belongs to the second type, where women determine the work to improve family well-being. Using this division, Andreassi et al. (2014) conducted a study in 48 countries (Asia, Europe, North America and Latin America). They confirmed their hypothesis that there is less conflict between work and family in collectivist cultures than in individualistic cultures. In this regard, scientists suggest using as an example to follow the perception of collectivist cultures, where

work is a voluntary investment in the well-being of the family, reducing stress amid conflicts between work and family. As a result, historical implications and oriental upbringing are likely to positively reduce work-life balance for Kazakh women.

Of course, some organizations are trying to help their employees overcome the pressures of the extra workload by offering flexible working hours or telecommuting. In the United States, companies have made it possible for about 55% of their employees to work remotely, and 9% of companies have organized special kindergartens near offices for the children of their employees (quoted by Andreassy and Thompson in Galinsky and Bond, 2008). However, very few workers use this service because there is an unspoken belief that it can hurt a career or prove that the worker does not take their job seriously. For example, if an employee took frequent family leave, they were the least likely to be listed as employees for promotions or pay (Judiesch and Lyness, 1999).

Millennials born in the 1980s and 2000s are considered "transformational change agents," employees who value a balanced lifestyle and dare to assert their rights in the workplace (Williams, 2017). Perhaps they will become the starting point for the process of changing the attitude of companies towards the implementation of the policy of balance between work and family.

An interesting conclusion was made in the work of Gray and Tudball (2002), where most often not all employees of the company used work-life balance programs. As a result, managers were aimed at retaining, through this practice, only those employees who had a high work experience in the company and who were trained at the company's expense. Such a distribution is perhaps understandable on the part of the company, which wishes to secure itself in this way. However, one should not forget about promising employees who have just started their journey in the organization or about potential talented personnel for whom it is important that future employers apply work-life balance practices. Given the high shortage of qualified engineers, betting on female engineers, for whom work-life balance or family comes, first, will be a big advantage over other competitors.

Thus, the study of work-life balance and its impact on women engineers' job satisfaction and professional commitment plays a key role in human resource management, especially in Kazakhstan. At the same time, it is important to take into account factors such as the level of trust and support between employees and top management, the state of the organizational culture and the very perception of employees what is important for them, work or family, at the moment of life. Hakim (2006) writes about this in an explanation of the theory of preference that takes place in this study. Most likely, the work-life balance between female engineers and female non-engineers will not make much difference, but one should be aware of the additional stress that women experience in a world of "male profession" full of stereotypes and pressure.

Methodology

Carefully crafted semi-structured interviews were conducted with 27 female engineers from the oil and gas and construction sectors. 67% of the companies in which the respondents work belong to service organizations (Schlumberger, Baker Hughes, Halliburton and Tenaris) engaged in servicing and providing equipment to customer companies. The remaining 33% of employers of respondents to this study are among the large operating companies for the extraction and processing of oil and gas (North Caspian Operating Company and Tengizchevroil) and a construction holding (BI Group). Of the 27 respondents, 5 women engineers occupy leadership positions, the rest are middle and junior specialists.

Respondents participating in the interviews were mostly selected using the "snowball" method. The list of positions occupied by the study participants: geologist, environmental engineer, geophysicist, well completion engineer, sales engineer, construction cost engineer, design engineer, chemical engineer. All respondents work in an office. Their age varies from 25 years to 39 years. Marital status: 16 women are married, of which 7 have children, 11 women are unmarried, two of whom are divorced and have children.

Semi-structured interviews, as one of the qualitative research methods, were conducted online using ZOOM and WhatsApp applications and lasted 30 - 40 minutes. All questions were open-ended, followed by a discussion of the marital status and the presence of children, the position of the respondents and the characteristics of work, the presence of hobbies and household chores, career plans and the difficulties encountered in achieving the set plans. The information collected during all interviews is necessary to confirm or refute the two prescribed hypotheses of this study regarding Kazakhstani female engineers and work-life balance.

This research work is unique in providing quality information about women engineers in Kazakhstan and work-life balance, which is directly related to job satisfaction and commitment by women engineers to their profession. In addition, although research on the impact of work-life balance is not new to the modern world, nevertheless, there is currently a small amount of work related to the field of female engineering.

Data collection and analysis

In the search for suitable respondents, it was difficult to find female engineers with children, since most of the respondents turned out to be engineers who did not yet have children, even if they were married. These statistics demonstrate that the field of activity itself implies an overactive workload, frequent work after hours, which affects the lack of time for personal needs and the needs of the family. Jacobs and Winslow (2004) observed a similar situation in the study with the participation of US teachers. Many respondents were convinced that in order to reach career heights and achieve professional goals, you must first work, and only then start a family or children.

Table 1

№	Job positions	Ages	Companies	Married	Children
1	Division workforce manager	33	Schlumberger	yes	no
2	Well completion engineer	31	Baker Hughes	yes	yes, 3
3	Chemical application engineer	26	Baker Hughes	no	no
4	Field well test engineer	39	Schlumberger	yes	yes, 3
5	Drilling fluids engineer	32	NCOC	yes	no
6	Sales engineer	36	Tenaris	no	no
7	Construction cost engineer	30	BI Group	no	yes, 1
8	Sales engineer	29	Schlumberger	yes	no
9	Costumer engagement coordinator	28	Schlumberger	no	no
10	Reservoir engineer	30	TCO	no	no
11	Electrical an instrumentation engineer	28	TCO	no	no
12	Engineer geophysicist	32	Schlumberger	no	yes, 2
13	Environmental engineer	34	NCOC	yes	yes, 1
14	Chemical engineer	33	Halliburton	yes	yes, 2
15	Development planning engineer	37	NCOC	yes	no
16	Civil design engineer	31	BI Group	no	no
17	HSE engineer	29	BI Group	yes	no
18	Engineer geologist	27	Halliburton	no	no
19	Well integrity engineer	31	Halliburton	yes	no
20	Quality control engineer	27	Tenaris	yes	no
21	Planning engineer	29	Halliburton	no	no
22	Senior project engineer	33	Schlumberger	yes	no
23	Contracts engineer	33	Baker Hughes	yes	yes, 1
24	Procurement services and support engineer	29	Tenaris	yes	yes, 2
25	HSE supervisor	35	NCOC	yes	no
26	Application engineer	29	Baker Hughes	no	no
27	Production engineer	34	Schlumberger	yes	yes, 2

Hakim in her book "Work-lifestyle choices in the 21st century: Preference theory" (2000) divides women into three categories according to their lifestyle and work:

- Home centered (20% of women) - women who prefer not to work, but devote all their time and energy to caring for their families;

- Work centered (20% of women) - women for whom work comes first;

- Adaptive (60% of women) - women who are able to combine both work and family roles.

Judging by Table 1 and the examples of respondents' answers below, most of the respondents are of the work-centered type.

Respondent1:

"At the moment, while there are no children, I focus on achieving my career plans. Moreover, I have been working in this company for only the third year, and now new opportunities are opening up for me, both in terms of training and career advancement. Taking work home is common, but I still find time to meet up with friends."

Respondent2:

"As a sales engineer, I often have to go on business trips. Last year I over fulfilled the plan and such indicators only motivate and inspire me. As long as I have no children and have the support of my husband, I will be able to devote myself to work with full force".

Respondent 3:

"This balance does not exist, that is, I do not believe. Unfortunately, you always have to choose one thing - either a career, or family, friends. Moreover, although I do not have children and a husband, after work, I simply do not have the strength for anything, I just relax at home and that is it".

Most likely, the results of this study demonstrate the egalitarianism of female respondents and similarity with the work of Kaufman and White (2015). According to the Cambridge Dictionary, egalitarianism is "believing that all people are equally important and should have the same rights and opportunities in life", which means that the majority of respondents adhere to a similar outlook on life and work. Kaufman and White's study also involved people aged 29 to 41, similar to the study. The conclusion of their work was the assertion that for egalitarian women, a sense of pride in the work done and future career advancement is much more important than the work-life balance itself and the policies of companies regarding work-life balance. If we take into account the comparison between women and men, then women only slightly prefer the work-life balance policy, only 0.5 more.

The answers of an interview with 27 representatives of female engineers demonstrate that work-life balance is mostly present in their lives, but the real picture with a heavy workload and frequent overtime after a working day and on weekends testifies to the opposite. The reason most likely lies in preference theory, which has been written by Hakim (2000). The theory of preferences explains the choice of a woman in a certain period of her life depends on her preferences. If a career is more important for her now, she chooses a job and devotes most of her time and energy to completing work tasks, and if she prefers a family, then being a wife or mother for her at that moment above all else. We should not forget the influence of social attitudes, the influence of culture and traditions, but as the study by Hakim (2000) shows, all of them have little effect on the choice of women.

Figure 1

Another likely reason why female engineers in this study deny the existence of a conflict between family and work in their lives is the influence of traditions and culture of the region of residence. The culture of women's multifunctionality, in which there is a great responsibility to family, parents, work, and subsequently an overload of work and personal tasks, leads to what is considered the norm for Kazakhstani women and not a problem in achieving work-life balance. Compared to women in Western countries, this alignment would undoubtedly lead to strikes and protests from women to be heard. As a result, the combination of several roles, where it is not uncommon for frequent delays at work, additional projects and postponing the role of wife and mother for later, seems acceptable to respondents. In turn, this fact can be considered an advantage and even an example to follow, according to Andreassi et al. (2014). Andreassi et al. It is believed that in countries with a collectivist culture, the conflict between work and personal life is less than in an individualistic one, which in turn is a plus from an economic point of view for Kazakhstan.

The majority of respondents (93%) fully agreed that the level of job satisfaction is

directly related to the extent to which work-life balance is present in their lives (Figure 2). In addition, even despite the fact that the duration of working hours was not limited to the presence at work from 09.00 to 18.00, women understood that this was a necessity and a norm for all employees who work in the oil industry. Conducting a questionnaire among 313 specialists (218 men and 95 women) in the IT field, Kanwar et al. (2009) also found a positive relationship between work-life balance and job satisfaction. Considering that the IT industry and the engineering industry have many of the same parameters, such as constant technical support for customers, work on weekends, overtime work tasks, it should be concluded that if a balance is achieved and maintained, the employee will be able to achieve job satisfaction. As a result, hypothesis 1 was confirmed by the results of the interview. Ultimately, this does not confirm the information described by Woodward (2007), which shows a negative impact on work-life balance if the length of time at work per week is high.

Figure 2
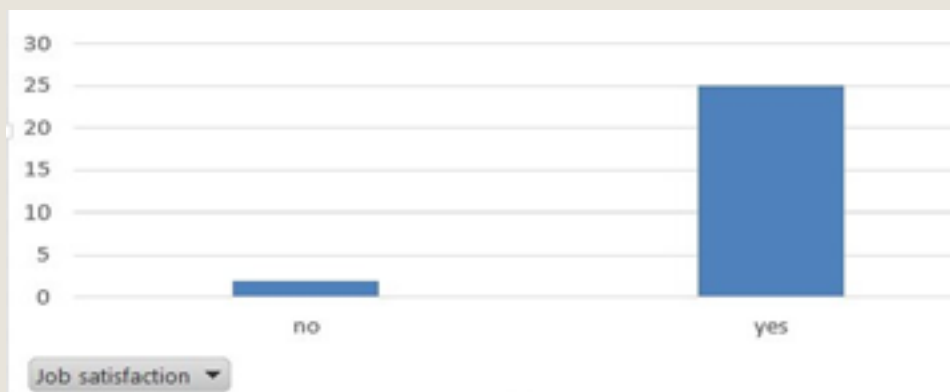
20 respondents out of 27 (figure 3) believe that if a person maintains a balance, then this has a positive effect on the fact that she will continue to work and develop in an engineering environment. Thus, hypothesis 2 is confirmed. A similar conclusion was also found in Jaharuddin and Zainol (2019), in which the issue of employee turnover is minimized when employees maintain a balance, which is also supported by the promotional policy of the company itself. If an employee believes that in her life the performance of work tasks is favorably combined with the performance of the role of a wife, friend or mother, then the question of changing a profession is no longer relevant. It is important to consider that not only the presence of balance affect the commitment to the profession, but also the corporate culture, wages and training opportunities. It is also interesting that other respondents noted that even in the absence of balance, they do not intend to give up their career as an engineer. In this case, the only question will be to change the employer. This information only confirms the importance of implementing a work-life balance policy by companies, which will further strengthen the position of a female engineer to remain in the company.

Figure 3
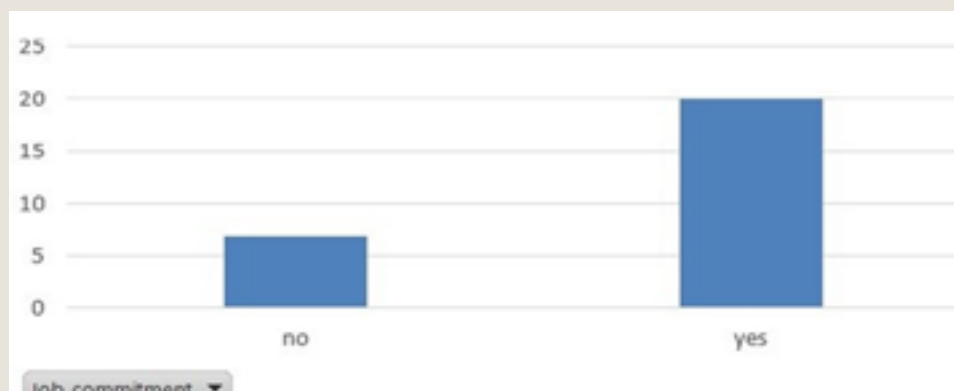
In one of the articles in Forbes (2019), Svetlana Balanova, one of the leaders of large IT companies in Russia, argues that there is no work-life balance, that given all the possibilities of the modern world with new technologies, it is necessary to develop work-life integration. This approach to work duties and personal affairs is reflected in the example of one of the respondents, who is a manager.

Respondent 4:

"Three times a week I go swimming in the morning, and I come to work by 11 o'clock, I am also currently renovating my apartment and I have to leave the office for these issues. Nevertheless, not all my personal affairs affect my work and productivity in any way. I often work on weekends; the people from my team know that I am available at any time. You need to be flexible and be able to combine all your tasks".

However, it is tedious to take into account that this style is not available to everyone, but only to top management.

Having a company policy on work-life balance does not always mean the practice is working. The main reason may be that even with flexible working hours, for example, women do not take advantage of the relevant offers, is the lack of support and approval from the manager. Allen (2001) also wrote about this in her work, where 553 respondents participated and emphasized the importance of supervisor involvement in the practical use of work-life balance policy by employees. The next benefit, found through a semi-structured interview, was the importance of retaining a qualified engineer by providing the necessary benefits so that the employee, after maternity leave, could balance fulfilling his work goals and fulfilling the role of the mother of young children.

Respondent 5:

"I have been working for the company for the ninth year, considering that I went on maternity leave twice. Yes, at the very beginning of my career, I worked a lot, often stayed late at work or took it home with me. However, I liked it, because the field is interesting for me. Now, when you have two children at home who are not even five years old, I immediately made it clear to my management that after 6 I am not available for any work issues. I think, since I am an excellent specialist, my boss understands me and accepts my conditions".

This example demonstrates the importance of applying special conditions to women engineers. Before going on maternity leave, respondent 5 showed herself to be a professional in her field, whose productivity and dedication to work prompted the management that such employees should not be lost.

Recommendations

The oil and gas industry and the construction sector are the largest, most influential and profitable areas for the country. According to a Forbes article (2020), the work of oil and gas companies in Kazakhstan brings up to 44% of the state budget, which undoubtedly affects the growth of the economy of the whole country. It follows from this that work in such companies represents a high level of employee involvement, the importance of the interests of not only employers, but also the staff in the first place, the construction of a policy and culture that reflects an increase in the level of employee job satisfaction through work-life balance. However, as practice and many studies show, the picture today is not so perfect, especially with regard to female employees. According to Williams (2017), there is no U.S. oil and gas company on the Fortune Top 100 Women-friendly Jobs list.

The age of the interviewed respondents ranges from 25 to 39 years, which implies the right to name respondents of the millennial generation. According to DeVaney (2015), people born between 1980 and 2000 are millennials who are characterized by the importance of the cause they pursue, a team spirit, an optimistic outlook on life, and the presence of work-life balance in their lives. It is assumed that such workers will fight for their interests, promote their ideas in order to be able to combine several roles, which will further affect positive changes on the part of employers. However, the majority of female engineers in this study absolutely do not blame their employers for not providing or not supporting the topic of balance. The main reason lies in the very choice of women - if you want to work, you will work, and this is a personal choice for everyone. Only one respondent said that such problems need to be addressed at the state level:

Respondent 6:

"Perhaps companies need to implement some kind of programs to maintain a balance between

work and family or personal life, but this is the choice of the person himself/herself and his/her ability or not the ability to combine everything. In 90%, it depends on the person himself/herself, how he/she allocates time, how responsibly he/she treats his/her work tasks, and on his/her efforts in the end. If a person does not make any effort, then whatever the company does will help solve problems of work-life balance".

A similar pattern can be seen in Williams (2017), who also conducted interviews with scientists and engineers working in oil and gas companies in the United States. Williams conducted the study to examine the career development of its respondents, but the topic of work-life balance was mentioned in every interview. Women engineers understand the importance of work-life balance, understand all the consequences of the conflict between several roles that they have to take on, but the reason why this happens, they see only themselves. It follows that companies can do nothing to somehow correct the current situation. This demonstrates that millennials are incapable of being the starting point for a voluntary change in organizational policies regarding work-life balance.

On the other hand, competition for first-class specialists, in particular specialists with technical backgrounds, also exists among companies. The attractiveness of a company that is open to the proposals of its employees, takes into account their interests, accepts the need to implement policies and practices in relation to work-life balance is increasing. As Blair-Loy and Wharton (2002) point out, more often than not, companies just keep up some sort of work-life balance culture by introducing practices, but few actually use them. This kind of example is reflected in the answers of the respondents of this study:

Respondent 7:

"Many foreign employees work in our company, most often they are managers, so the very word work-life balance is not new to us. I heard that our company has communities where participants share their successes, secrets of how to do everything; HR specialists often send various kinds of work-life balance materials. It seems that there are even online meetings of participants, but, unfortunately, I have never been to them".

Often on official websites, you can find in the list of company values or in the strategic plan that there is a work-life balance policy, but judging by the answers of the respondents, this is just an imitation of such a policy. One reason is that taking advantage of a work-life balance policy, such as flexible work hours or sick leave for childcare, will affect career advancement later on. Participants in the Blair-Loy and Wharton (2002) study also confirm this, where two-thirds of respondents indicated their fear of promotion if they start a family or take parental leave.

In this study, only 11 female engineers among the respondents have children, which leads to an explanation of why so few women take advantage of the work-life balance policies implemented in their companies. Using data from Blair-Loy and Wharton (2002), women with children working in a male workforce are more likely to benefit from a work-life-friendly policy than women, whose work predominantly with female. An excellent example to recommend to other organizations is the example of a service company in the oil and gas industry, in which the respondent works:

Respondent 8:

Before going on maternity leave, I worked in the office as a geophysicist. After the birth of a child, I did not have the opportunity to go to work, but I did not want to spend materially. As a result, the company offered me a contract job. I did not have a monthly salary; I was paid purely for the work done for a specific project. I worked from home; I controlled time and resources myself. Subsequently, when the child grew up, I officially went to the office with the usual work schedule.

The ability to work remotely on assigned projects is a significant plus not only for the employee (not losing work and financial income), but also has a number of advantages for the company. Firstly, the company does not lose such a qualified employee, whose knowledge and experience are needed in working projects. Secondly, such assistance increases the employee's loyalty to the company, increasing feelings of commitment and loyalty to their profession and to the company itself. Thirdly, the availability of this kind of practice increases the attractiveness of the company against competitors, which has a beneficial effect on the marketing move in relation to

work-life balance.

The study of work-life balance in relation to female engineers also shows a positive application for employees of the HR department. Hakim's (2000) preference theory subsequently opens up another perspective for HR practitioners. Given that, there are three types of orientation for women: home-centered, adaptive and work-centered, this gradation should be taken into account when selecting staff. Moreover, young school graduates who are already enrolling in educational programs in engineering, already at that stage of life, choose to build a career and realize ambitions rather than building a family. The study by Kaufman and White (2015) described above and its findings provide a fresh start for HR professionals. Undoubtedly, a policy aimed at introducing and constantly improving the work-life balance for women is necessary and important, but it is necessary to take into account the interests of today's women workers, for whom the issue of wages is much more important. Given that we are talking about the oil and construction industries, the pay gap between men and women should be eliminated, so female engineers will be more committed to their profession.

It is hard to disagree that there are far fewer female engineers today than male colleagues are, and therefore there is a lot of research being done to narrow the gender gap. In their work, Fernando et al. (2018) offer four ways to keep women willing to stay in engineering and thereby increase their levels of commitment and job satisfaction. One of the recommendations is the presence of a role model in the company - a woman who excels in her work tasks and has authority and respect among colleagues, and at the same time is a mother and wife. Among the respondents to this study, the following ideas were expressed:

Respondent 9:

"It is a pity that our company does not have a role model so that, having looked at the experience of such a specialist, maybe even the head of a department, I would be more confident in my aspirations. A female engineer who has been working for the company since the very beginning of her career and has reached great heights, and at the same time she has a family and children - this is a kind of support for all girls and the belief that there is a balance between work and personal life".

Another recommendation from a study by Fernando et al. (2018) is the support of colleagues and the recognition of management; however, these practices for improving the current situation are more related to building a corporate culture, where there is an atmosphere of friendliness and support not only from colleagues, but also from higher specialists. This is evidenced by the work of Ayre et al. (2013), which was attended by 34 Australian civil engineers. One telling example is the relationship between women's commitment to their profession and a sense of recognition of themselves and their results in the company and belonging to the culture of the company. All this can be achieved only thanks to the built program of organizational culture, which is part of the work of the specialists of the HR department.

There is also a downside to the application of the work-life balance policy, when such an example, on the contrary, worsens the situation. For example, several respondents to Ayre et al. (2013) noted that the use of flexible working hours or leaving work early caused negative attitudes from male colleagues, which further influences whether a woman wants to stay in such a team and continue to do work. The only reason for this situation is the low level of support from the management. Therefore, any undertaking towards improving the work-life balance of women engineers must begin with organizational culture.

Conclusion

Today, in an era of rapid growth in technological processes and equal opportunities for everyone, having female employees who are no less qualified than men is a great opportunity and superiority for companies that support this direction. In order for any organization to have a positive experience in attracting women engineers, there are various means, among which the work-life balance policy plays a key role. Most often, it is working women who suffer from constant role conflict when it is necessary to be a wife, mother, daughter or friend and at the same time a professional, especially in an engineering environment where competition is high and there is a constant need to prove that women can work, demonstrating high

performance.

The results of this study demonstrate a positive relationship and influence between work-life balance and job satisfaction of the respondents. The majority of respondents note that in the absence of work-life balance, job satisfaction also suffers or is absent. The next conclusion of the data obtained during the interviews is the impact of work-life balance on the commitment of female engineers to their profession. If respondents achieve work-life balance in their lives, then their commitment to their work increases. These two conclusions lead to the fact that there is a direct relationship between three variables: work-life balance, job satisfaction and commitment to the profession in relation to female engineers working in Atyrau.

In general, the study shows that women engineers have a work-life balance and their positive attitude towards the advantages of the practice of this term in their lives and the politics of the companies where they work. However, there is a significant discrepancy between the parameters describing work-life balance and the picture from the life of respondents about constant delays at work, stressful situations, lack of time to meet friends and family. For female engineers in this study, having a work-life balance does not mean devoting equal amounts of time and energy to work tasks and personal obligations (family, children, parents, friends, hobbies). It is important to remember that work-life balance is primarily a human condition, its balance and harmony in the performance of various roles (Ogechi and Nwaeke, 2019). The decision not to marry or have children while there is an opportunity to build a career and realize all professional ambitions is the choice of women engineers themselves today. This new job orientation trend provides a different approach for HR referrals to the recruitment and promotion processes for women who have chosen to become engineers. Work-life balance and company policies regarding work-life balance will play only on the positive side, the issue of developing such a policy should be mandatory. However, judging by the results of the study, there is no justification for the urgent need to develop this problem.

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Transformation of HRM Practices under COVID-19 Crisis: Employee Engagement and Motivation

Anar Aldash, Gulzira Kozhamzhar, Alikhan Namerov

Abstract

The coronavirus pandemic has affected everyone and, therefore, is primarily considered a human crisis. The lack of live communication, physical office and workspace affected the fact that employees stopped feeling involved in the workflow. All processes were transferred to an online format, companies experienced shock and uncertainty about how to manage people, their motivation and involvement remotely.

This research allows us to understand how companies remotely maintain motivation and manage employee engagement and effectiveness. For this study, qualitative and quantitative research methods were used in the form of semi-structured interviews and a convenience sampling survey among Kazakhstani HR managers and employees appropriately. As a result, it became clear that motivation among employees increased only at the very beginning of the pandemic, workers saw a wide range of advantages from the new work format. However, when the negative sides appeared in the form of blurred boundaries, household barriers, lack of self-discipline and communication with colleagues, there was stress and stagnation in the productivity and motivation of employees.

Therefore, summing up, the results of the study showed that motivation during the pandemic period fell down gradually and the transformation of HR practices became the outcome of this.

Introduction

In any company, employees are by far the most valuable and lasting asset. In order for the company to continue to develop and be successful, it needs to focus on innovative methods of human resources management practices that will bring real benefits to achieve the overall goals of the company. Such practices include planning and organizing goals for employees in order to measure their effectiveness, creating special programs for skills development, and conducting motivational programs. All of this serves as the basis for the entire practice of human resources management.

Coronavirus disease which first appeared in the Chinese city of Wuhan in early December 2019, has quickly spread over the world, with confirmed cases in nearly every country, and has become a new major worldwide public health crisis (Mohan BS, 2020). Given the rapid spread of the COVID-19 virus, governments of almost all countries of the world have applied a number of security measures, such as social distancing, isolation, quarantine, temporary closure of schools, universities, enterprises and non-governmental organizations. Most representatives of small and medium-sized businesses could not withstand the pressure of the situation, their losses began to exceed all possible sizes, and it was no longer possible to maintain staff. Under the circumstances, the coronavirus pandemic has complicated the conduct of all HRM processes. Many companies switched to a remote work format, thanks to technologies that allowed employees to perform their work duties from home.

According to the latest data, as of the end of 2021, 988313 cases of infection with the COVID-19 virus were detected in Kazakhstan (Kazinform, 2022). Enterprises and businesses in Kazakhstan have also transferred many employees to a remote work format. Organizations were quickly forced to adapt to the new work environment, and HR departments had to be transformed in

accordance with the new realities, so that the organization's activities are not suspended, and nothing prevents companies from developing further. HR management methods and strategies, including employee motivation, maintaining employee engagement and tracking performance, were among the main challenges for HR managers.

Employee motivation is the main issue that we will investigate in our work because due to the change in the working environment, many factors affecting employee motivation and engagement have changed. Such as the atmosphere that was no longer divided between home and work: disruptions, noise, household duties and responsibilities or in contrast comfortable home conditions that also could interfere with concentration. As well as lack of communication with colleagues and managers, insufficient technical equipment and other factors that influence motivation, and, accordingly, satisfaction from the workflow during the pandemic time period.

We surveyed employees, to find out how they feel in isolation, how they assess the format of remote work and what was with their productivity. Also interviewed HR managers about their experience, how companies in Kazakhstan have transformed their HR strategies, what new trends we see in the practice of motivating employees at a distance and what are their forecasts regarding the future formats of working modes.

Research questions

RQ1: How has the pandemic affected the engagement and motivation of employees in Kazakhstan?

RQ2: How have Kazakhstani companies supported their personnel during remote work?

Research significance

The importance of this research is to identify the changes in employee motivation methods that appeared under the influence of the COVID-19 crisis. This study will indicate whether the companies in Kazakhstan were ready for changes in HR management strategies, how they got out of the pandemic crisis and what is happening inside the companies now.

1.3 Research hypotheses

H1: The remote work format has positively affected the engagement and motivation of employees.

H2: Kazakhstani companies were supportive to employees during the pandemic and implemented new HR instruments successfully.

Literature review

Employee motivation

An organization's success is determined by how well it manages its personnel. Each level of the organization is directly related to the quality, commitment, passion, talent, and competence of its employees. Therefore, well-managed people resources of an organization mean an integral part that promotes strong competitiveness and high performance. HRM has a direct impact on a firm's success due to the fact that HR practices regulate the employee behaviors such as engagement, participation and motivation and if employees have these proper behavioral traits, it is more likely that organizational performance will be of high quality and customer service will improve, consequently, improvement of these company's aspects will lead to the improvement of financial results (Armstrong, 2014).

Employee motivation has a vital role within the company for the reason that it controls the level of attitude and enthusiasm of individuals about accomplishing the organization's objectives. It can be supported by the fact that motivation is the main source which generates and maintains the behavior on the way to the accomplishment of goals. Communication between management and workers is considered one of the crucial tools of employee motivation. Effective feedback and recognition from management stimulate workers to conduct their work well and promote a positive atmosphere at the workplace (Rajhans, 2012).

Motivation is generally viewed as a psychological strength that generates diverse approaches to goal-oriented actions and ideas. Those kinds of behaviors revolve around a person's own internal and external influences, which indicate the direction, persistence, and amplitude of human activity directed toward a certain objective (Kanfer, Frese & Johnson, 2017).

Regarding motivation in the working

environment, it is considered a force which encourages individuals' desire and choice to act in order to achieve success at work. Moreover, all the activities done by the employee and related to the work including their approach, direction, depth and running time are determined and supported by motivation. So, work motivation plays a crucial role in shaping the worker's productivity and performance (Baron, 1991).

Work motivation is divided into two key types: intrinsic and extrinsic. When a person behaves for his own personal interest, intrinsic motivation occurs. Extrinsic type of motivation can be induced by a wide range of external incentives such as increased salary, bonus, promotion and more whereas intrinsic motivation generates only inner happiness and excitement in employees as a result of their job outcomes. According to studies, employee work engagement is more likely to reach its maximum when the performance is affected by intrinsic and extrinsic motivations simultaneously (Gagne & Deci, 2005).

Kazakhstani companies during the pandemic

According to EY Kazakhstan's annual labor market review for 2020, as a result of the introduction of the state of emergency, 89% of Kazakhstani employers transferred employees to a remote mode of work, while only 19% already had policies for performing work in a remote format. Kazakhstani companies were faced with a wide range of difficulties during the transformation work format, such as maintaining documentation and correspondence, lack of office equipment, as well as the need for methods of controlling the process of work in new conditions. However, it was observed by EY Kazakhstan that companies that operated in 2020 in Kazakhstan have adapted to the economic situation under the pandemic and, despite the volatility of the market, they are taking measures to increase staff motivation through financial and non-financial incentives, as well as through new ways of maintaining communications and tracking the physical and emotional state of employees. Supporting team spirit and effective communication within the team is one of the most important factors in employee motivation during remote work. The use of online tools and platforms helps to organize virtual corporate meetings, as well as meetings of a freer format

as team-building events. For instance, EY Kazakhstan practices regular meetings in the format of "coffee with a partner" to give employees the opportunity to feel part of the team.

Measures were taken by companies in a crisis situation according to EY Kazakhstan annual labor market overview for 2020:

- Employee surveys to identify their emotional state;
- Setting a quota for office visits;
- Providing employees with sanitary supplies;
- Daily monitoring of the health status of employees;
- New provisions for security in the office and for remote operation.
- Financial assistance provided within Kazakhstani companies (EY Kazakhstan, 2020):
- Additional financial assistance in the form of one-time bonuses;
- Payment of telephony and Internet to employees at remote work;
- Providing medicines and treatment to infected workers in need;
- Provision of food baskets.

Methodology

In order to test hypotheses and find answers to research questions of this project, a mixed-method was used in the study, with a combination of elements of qualitative and quantitative research.

The quantitative part of the study included a convenience sampling survey that was conducted to find out how the pandemic has affected the work environment. A survey was conducted among Kazakhstani employees, who were directly faced with the remote working format. The questionnaire was conducted with the help of the Google Forms Program. Averagely, it took 6 minutes to respond to all questions, the research team tried to make all questions simple and accessible to answer. The survey included 150 respondents from different working areas: consulting services. manufacturing, aviation, construction, IT companies, service maintenance, education and others. It was spread through social media channels, including Instagram, LinkedIn,

Telegram, and WhatsApp. The questionnaire was anonymous. The survey consisted of 14 questions, 9 multiple choice questions, 3 open questions, and 2 rating scale-based questions (1-10; 1-5).

The qualitative part of the study included semi-structured interviews. The interviews were conducted through the Zoom platform with five representatives of HR departments from different companies. Each interview lasted an average of 30-45 minutes, including both open and closed questions, and all of them were recorded with the consent of all participants. Initially, we explained to respondents the topic of our research and asked them to introduce themselves. Then the representatives of the companies talked about the transition to a remote format, what difficulties they faced and how they worked with employee motivation, the motivation of employees in their companies fell or increased, as well as HRM processes, were changed. The companies were selected from the list of the most attractive employers in Kazakhstan and include Air Astana, ANCOR Central Asia, Ernst & Young, Aviata.kz and the Corporate University of Samruk Kazyna.

While doing an internship at some of these companies, we managed to contact the HR departments and send invitations to participate in the study by email. We contacted other participants via Linkedin.

Research results and findings

The influence of the remote work format on the motivation of employees (survey results)

Considering the analytical indicators of the study, 86 women and 64 men took part in the survey (Figure 1).

Figure 1: The quantity of respondents

43% (64)
57% (86)

■ Males ■ Females
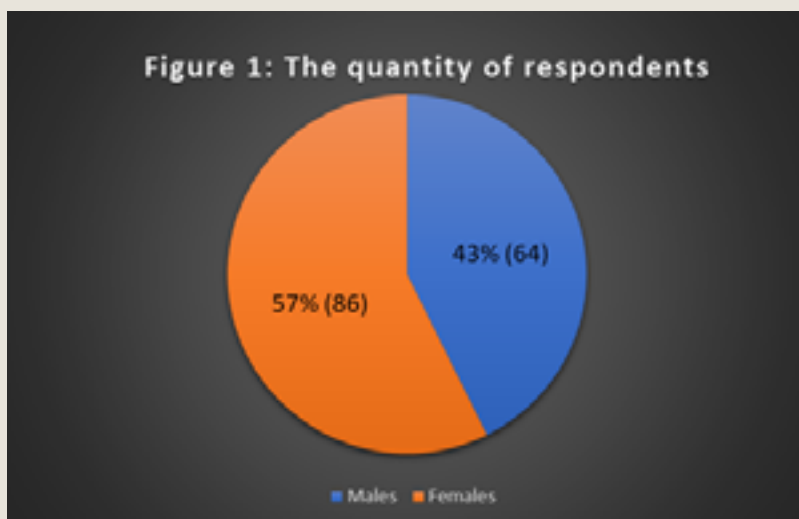
To understand the age of respondents, it is necessary to provide a socio-demographic question, which was divided into 5 wildly used age groups: 20-30, 30-40, 40-50, 50-60 and over 60. The majority of them were in the age group between 20 and 30 years old (82 respondents / 54,7%) (Figure 2).

Figure 2: Age groups

4% (6)
10,8% (16)
30,6% (46)
54,6% (82)

■ 20 - 30 y.o. ■ 30 - 40 y.o. ■ 40 - 50 y.o. ■ 50 - 60 y.o.
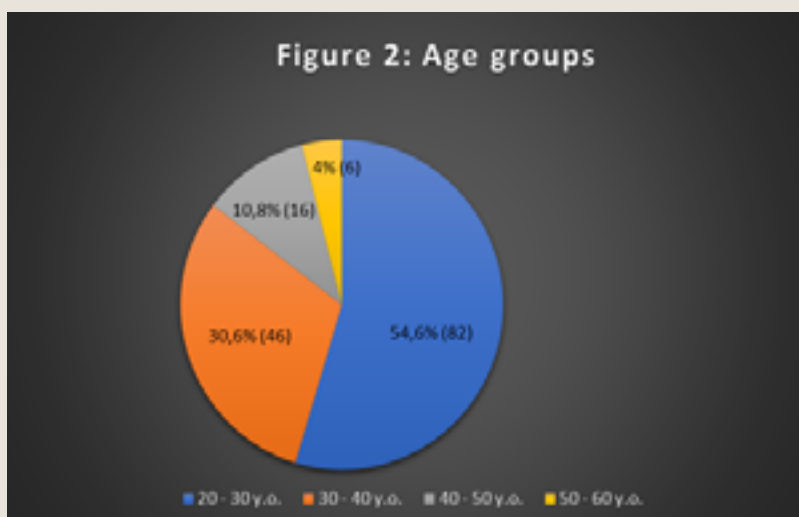
Most of the respondents belong to the following industries: consulting services (marketing, finance, law, HR), manufacturing/oil & gas, service maintenance (customer services), and education. A smaller number of respondents were representatives of other areas: IT, Construction companies, logistics companies, and HoReCa. In addition, representatives of all the "Big 4" companies took part in the survey (Figure 3).

Figure 3: Core Activities of respondents
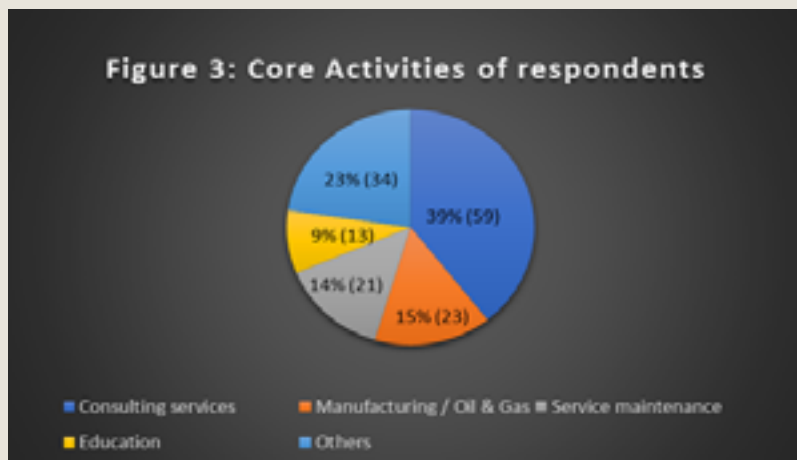
The company type of the respondents shows that they come from three sectors: international companies (22%), Quasi-State sector companies (28%) and private companies (50%) (Figure 4).

Figure 4: Type of the company
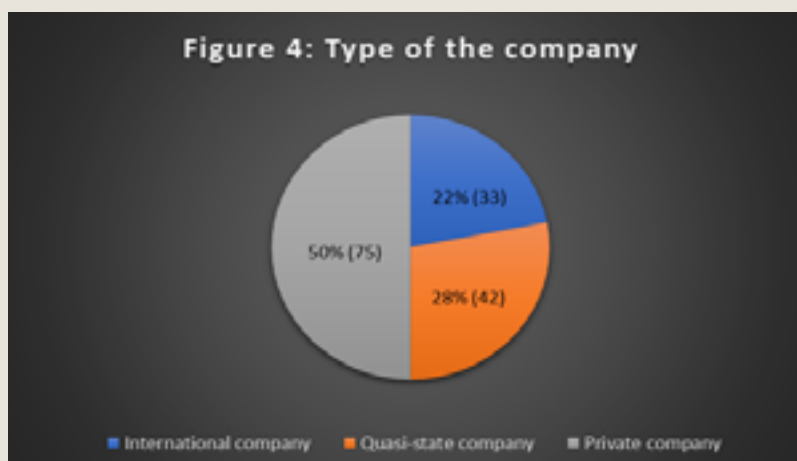
Due to the global pandemic, a large number of companies in Kazakhstan have switched to the WFH format. Based on the results of the survey, 52% of the respondents had a combined format of work, when employees worked distantly, but sometimes they were allowed to come to workplaces. Also, 43.3% of respondents had a completely remote work format without an opportunity of visiting the office and 4.7% did not have any changes in work format and kept maintaining their job duties from the official workplaces (Figure 5).

Figure 5: Working Formats
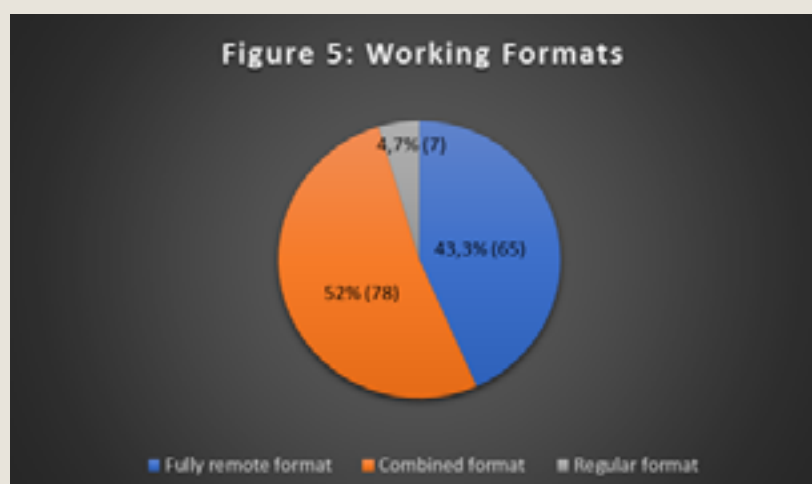
The question based on the rating scale (0 - 10) proves that the majority of employees of various companies positively assessed the remote work format with the average rating being 7.08/10 (Figure 6).

Figure 6: Evaluation of the remote format (0-sad, 10 - everything suits)
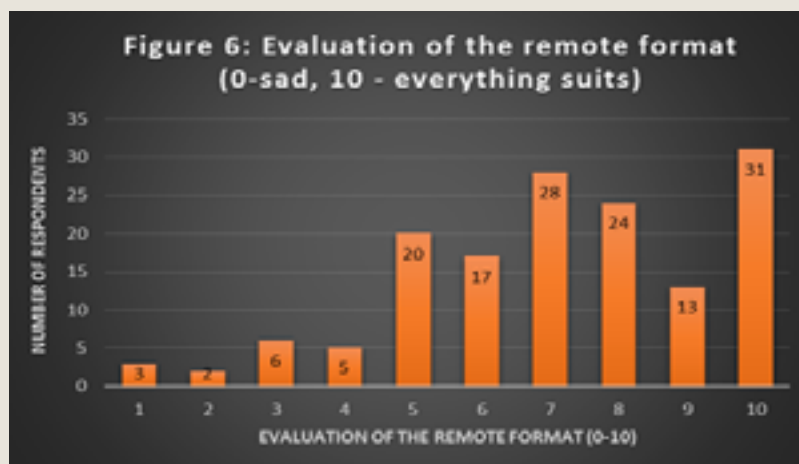
Respondents were asked to rate their transition to remote work on a five-point scale, with 0 being difficult and 5 being easy. Overall results showed that most of the employees easily coped with the transition, 65 people rated this transition as 5/5 (Figure 7).

Figure 7: How the employees were treated during the transition to a remote format (0-hard, 5 easy)
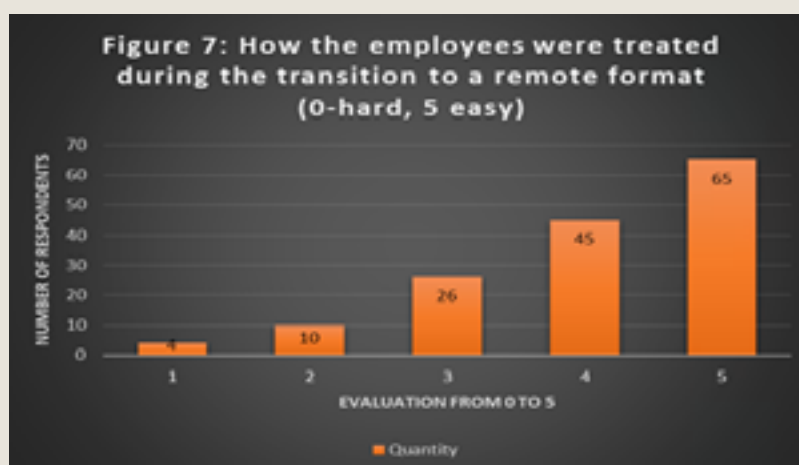
Despite the positive answers, many employees encountered problems during the remote format of work. The most common of them are blurring the boundaries of the working day, poor technical equipment, lack of direct communication with colleagues, distractions at home, low motivation and self-discipline According to obtained results, 84 employees (56%) believe that the blurring of the boundaries of the working day is the most significant problem (Figure 8). In addition, orderly answers to open-ended questions indicate some positive aspects of this particular type of work, such as saving time and money on the road, extra time spent with relatives, freedom and flexibility.

Figure 8: Problems during the remote working format
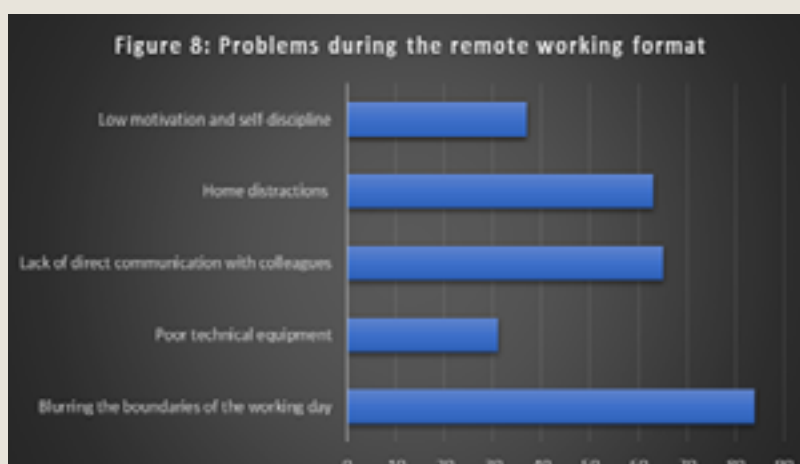
Since the respondents were from different organizations, not everyone agreed that each employer takes additional measures to support its staff. Slightly less than half of the respondents claim that the company's management responded to the requests and problems of employees, 38.7% claim that the employer took only a few measures to maintain a comfortable working environment, and 21.3% replied that their companies did not support them on remote work (Figure 9). Companies have taken drastic measures to make it easier for their employees to work remotely. Some companies have fully equipped employees technically, providing them with computers and Internet access at the expense of the company. Almost all companies used ZOOM or Microsoft Teams to provide communications and daily briefings. Several companies supplied employees with special furniture (chairs. armchairs. office supplies).

Figure 9: Were measures taken to improve the efficiency of employees in your company during the remote format?

Based on employee preferences, about 10% (15 respondents) are ready to completely switch to a remote format, 61% (94 respondents) want to stick to a combined format, and only 29% (41 respondents) want to return to the office and work on a standard schedule (Figure 10).

Figure 10: Preferences regarding work format
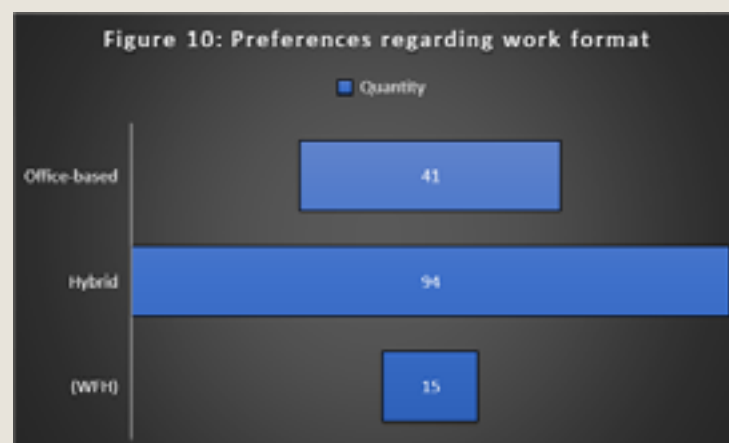
During the distance, work employees experience a wide range of challenges including declined motivation, engagement and productivity. Among the respondents who worked remotely during the pandemic, 40% of them faced a problem with motivation, and the remaining part of the respondents believe that they did not have any problems with motivation (Figure 11).

Figure 11: Have you experienced motivation problems while working remotely?

The last question considered the individual suggestions of the respondents regarding the measures that could increase motivation during remote work. Respondents proposed the following recommendations: introduction of a hybrid work format, organizing online corporate events, online lunches/coffee breaks with colleagues from their region and other countries, attracting a corporate psychologist, training, supplying employees with office equipment and high-quality machines (laptops), introducing online competitions/quizzes and changing the KPIs.

Transformations in HR processes of motivation and employee engagement (interview results)

Air Astana

Furkat Azimov, Senior Manager of the Employee Experience division in "Air Astana" shared that aviation is one of the few areas that has been greatly affected by the pandemic. 99% of flights were suspended, which is why all the activities of the production personnel servicing the flights were completely stopped. Previously, the company had already used methods of online testing and staff training, for example, before the pandemic, the IT department often worked remotely. Therefore, during the pandemic, one of the options was online training of production personnel. The transition was smooth thanks to the already established online processes and a good anti-crisis strategy, which was developed at the first emergency meeting. Due to this fact, the company quickly justified all its losses of 2020 in 2021 without staff reduction. In the field of compensation and benefits, the company has kept the full salary. Provided paid labor leave for 28 days for administrative staff and 60 days for staff that are engaged in servicing flights. If some of them did not have a year working in the company, they were allocated up to 25 days of labor leave as an advance or to go to the paid downtime. The package of benefits for employees has not changed.

Furkat Azimov also noticed an increase in communications between the CEO and the staff of the company. The CEO of Air Astana Peter Foster has started sending monthly emails to employees with plans for the next month, with current indicators, successes and failures. Contacts between line managers and their departments have also expanded. Each department met online at the beginning of the working day, discussed plans and tasks, and evaluated the results of the work done. And then everyone did their job. Pulse surveys were used to track the well-being of employees at remote work, which were subsequently transmitted to the heads of departments. It is emphasized that the work was suspended for a short period. A few months later, Air Astana started operating cargo and repatriation flights again and the staff for servicing flights was constantly mixed.

As a large company with a staff of 5,500 people, Air Astana has constantly improved its HR strategy, so there have been no noticeable transformations during the pandemic period.

ANCOR Central Asia

ANCOR - the leading staffing company in Central Asia that provides services in the field of recruiting, outsourcing and consulting. An interview was conducted with Diyara Omarova, Team Leader, Head of Nur-Sultan Branch in ANCOR. She shared that the recruitment process under the COVID-19 pandemic has changed a lot. The fact is that the main task of the recruiter is to find a suitable specialist for the company with the necessary skills and attract him. During the pandemic, people were afraid of losing their jobs, afraid of changes and did not know what to expect from the future. Not many people were interested in changing the company because when working remotely it is very difficult to understand the corporate culture and values of the company. It is difficult to understand what place you occupy in a new team. The demand for the services of recruitment agencies has fallen in terms of recruitment, but at the same time, the demand for consulting and outsourcing services has increased. For this reason, in order not to put pressure on employees and not to reduce their motivation, ANCOR lowered the requirements for key performance indicators so that employee performance results, as well as the bonus part of wages, would not fall significantly.

In general, the transition to a remote format according to Diyara Omarova has helped to explore new online platforms for holding meetings with clients from different cities and countries. The company's service sector has greatly expanded geographically. Thanks to this experience, new horizons of development have

opened up in recruitment.

At ANCOR Central Asia, the HR department was very concerned about employee engagement and motivation. If one of the employees was infected with a virus, they were sent baskets of fruits and vitamins. To maintain communications, film-watching days were held online, games were played, and a new "thematic" reporting format was introduced in the form of presentations.

The company realized how important it is for employees to feel care from the employer, and therefore the approach to employee adaptation has been transformed. Each new employee was given a welcome box with a note "Welcome to the family". The peculiarity was that the company realized how important family is for its employees. Every September 1, employees who have children were given a day off. The CEO of ANCOR Central Asia sent handwritten thanks letters to the parents of the employees. Thus, the company united as one big family, where common values, goals, caring for each other and attachment to the company served as motivation and involvement.

Ernst & Young (EY)

One of the "Big Four" audit companies represented by Aida Aidynova, a junior HR specialist at EY, shared with us how the transition in a large international company went, according to her opinion. During the pandemic, the company lost a huge number of customers. Many of them are large companies that themselves experienced a crisis at the time of the lockdown, and no longer needed consulting services. However, Ernst & Young provided support and advice in crisis management services and labor legislation in the field of salary planning, layoffs, and downtime in other companies. Before the pandemic, the company organized annual team-building in nature, issued corporate discounts from the company's partners and organized internal events in honor of the public holidays. However, during the pandemic, all these processes were suspended. When the entire staff was working remotely, there was a tendency for productivity growth among employees. According to the results of an internal survey in EY, it became clear that this was caused by the fact that the company's office is arranged in the style of open space, which is the reason for some distractions.

Employees whose projects are closed on remote work quickly and efficiently were awarded a commendation for motivation.

In order to maintain team spirit, the company organized joint coffee breaks at online conferences. As the restrictions were eased, according to the recommendations of the Chief Sanitary Doctor of the Republic of Kazakhstan, a limited number of people were allowed to be sent to work in the office. If desired, they could sign up and come to the office through a check at the reception. Thus, people were given a choice: if you want to do work from home, then do it effectively, if you feel uncomfortable at home or think that your productivity has dropped a little, you can come to the open space in the office and do your job. Meetings were held on a monthly basis in order to listen to the opinion of employees on what should be added by the management in order to improve remote work, increase productivity and overall organization performance. The hybrid format of work began to be welcomed even after leaving the lockdown. Outdoor activities, team building and business trips returned as far as possible.

Aviata.kz (Chocofamily holding)

One of the largest Internet companies in Kazakhstan Aviata.kz which is part of the Chocofamily holding also shared its transformations with the research group, the head of the HR department Dina Baimukhanova explain how the processes of employee motivation in IT companies have changed.

Aviata.kz also used a wide range of the methods of motivation and encouragement already mentioned above. The HR department organized a joint viewing of films and themed games in an online format for the whole team. Certificates for massage were issued to the customer support staff. Each employee was provided with equipment, necessary furniture and office supplies to work from home. Through the Trello platform, any department could describe the actions taken and the next steps, closed and planned projects. This was done so that everyone could see that each member of the team is making efforts to achieve common goals. The planned projects are being implemented and launched, and nothing stands still. All this is part of the corporate culture and is very important for a large company, especially a

holding company as a whole.

The possibilities of the open world of the global labor market have shown that today it is possible to use non-standard methods. Therefore, the company stopped using clear rules and established a floating lunch and break schedule. The methods of the new management allowed IT employees to independently set a convenient time to complete tasks on time. It has become possible to invite foreign specialists to work, where time zones have ceased to matter. The only important point was to monitor the timing of implementation, testing and launch. The management of the company has shown that they value the self-discipline of employees, do not limit them and give them the opportunity to allocate their own areas of responsibility for themselves and their tasks.

At Aviafests and quarterly conducted Objectives and Key Results (OKR) meetings, each employee can present the results of the work done. By the end of the meetings, it was always highlighted that the whole work that was done was made not by one person, but the whole team participated in the project and everyone contributed to the work. That is why team spirit in the company and corporate culture are considered as the most important motivators.

Corporate University of Samruk-Kazyna (CUSK)

CUSK is a consulting services center, engaged in the development and implementation of all HR processes within the Samruk-Kazyna Group of companies.

The most important difficulty in the transition to the remote format, according to Zhanar Baizhumanova, Managing Director for Business Support, was the transfer of the traditional paper format of documentation to a digital format. Many employees lacked the knowledge and skills to work in new online programs, and many experienced fear and uncertainty. For this reason, the company has developed and sent out a psychological survey among employees about how managers can help in a time of remote work. The data allowed the company to build a plan that helped later manage employee engagement. Since then, special training has been conducted for managers to identify and deal with stress and demotivation among employees. The work was completely digitized, meetings were held on Skype for Business and Microsoft Teams, offline marker boards were transferred to boards in the Trello cloud program, and a guide on using these programs was also sent to employees. Before the pandemic, meetings with management were held once a quarter, subsequently, it became clear that these meetings on remote work need to be held weekly. Equipment was also provided and employees could take everything they needed from the office to work from home. Some employees who carry out transactions were even given even two monitors to work with.

The processes of adaptation of new employees have also changed, so special training courses were provided for the heads of each department. Virtual tours of the office were conducted for new employees so that people would understand that they have a physical place of work to return to after the restrictions would be lifted. Like most other companies, the Corporate University used chatbots so that employees could book the time at which they could come to the office and work. The company realized that simple things in the form of caring for employees keep them engaged and motivated.

Discussions and recommendations

According to the results of the study, it became clear that following World trends, large companies improved and constantly monitored all processes of their HR strategy even before the pandemic crisis. For medium and small businesses, the crisis has become a real revolution in the policy of employee motivation and engagement. Initially, in almost all companies, employees were scared of changes, then they were inspired by the appearance of a large amount of free time, saving on unnecessary costs, and increasing productivity from home. People experienced mixed feelings. However, after a period of getting used to the new working environment, stress came caused by the following factors, for instance, it seemed to the people that they were working around the clock because the boundaries were erased. A work call could come outside of working hours, due to the fact that everyone was at home and had an opportunity to fulfill an assignment or a small request. The HR manager noticed these changes and constant correlations in the increase and decrease in work efficiency, therefore, employees began to return to the office as it became

possible. Many people believe that a hybrid format of work in the modern world is the best option. In the labor market, there is no longer a committed opinion that a subordinate should stay in the office late, rework or not finish something.

If we take into account all companies and all economic spheres in Kazakhstan, the crucial transformations of HR processes have not happened everywhere yet. It means that most companies still have a free space to work on enhancing their processes. The world is changing and borders are spreading. Now it is very important that both the employee and the employer are interested in meeting each other's needs. The employer wants to achieve success and profit in achieving their goals, employees want to be interested in this and know that they benefit and are in the value of the whole mechanism. That is why the values of the company and its corporate culture are so important nowadays. Hiring people who do not share these values, or the inability of the employer to convey these values, will lead to demotivation and dismissal, and dismissals lead to turnover. The management should also keep in mind the fact that highly motivated personnel are the driving force of any company which strives to achieve its corporate goals. Hence, HR managers must sustain regular communications, be open to workers' opinions and requests and constantly improve the personnel management approach.

Problems and Limitations

The research team also intended to interview representatives from companies in the construction, banking, FMCG and HoReCa sectors. But we faced some problems from the external side, like assigning a convenient time for everyone outside of working hours or getting permission from the board of directors of these companies to disclose confidential information.

Another limitation was the small amount of publicly available information about transformations in HR policies in the companies. Available information about Kazakhstani companies could be taken only from interviews and reports from representatives. Therefore, the search for data in open access took a lot of time.

Conclusion

This research aimed to analyze how the pandemic has affected the motivation and engagement of employees. Likewise, it was important to determine how Kazakhstani companies supported their employees during the transition to WFH. In order to adapt to the difficulties during the pandemic, the management of various companies developed measures to optimize costs and retain employees and motivate them. Overall, the pandemic has influenced HR practices in a variety of ways. Before the pandemic, companies that had all HR processes in place experienced fewer difficulties. Being adaptable was a key aspect of surviving during the pandemic.

Based on the survey, many employers have tried to make the remote format effective for their employees. Revision of KPI, equipment of working technicians (computers, laptops, furniture). The main mechanism for maintaining communication was the ZOOM and Microsoft Team platforms. In general, the remote format is well appreciated by employees. Among the respondents, 64% of employees confirmed that they are ready to combine remote and regular work formats on an ongoing basis, arguing that during the remote format it is easier to optimize their costs and do not need to waste time on commuting.

Interviews with representatives of various companies revealed in detail the picture of how companies dealt with sudden difficulties due to the pandemic. A lot of companies were focused on keeping employees motivated. In addition, a great number of them supported their employees medically. Successful steps have also been taken to preserve the corporate culture. In order for colleagues to have a connection, the company's management organized meetings of an entertaining nature, where employees could take a break from work and discuss day-to-day topics, laugh together, and thereby have a good time at a distance. Taking care of your own employees is also support for motivation on the part of the company's management. Fruit boxes and personal letters from the CEOs of companies encouraged employees not to lose their corporate spirit during difficult times.

This study consisted of the following hypotheses: The remote work format has positively affected the engagement and

motivation of employees; Kazakhstani companies were supportive to employees during the pandemic and implemented new HR instruments successfully. Based on the comments of the respondents, the remote format had a positive impact on the involvement and motivation of employees. Also, the management of the company supported the employees, proving that employees are the main resource of the company. Therefore, many companies were able to adapt during the pandemic, rebuild their HR processes and not leave the Kazakhstani market.

Despite the fact that the pandemic has significantly affected the motivation and engagement of employees, the remote format has facilitated this transition and brought its positive aspects. Therefore, the hypothesis that the remote format had a positive effect on the motivation and involvement of employees is correct. Based on the results of the survey and interviews, about 80% of companies from different areas supported their employees during the remote format, therefore, the second hypothesis is also confirmed.

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How Cashless Operations Integrated into Consumer Lifestyle in Kazakhstan as a New Habit?

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Abstract

Nowadays digitalization has become an inextricable aspect of our lives, and the demand for new digital formats is growing. The purpose of this research is to understand how consumers are used to cashless payments and whether it has become a habit or whether most people in Kazakhstan still using cash. The study shows how cashless operations have become an integral part of the client's life and their habit, from what moment they started to switch and what problems they encountered during the transition.

Both qualitative and quantitative research methods have been selected in order to ensure

that the analysis was reliable, likewise, to prove or disprove the hypotheses.

Introduction

The system of non-cash money transfers plays an important role in the economic life of society. Combining commercial, consumer, and budgetary transfers and mediating the movement of funds it affects many areas of the economy. In recent years, most people used to complete their payments in cash money. Consequently, it was inconvenient which in turn led to the insecurity of monetary resources and uncomfortable usage. Money transfers made using bank cards, namely transfers from card to card, have become more widespread. Nowadays, in civil circulation, one of the principles of which is retribution, the non-cash transfer is the most important instrument for fulfilling monetary obligations. Therefore, any negative processes in the system of non-cash transfers slow down, and often completely block the further execution of business transactions. The role of non-cash transfers in the financial and stock markets is even greater.

Increasing interest in harnessing the potential of remittances for social and economic development in the last decade has led to a surge in scientific publications, which have been comprehensively analyzed in several studies (Agunias, 2006; Rapoport & Docque, 2006; World Bank, 2006). These research all agree that remittances are economically beneficial. Moreover, the influence of remittances on migrants' home countries is described in these studies as a reasonably consistent supply of foreign cash and an alternate backup plan for the impoverished. Nevertheless, it is acknowledged that these kinds of favorable effects may be offset. It appears to apply, for instance, to circumstances in which remittances cause demand-pull wage growth and income disparity; a rise in the actual worth of the currency or a postpone in devaluation - an impact of the so-called Dutch disease - that can impede countries' productivity and competitiveness, along with increase the vulnerability of countries reliant on remittances in the case of sudden shocks. Furthermore, it is widely held that remittances are never a panacea and that they cannot substitute decent economic strategies and structural changes required for developing nations' overall growth.

For many countries in the region, such as Kazakhstan, Armenia, Georgia, Moldova, Kyrgyzstan, and Tajikistan, remittances are vital. Indeed, the massive inflow of remittances serves as a major source of foreign exchange and is used to limit the substantial current account deficits of these countries. Indeed, a significant increase in remittances prior to the global economic crisis helped mitigate the negative impact of higher energy prices on the current account.

The use of remittances for investment in physical capital and entrepreneurial activities has a direct positive impact not only on economic growth but also on employment. Although a large proportion of remittances were used for consumer purposes rather than for savings or investment, even in these cases, remittances generated a positive multiplier effect, stimulating the development of retail, transport, construction, consumer goods and various services. This, in turn, should stimulate the creation of new jobs and the further reallocation of labor resources from the military and heavy industries inherited from the Soviet Union to the modern service sector and the production of consumer goods.

Given the changes, the current service mission of many financial companies sounds simple and logical - providing a high-quality and fast service that is accessible to everyone. Financial companies like Wirex and PayPal offer a hybrid financial solution for managing personal accounts, which is incomparably more flexible and user-friendly than traditional banking. These services allow you to make instant money transfers in USD, EUR, GBP, and digital currency, easily converting currencies among themselves, with the ability to issue a virtual or plastic card for settlements wherever MasterCard is accepted and for withdrawing cash from an ATM. Moreover, they provide their services all over the world, without being tied to the work schedule of bank branches and without excessive bureaucracy, which in turn greatly facilitates the everyday lives of millions of people.

The pandemic has pushed the whole world to switch to online mode, and Kazakhstan is no exception. In this difficult time, when everything was moving to an online format, digitalization began to develop very quickly. All

people began to get used to the new realities and the habits that had been developed over the years at one moment turned upside down and people began to acquire new habits. Each generation coped with this task in its own way. For generations Z and Y, this is a more familiar habitat, while generation X got used to the new reality more difficult and time-consuming. At a time when everything around in an online format, companies began to build their ecosystem and improve it, and such a company in Kazakhstan was Kaspi Bank which sets the pace for other banks and creates new schticks every time surprising its users and making life easier for them to the maximum. They were the first to understand that the future lies in digitalization, that Kazakhstan will come to this sooner or later, and they should be the first to provide them with such an opportunity in terms of the convenience and functionality of their application and the bank as a whole.

Research hypotheses:

H1: The pandemic has affected the use of cashless payments in large cities

H2: Kaspi had a greater impact on the transfer to a cashless operation than the pandemic

H3: Customers in the regions both used cash and still use cash for all the services.

The purpose of this research is to explore how digitalization has influenced the behavior of bank customers in Kazakhstan, as well as if consumers are willing to convert to online banking services.

Research objectives

• To determine the attitude of consumers to cashless payment

• To determine the willingness of customers to switch to full cashless payment

• To determine how much the habits of consumers have changed due to cashless payment.

Research question: How did citizens of Kazakhstan adopt cashless payments as a new purchasing habit?

Literature review

Primary data

Cashless operations

Cashless operation is considered a safe and convenient way of conducting payments. Cashless transaction refers to money operation without the use of physical currency and it represents technological breakthroughs in a world economy. From a financial standpoint, electronic payments are a type of financial instrument that allows buyers and sellers to communicate electronically (Abrazhevich, 2004). Simply put, electronic payments are any payments done without the use of paper instruments (Tella, 2012). Electronic payments are defined as electronic value payments sent from a payer to a recipient over a comprehensive electronic payment channel that allows payers to freely access and control their transactions over the internet (Wendy, 2013). An electronic payment instrument can be described as a mechanism of payment between parties that occurs through electronic means.

According to Tee and Ong (2016), moving to cashless operations is a change in behavior in which people minimize the usage of cash as a method of exchange for goods and services by maximizing the usage of electronic transactions or non-electronic payments by cheques. Money needs to be a method of exchange for goods and services in the near term, therefore a cashless economy does not imply that currency will indeed be completely eliminated. This is a monetary ecosystem in which the need for actual cash is minimized by offering alternative payment solutions (Alilonu, 2012).

Electronic banking became popular in the 1990s and people started conducting cashless operations on a daily basis. Stanford Federal Credit Union launched the first internet-based online banking service in 1994. It swiftly spreads around the world (Yoon, 2010). PayPal was founded in 2000, and it allowed customers to send money over the internet. eBay, an e-commerce platform, uses PayPal to facilitate transactions between users without requiring personal information such as bank account or credit card data.

Moreover, digital transactions were adopted by many countries around the world, developing intermediaries such as online paying systems like PayPal, digital wallet systems operated by giants like Apple, contactless payments using cards and smartphones, and electronic billing and banking all being widely used (Kumari & Khanna, 2017).

Digital economy and marketing

Bukht and Heeks in their study analyzing the existing definitions of researchers and international organizations concluded that the digital economy, depending on the perspective and focus, has a distinctive nature. From the point of view of a marketer, the digital economy is digital consumer access to products and services, digital promotion and sale of products by suppliers, the digital exchange of information, values, and other resources, which in general creates an environment in which every individual interacts using the Internet, e-commerce and digital technology (Bukht & Heeks, 2017).

The digitalization of the economy was accompanied by the digitalization of marketing, in which there are significant differences from traditional marketing. First of all, the role of the participants has changed, if the seller hunted the consumer in the traditional format and segmented them according to demographic and social characteristics, and then in digital marketing, the relationship has become horizontal since the consumer has more of a role and importance in the process. The portrait of the consumer has been deformed, socio-demographic indicators have receded into the background and segmentation occurs due to community involvement of customers. With the research introduction by Seth Godin, the concept of marketing permission appeared when the consumer can regulate and control marketing influence through various channels. It turns out that in digital marketing, the tools and varieties of brand promotion methods used depend on consumer behavior and their desire. The desire also concerns payment methods, the more variable the offers by type of payment, the more customers can be covered. The trend of digitalization in marketing has influenced pricing policy too. The concept of dynamic pricing, which is actively used in the tourism sector when selling air tickets, and hotel rooms, has become relevant for other areas. Depending on the solvency, a unique price is formed for each client. The price is set due to the presence of big data which allows studying the entire chronology of the purchase, and the characteristics of a person who is the future customer. The changes also affected the promotion mechanism in which all types of advertising have a two-way channel of influence. In traditional, the consumer did not participate in the process, while in digital, the feedback and the behavior of the consumer will determine the format, intensity, and variety of the advertising offered. All of the above and other transformations have affected models and frameworks in marketing and sales (Kotler, 2019). An example is the partial de-actualization of the marketing mix and the commercialization of the four C's, as well as the modification of the AIDA framework, which is described in detail in the following paragraph.

Modified AIDA framework

If the AIDA framework was used in traditional marketing and sales and was effective, then with the active development of society, the relevance has shifted since consumer behavior has acquired a different character. A modified framework for updating the process of advertising and selling is a necessity and Derek Rucker proposed an option in components that: aware, attitude, act, and act again. The last recurring component is the result of new measurements in marketing that tracks consumer behavior after-sales and customer retention period. However, the acceleration of digitalization has deformed the concept and decision-making process of the consumer. If in the awareness phase the consumer is influenced by past experience and marketing communications and informatization of brand advocates, then in the appeal phase the brand passes on long-term memory of having been affected by the WOW strategy or in the short-term by losing attractiveness on the background of others. Next, the asking phase is accompanied by active research through both online reading reviews, recommendations, and comments and offline testing the product, asking friends, etc. The action phase is the culminating moment during which the consumer makes a purchase of the product. And the last phrase is the advocate which is the most important and key in creating loyalty when the consumer decides to stay on a long-term basis and actively shares his impressions surrounded by friends and relatives. The fourth and fifth phases are the moment of leverage with the maximum impact on the consumer's consciousness the desire for cashless payment is also revealed in these stages and a positive perception remains during implementation. It is possible to increase sales only through an integrated approach at all

stages, but the major mistake in the last phases and without investigating different scenarios of events. There are cases when the client skips some phases depending on the type and value of the product and service. Furthermore, impulsive purchases with a completely different course of events may depend on the power of the influence of exogenous and endogenous factors. Despite the different situations, the importance of the fifth step is crucial to work on loyalty and feedback in the era of active digitalization when there is no direct contact with the consumer (Kotler & Hooi, 2019).

Generation X, Y, Z

As described earlier, segmentation of consumers is now taking place by belonging to a certain generation. Generation X consumers are people born from 1965 to 1979 who have 21% of the main share of consumers. Generation Y is consumers from 1980 to 1994, making up 21% of the total population. While generation Z was born from 1995 to 2009 having a 19 % share of the total population, but with potential active growth in the long term (McCrindle, 2011). According to Kotler's forecasts, Generation Z is the main consumer audience of cashless payment and the major active participant in the digital economy (Kotler, 2019). This kind of separation according to age cohort is based on the fact that these people have a general idea of life, the history of development, childhood, cultural heroes, and general memories that are displayed in their preferences. A brand is considered durable if it has loyal consumers belonging to at least two generations. Each generation has its own characteristics that distinguish it from other generations. Generation X people with a materialistic mindset are sceptical about choice and decision-making. For the period of their formation, the age subculture of retro, hippies is relevant (Hogg & Solomon, 2006). Consumers would like to know more about the company's products as well as a description of why they are vital (Heaney, 2007). They want to hear about the product's characteristics as well as an explanation of why these features are important (Himmel, 2008). Individuals have a low-risk tolerance and a danger mentality (Reisenwitz and Iyer, 2009). As customers, Gen Xers appreciate consumer experience, community engagement, and brand. They have a history of being completely untrustworthy of brands and enterprises (Williams, 2005). One of Gen

X's characteristics is that they appreciate the opinions of others. They may be self-conscious and want assurance whether their choices are acceptable. They are prone to dismissing any form of classification or marketing approach and disregarding targeted ads (Peralta, 2015).

Generation Z is unique in its insightful nature when making decisions and consuming a product. Most often, they are financially literate, able to think freely and in a variety of ways, and digital natives (Gupta, 2021).

Generation Z is the world's most materially well-off, technologically savvy, globally-connected, and officially educated generation. Coming of age in the twenty-first century has given Generation Z a unique viewpoint, as they have been shaped by the Global Financial Crisis while simultaneously being globally linked and engaged through global companies and global technologies (Parment, 2011). Consumers of Generation Z are less devoted to individual companies and capturing and holding their attention is difficult (Priporas et al., 2017). Consumers in Generation Z are interested in new technology, seek simplicity, want to feel comfortable, want to escape from reality, have high expectations, and value experience more than anything else (Wood, 2013; Priporas et al., 2017). Using advertising campaigns to reach Gen Z customers is difficult. Other compositions, such as presenters or music, are not as appealing to them as ad content. Furthermore, individuals are more likely to be exposed to ad campaigns in which they are interested rather than efforts that invade their privacy (Brown, 2017).

 Businesses can now deliver their messages in a variety of methods. However, one disadvantage is that in order to keep the attention of Gens Y and Z, we must constantly update our messaging and tactics. These generations have shorter attention spans as a result of the numerous disruptions of a technology society. Individuals in Generation Y grew up amid a time of rapid economic expansion, the rapid rise of social media and reality television, and the fading of modernist values, all of which were aided by internationalization and significant popular culture influences (Parment, 2011). Due to their high speed and vitality, Gen Y is a confident, optimistic group that feels empowered to take positive action when things go wrong. They also have multi-tasking talents (Kim, 2008).

Gen Y is unconcerned about brands and prefers things that fit their personality and lifestyle. They see themselves as reasonable customers who value price and product characteristics over brand names (Phillips, 2007). The allegiance of Gen Y is believed to be fickle, shifting swiftly according to fashion, trend, and brand appeal, and emphasizing style and quality over money (Reisenwitz and Iyer, 2009). It's difficult to build consumer loyalty among them because their attitudes are obviously shaped by their experiences, which cast the deciding "vote" on who would benefit from their purchasing power (Parment, 2009).

Digital payment (cashless payment, QR code)

The impact of the type of payment was considered on the AIDA framework; however, a similar statement confirmed in practice was made by Young based on statistical data in the Bloomberg database. According to the results, 73% of customers compare the type of payment and, depending on the availability of digital payment, make a choice in favor of the company, which has that option (Young, 2022). Digital payment is a type of cashless payment by digital wallet, QR code, tap-to-pay platforms, etc. A similar trend is observed in the Asian region, according to a survey organized among MasterCard users, 91% of respondents prefer contactless payment (Patel, 2020). In the example of Kazakhstan, the report for February 2022 of the National Bank demonstrated that the volume of cashless payments used was 96.8%, while the value was 81.2% of the total amount. The relevance due to the pandemic has also acquired payment through the QR code, a process in which the code is scanned and a cashless operation occurs. Karniawati's research has demonstrated that this type of payment has been integrated into society via various promotional offers, bonuses, government support, etc. Nevertheless, the pandemic has also catalyzed integration, as cashless, fast payment without the threat of interaction with the seller has become a habit of consumers (Karniawati, 2021).

Case of COVID-19

Definitely, the rapid growth of users who prefer cashless payment was influenced by COVID-19, which limited the offline contact between people and there was a massive transition to the digital environment. During the months of lockdown in Kazakhstan, according to Kredina's observations, the dynamics of cashless payment were positive (Kredina, 2021). This kind of change has been the case in many countries, but Pay noted specific variables such as favorable conditions, environment, social impact, expected performance, and effort expectance that influenced the desire and behavior of customers to use cashless payment during the pandemic in Malaysia (Pay & Kosim, 2021). However, the most effective consequence of COVID-19 was the fear of paying in cash due to the spread of diseases by water droplets. Ardizzi & Rocco in their research concluded that measures to limit interaction reinforced by governmental regulations on the transition to non-cash types of payments and the installation of curfews forced consumers to actively use digital payment methods (Ardizzi & Rocco, 2020). Despite the long duration, the pandemic is a temporary phenomenon, but the habits acquired by customers during this period remained in the post-pandemic era too (Setyanto & Sunarjo, 2021). In an interview organized with Rashid Yurishev, the Consul of Kazakhstan in Hong Kong, the concept of digital literacy was used to determine the prospects of Kazakhstan after the pandemic. In the post-pandemic era, the country's residents have become largely skilled at using digital tools (Chan, 2021). This statement is confirmed by the statistics on digital literacy, which is 87.3% (Bureau of National Statistics, 2022).

Secondary data

A cashless type of payment is a monetary transaction without the participation of physical money. That is, money has an intangible characteristic and moves within the radius of the economy or between economies without physical presence. The process of integration into the economy of this payment method goes through adaptation in society and, accordingly, each country perceives innovation in the field of payment differently, depending on different factors. This situation is interesting and important for research to use the results in practical use during the planning and implementation of economic projects. Using the example of Rahman's research, the model

of adaptation of cashless payment in Malaysia was considered. Using a quantitative research method, the author conducted a survey among the local population with a variety of socio-demographic parameters. During the survey, each of the respondents determined the degree of agreement with the given statement regarding the influence of behavioral factors on the adaptation of cashless payments. As a result, it was found that a high level of security is appreciated largely among users of cashless payment methods since the possibility of theft is minimized. In addition, the innovativeness of the method that determines the level of comfort and entertainment for the consumer has a positive effect on adaptation (Rahman & Bahri, 2020).

In the process of integrating a cashless payment, it is also important to determine the level of readiness of the consumer audience. Humbani and Wiese's article focuses on the study of a cashless society on the readiness to use mobile payment services. The researchers using the quantitative method organized an online survey in which users participated and made offers to complete the payment. In this study, the sampling method, setting the number of respondents and the audience of respondents is similar to Rahman's study, which means the effectiveness of the quantitative method with the organization of a sample group of respondents. In addition, the results have common ground, as Humbani also noted the innovativeness factor as one of the influential aspects in the integration of cashless payment in society. The author classified the types of telephone payment into remote, which implies payment without restrictions of distancing and proximity in which payment is made at the place of using the service and purchasing the product (Humbani & Wiese, 2018). For each of the types, the perception of consumers is significantly different, since the close process has a more trusting principle while paying at a distance can revive doubt.

For the diversity and comparative analysis between before the pandemic and during the pandemic, an article written in 2018 about the formation of a cashless economy was considered. The author aimed to detect the process of cashless economy formation by determining the accelerating and slowing down factors by using mixed a method with an analysis of available statistical data and survey results. As a result, it was revealed that the formation of a cashless economy is largely unique for each country and the experience of developed countries is not always implementable to the developing ones, since there are significant differences in politics, economies, society, culture, mentality, and other constituent spheres. In addition, attention was focused on the role of the government and the establishment of government programs for the development of cashless payments for utilities, public transport, and other types of public services (Oleshko & Trokhymets, 2018).

According to Mastercard, consumers' preference for contactless cards has been fueled by perceptions of safety and convenience, as well as a reminder of the ease of tapping. Globally, 46% of respondents have replaced their top-of-wallet card with a contactless card. In the Asia-Pacific region, 51% of people have switched. Also, the Mastercard server showed that due to the safety and peace of mind it gives, COVID-19 has boosted worries about cash usage and led to good impressions of contactless. Contactless is viewed as the cleaner way to pay by the majority of respondents (82%) around the world, with 80% in the Asia Pacific agreeing (Mastercard.com, 2020)

Further, research was reviewed on the adaptation of another type of non-cash payment as an e-wallet. Yang defines the concept of an e-wallet as a cashless transaction tool that is used to make payments for a service and a product. In the course of the survey, researchers found factors of positive influence on adaptation in society. According to findings, ease of use and the degree of trust has a positive impact on the intention of use and adaptation. In addition, the adaptation process is affected by the characteristics of the consumer too, since in this study a difference in opinions by gender was found (Yang & Zainol, 2021). Humbani also had this kind of conclusion, who discovered the active role of women in adapting and being ready to adopt cashless payments in society. It can be observed how opinions and results converged in many studies, but in the example of the study of Balakrishnan, it was found that the willingness of the consumer to use a non-cash payment is not an influential factor, since a favorable environment and economic conditions are more important (Balakrishnan & Shuib, 2021). Zhao's research on the study of cashless

payment and consumers' perception of mobile payment turned out to be the most informative and theoretically justified. The author skillfully used the theoretical basis and various methodologies in detecting influencing factors. In comparison with the authors who noticed differences in opinions between women and men, there was no difference in this example. Additionally, the factors of influence were identified as external and internal (Zhao, 2019). External factors may be due to various triggers, but the author had similarities with the report of McKinsey about global cashless payment, which noted COVID-19 as an external phenomenon that served as an inhibitor of the adaptation process. Zhao as an internal factor determined the culture, the same conclusion is observed in the report for 2021 when Asian Pacific countries had intensive integration of cashless payment (McKinsey 2021), and rather other countries differed due to the uniqueness of consumer behavior depending on the culture.

The main audience of cashless payment consumers, according to Nikolaou, is customers from generation Z, in whose life this type and format of payment have been in effect since their reasonable living experience. The technological and digital literacy of this generation allows them to use digital tools as efficiently as possible (Nicolaou, 2022). However, Daragmeh and Sagi, in their study on the example of generation X in Hungary, concluded that despite the passive transition of representatives of this generation to cashless operations, COVID-19 managed to speed up the process and create the most necessary conditions. This kind of conclusion leads to a positive prognosis due to the successful adaptation of consumers from generation X to cashless payment methods that include the use of mobile phones, cards, E-wallets, QR codes, etc (Daragmeh & Sági, 2021).

Studying the process of transition to a non-cash type of payment in Kazakhstan, a number of official sources of analytical companies, and national organizations were considered. According to the Association of Financiers of Kazakhstan, in 2017, a mobile payment using QR technology was adapted to the country's market, which was developed based on the experience of the VISA company (AFK, 2017). Likewise, according to AFK In 2021, the volume of non-cash card transactions doubled and reached 89% of GDP (kapital.kz). According to research made by PWC in 2019, the share of non-cash transactions in Almaty was 64%, in Nursultan - 50%, and in the regions - 30%. The statistics for 2021 are noticeably different and in the cities of Shymkent, Nursultan and Almaty, the share of non-cash transactions ranged from 77% to 87% in the number of transactions. While in total in 14 regions of Kazakhstan this indicator is at the level of 69%.

As noted by the chairman of Halyk Bank Ms. Shayakhmetova the transition will be accompanied by the activation of the entrepreneurship sector and the optimization of small and medium-sized businesses. Optimistic forecasts were justified, but the highest point of growth was during the pandemic. According to experts of Forbes for 2020, the growth of non-cash payments amounted to 16 %. Referring to the statistics of the Center for the Development of Innovations and Financial Technologies, a positive conclusion is made on the duration of the intensity of the use of non-cash types of payments and the sharp increase of local e-commerce (forbes.kz, 2020). The volume of non-cash payments for the year increased 2.4 times and amounted to almost 30 trillion tenge (finprom.kz, 2020). The Analytical Center of AFK presented an overview of statistics on non-cash payments by cards as of July 01 2020, in the Republic of Kazakhstan. After updating the historical maximum in May, the volume of non-cash card payments in the country in June again broke the record for the entire history of observations. The indicator increased from 2.4 to 2.7 trillion tenge (+15.4%) (profit.kz, 2020).

Tracing the chronology of events, it is important to note the AIFC forum on the development of cashless payments and support for small and medium-sized businesses, during which announced growth for 2021 was 2.2 times more than last year, which is a clear indicator of leadership among the CIS countries in the transition to a cashless economy. Experts noted the positive impact of government initiatives to create a favorable environment for the digitalization of public types of services (AIFC, 2021). Summarizing the situation in Kazakhstan, 67% of entrepreneurs of macro, medium, and small businesses actively use the function of cashless payment adapting to the demand of consumers in the market (atameken.kz, 2021). Based on the analytical infographic of the Visa,

it is important to note the high rates in such megacities as Nursultan, Almaty, and Shymkent due to the high concentration of services and products in these regions (Vaal, 2020). As it was noted, the role of the state has a tremendous impact and, according to Vlast.kz, it is planned to create a digital currency tenge, which would serve as an inhibitor of the integration of cashless payment (vlast.kz, 2021). However, the legislative proposal was postponed for more detailed research in this area.

The catalyst for the process of transition to the digital environment with the application of innovative financial, technological, marketing, and cashless payment solutions was Kaspi Bank. Kaspi is not in the usual sense, an institution that bases its work on lending and saving financial capital, it is a company that provides a number of services for digital payments, financial transactions, the creation of e-commerce, etc. According to the analysis of the segmentation of the profitability of the company, noticeable growing profitability from creating conditions for cashless payment, means an increase in demand for this service in the economy of Kazakhstan (Ivashina, 2019). Kaspi has become a phenomenon in the market of Kazakhstan, creating its own unique ecosystem where both the seller and the consumers of the seller's products are in the role of the client of the bank's service. The company, focusing on the digitalization of all processes, introduced the possibility of cashless payment before the pandemic. The payment could be made through the mobile application, Kaspi Transfer, Kaspi QR, and through Kaspi gold cards. In general, by offering a wide range of non-cash payment types, the company has increased awareness in society. Further adapting the payment platform to the requirements and necessity of sellers activated the function of Kaspi pay, Kaspi QR checkout, etc. In one year, the Kaspi payment platform has gained growth in the number of consumers by 58% and the duration of growth is expected as the company increasingly attracts new sellers who find the platform convenient, safe, fast, and attractive for customers. Kaspi has created a program for users to accumulate a bonus when using Kaspi QR and other non-cash types of payments, while for sellers it has made it possible to issue interest-free installments for their customers (Kaspi.kz, 2021). In general, the company has become a leader in the organization of cashless payments by speeding up the integration process and creating the most favorable conditions.

Kaspi Bank has become a successful case for reasoning the position of a bank whose main product is being created and developed driven by customers. The chronology of the bank's development demonstrates an active transition to the digital environment since 2012 with the use of e-wallets, then until 2019, almost all innovations in the field of cashless payment were introduced into the main functionality of the bank's application. According to the Harvard research integration of the marketplace, digital payment functions, and fintech has created an innovative product that implements its work for consumers of all social categories (Ivashina, 2019).

In conclusion, the literature review gave a complete overview of the theoretical basis of the research topic and found secondary data analyzing which the further direction of research was determined.

Research methodology

The research will be conducted through both qualitative and quantitative research methods. Structured in-depth interviews were used to conduct the qualitative research. The purpose of qualitative research was to obtain a deeper understanding of the situation in terms of a new habit and integration of cashless operations in our country. While, quantitative was conducted to gain information from generations such as Y, which includes those who were born from 1981 to 1996, and anyone born from 1997 onward is part of a new generation, generation Z (Dimock, 2019). These generations have diverse life experiences, values, attitudes, and preferences, all of which have an impact on their decision-making.

In-depth interviewing is a form of research approach that entails conducting lengthy face-to-face interviews with respondents to learn about perspectives on a specific idea, issue, or circumstance. This research method is critical to our research since it allows us to elucidate more particular facts about the integration of cashless operations in the daily life of Kazakhstan citizens concerning the situation at hand. In-depth interviews had the key benefit of allowing us to gather more precise knowledge

and insights to test our hypothesis and make the research more objective.

Structured in-depth interviews were used in the qualitative study, which included asking prepared questions in a specific order so that the respondents' responses could be compared and analyzed. The in-depth interview questions (available upon request) were developed in response to the research questions, habits and cashless operations, and in accordance with the study's theoretical section.

Qualitative research in-depth interviews are conducted with Industry Experts who provide their professional opinions on the research questions as well as provide objective reasons and responses. As a result, the current theory would be thoroughly examined.

Quantitative research is conducted to understand the differences between the two generations and find out which generation prefers cashless operation systems more and why. Moreover, to see the number of users in each region and which regions are using non-cash operations more. At least 100 customers from different cities in Kazakhstan are surveyed, which will give us reliable statistics and will help to prove our hypotheses or otherwise disprove them.

The survey includes 15-20 questions, including general questions about the usage of cashless operations, about their attitude to digitalization. The survey was distributed among all generations in all cities of Kazakhstan and they answered the same questions. The random sampling method is used according to a confidence level equal to 90% overall necessary population size is 243 with a margin of error of 5%.

Findings

Quantitative research results

There were 248 respondents in our survey, and their answers are very different according to their personal experiences in the cashless ecosystem. Residents of the four most populated cities of Kazakhstan participated in our survey: Nur-Sultan, Almaty, Shymkent and Aktobe. Moreover, there were other residents of the regions of Kazakhstan such as Turkestan, Aktau, Semey, Karaganda and so on. Generation Z is 33.9%, 25-34 is 19.8%, 35-44 is 23.4%, 45-54 is 10.9%, 55-62 - 7.7%, and the number of respondents was 11 (4.4%) in the category 63+. Additionally, respondents are divided by employment: 23.4% students, 21.8% entrepreneurs, 31% company employees, 12.1% freelancers, and 6.9% retirees, the rest vary.

The survey was conducted in a Google questionnaire, and they were also sent through social networks such as WhatsApp, Instagram, and Telegram. The questionnaire can be provided upon request.

Most respondents prefer cashless payments, which shows that people are used to the new type of payment and the percentage of such respondents is 68.5%. There are also those for whom the type of operations is unimportant and they make up 1/5 of all respondents. 42.3% of people would not like to go back to cash, which is almost four times more than those who want to go back to cash. This proves that cashless payments have become preferable for residents of Kazakhstan.

One of the forcing factors shifting into cashless payments is the pandemic. It follows that the pandemic has significantly accelerated two important factors:

1. Transition from cash to non-cash transactions

2. Consumer trust in online platforms.

This affected half of the people surveyed and after that, they began to prefer cashless payments. This prompted companies to move to online platforms. It is noticeable in the large cities of Kazakhstan that more non-cash transactions take place where there is a wide choice of Internet platforms, as well as delivery services.

The result shows that consumers' purchases have changed in different ways, for some they changed significantly and the percentage shows 34.3%, purchases have not changed so much after the appearance of cashless payment platforms for 64.7% of respondents. In the majority, people buy essential goods through bank transfers, these are food, medicines, household goods and things. The market has adapted to the new business conditions and those who paid more attention to the ecosystem and digitalization received more customers. Top 3 apps people use daily: Kaspi, Yandex, Glovo. 93% of respondents answered that they use Kaspi Bank. The study showed that of all

available payment methods, residents of Kazakhstan, according to our survey, prefer QR and money transfers. Most non-cash transfers occur from card to card and through QR. Payment via QR is the most famous - 46.8% of respondents are aware of it. This method is also the most used daily compared to others - 65% of respondents indicated this, a big plus is receiving bonuses when paying. It is believed to be safe and convenient to use in a daily environment.

It was found that people spend more money through non-cash payments than cash and the percentage is 59.7%.

According to our data, there are still people who cannot get used to cashless payments, and these people are mostly baby boomers (11%). Due to their age and habits, it is most difficult for them to adapt to new technologies and payment methods. The rest of the age categories are accustomed immediately and they make up 89%.

Most of the respondents face the following problems with non-cash payments:

1. Less privacy (49.6%)

2. Technological addiction (44.4%)

3. Spending more money (43.5%)

4. Hacking (31.4%).

When asked about the convenience of cashless payments, 50.8% chose 10/10, 21% rated it 9/10, which once again proves that people prefer cashless payments and are used to them.

The following findings are relevant for detecting consumer behavior and habits:

• Women have a greater predisposition to cashless procedures and use more accessible online shopping apps. While the audience of men has relatively adapted more to cash payments and has less active and diverse activity when making online purchases.

• The main audience of digital active residents live in large, densely populated cities such as Nur-Sultan, Almaty and Shymkent.

• The diversity of applications used, products purchased, and services used are observed in the category of people from 18 to 24 years old.

• The higher the profitability, the greater the activity and diversity when using the platforms.

• The category of respondents aged 35-44 years most of all uses card payments and were more

likely to change their opinion regarding non-cash payments due to the pandemic. In addition, this category are the most active users of Kaspi.kz.

Qualitative research results

An employee of the second-tier bank who has at least five years of experience in this field was selected for the interview. The interview was conducted face-to-face through the transcript of the answers, this kind of approach helped to get the maximum number of answers without unnecessary information. In general, six open-ended questions were asked, which organically complemented the survey results. Interpreted findings of interview are available upon request.

Cashless operations from the perspective of Bank

Interviewed expert's work experience consists in servicing both individuals and legal entities, so customers are consumers of different categories. For each client, cashless payment is disclosed from different sides, if individuals use this function more for everyday payment procedures for products and services, then legal entities use it for payroll, international transactions, currency transfers within an account, etc. As a specialist working in a bank, an expert who regulates monetary transactions, advises consumers and is engaged in creating cash flow through lending and storing deposit investments. In general, in the expert's understanding, cashless operations are all types of monetary procedures without the use of hard money in the direct sense of the word.

Cashless operations from the perspective of Customers

From the point of view of the consumer, cashless transactions are all types of services rendered with money turnover using intangible money. An example is the online purchase of clothing, food, medicines and other necessary goods, the use of mobile application services for calling a taxi, watching movies, online training, buying tickets to theatres, movies, concerts and other activities in which the payment is carried out through online cashless method of payment when securing bank card data, etc.

Digital ecosystem in Kazakhstan

The expert did not use exact, accurate data about other countries to conduct parallel development

and comparison, but he is confident that Kazakhstan is not considered a backward country, since non-cash payment existed before the pandemic and was well advanced with the governmental policy of digitalization of the economy. He noted that since 2013, activation began when switching to cashless payments through an increase in POS terminals, all banks began to improve their mobile banking offers and in general, the community began to trust more cards that were the main type of cashless payment at the time. According to his observations, the digital literacy of people in the use of mobile phones, the Internet served as a big breakthrough and the outburst of Kazakhstanis occurred as smoothly as possible without any special and sharp jumps. At the moment, people are increasingly trusting and switching to conscious consumption of cashless payment services, as this kind of approach has proven to consumers its advantages in saving time, convenience, speed of operation, security, etc.

Tendencies after COVID-19

The pandemic is definitely one of the most influential events that have become a key moment for the whole world, including Kazakhstan. Strict restrictions on the work of small and medium-sized businesses in the field of food, entertainment, and other services have largely adapted both suppliers and consumers to the transition to cashless payment through the demand for online, distant services, delivery of goods etc. In addition to government initiatives on restrictions, people were controlled by the fear of contracting the disease, since it was possible to easily and as unexpectedly become infected with a coronavirus unknown to anyone at that time. In society, during the pandemic, as in many economies, due to the isolation at home and a sharp reduction in the types of activities, online shopping was the only salvation. Online shopping takes place without the participation of tangible cash payment, as the consumer contacts the seller through mobile applications, online banking, social networks, etc.

There were many catalysts, but each of them differed in the level of influence. To a greater extent, in the opinion of the expert, for the formation of public consciousness and attitude toward cashless payments, the activity of Kaspi Bank played a big role, if not more, then equally to the pandemic. Kaspi Bank has been actively developing not as a traditional second-tier bank, but as a fintech product that increasingly invests in innovation, digitalization and other types of modern business trends. Kaspi has become a people's bank with the help of a strong orientation to the needs and demands of people. More precisely, in the language of marketing and management, it became customer-oriented and earned the greatest amount of trust. The functions of Kaspi for money transfer and the use of Kaspi.kz mobile app were activated before the pandemic and were used by local business owners under the best conditions. But the pandemic was the impetus that led to record growth and improvement in the quality of the company's cashless operations services. In addition to Kaspi, based on the development strategy of Kazakhstan 2050, a policy for the transition to a digital economy was clearly outlined, which is also a catalyst. Furthermore, no matter how generalized it sounds, globalization is also an influential process that has created a demand for international cashless transactions through the development of tourism, exports, imports, etc.

There were different theories and outcomes of the event during the post-pandemic period. Some expected a sharp decline in demand and interest in online services, while others predicted continued growth. In general, according to statistics data, the introduction of the second group turned out to be more likely since growth has not stopped and people still use cashless payment methods. Even public services have actively switched to accepting cashless payments, tax payments, fines, and utility services; everything has switched to mobile banking. One of the main trends is the expansion of the audience of cashless payments users, if young people were more interested and active, now literally everyone, regardless of age, has a certain position in relation to cashless operations. Elderly clients of the bank where the expert work are increasingly interested in how to make pension accruals immediately fall to the account of Kaspi, etc. Additionally, one of the observed trends in the variation of products and services that can be purchased by cashless payment is becoming more and more diverse. Almost any kind of product can be found through online stores. The expert's expectations

for the future are positive because, despite the active development of cashless payments, remote regions of the country still do not have access to online services or cashless operation methods. He thinks innovations introduced in big cities will be actively practised in small cities. He also expects the digital tenge to make a revolution in society and increase the solvency of our residents by increasing the scarcity of money turnover.

Discussion

The conducted research was justified by the results that confirmed the research hypothesis or supplemented it. With the quantitative analysis, it was found that consumers were generally active in using cashless payments, but the behavior differed in terms of age and gender variations in the level of profitability. The variety of platforms used is wide, but there is a leadership of Kaspi.kz. This kind of outcome was created thanks to the ecosystem of cashless operation, which was created over 10 years through the joint work of the state and representatives of private businesses, commercial banks etc. Further, a more detailed influence of different spheres on the creation of a cashless society in Kazakhstan is explained through the PESTEL analysis.

PESTEL analysis

Political	Kazakhstan's political position largely determines the direction of cooperation and development of second-tier banks. The situation with the war between Russia and Ukraine has largely created a high demand for bank offers from Russians. However, it will be important for the country to maintain a balance and not provoke dissonances in the international arena related to the support of the aggressor country, according to Kuat Akizhanov, an expert in the Scientific Research Center of Political Economy, since sanctions will be applied to Kazakhstan (vlast.kz, 2022).
Economical	The import and export process creates an environment in which it is important to interact with partner countries to conduct a transaction. If the trade turnover becomes positive, the growth of demand for products will increase and the money turnover will increase too. The economic downturn of neighboring country Russia will affect the high demand for Kazakhstan's products and services, which will activate the work of local small and medium-sized businesses that create a cashless environment for remote payments.
Social	In the course of the quantitative method of research, it was found that with increasing profitability, activity increases when using non-cash payments, since consumers will be able to use the entire specter of services and goods that are provided in cashless payment platforms. In addition, the level of digital literacy, the provision of high-quality Internet, and the mobilization of the population have a significant impact on the adaptation of cashless procedures.
Technological	Technological progress in the example of Kaspi Bank, which positions itself as a fintech company, significantly affects the local market. Innovative methods of making payments for the local population offer for making online purchases, and a variety of functionality creates a favorable environment.

Environmental	As environmental factors, it is possible to define a pandemic that, through hard power, forced all countries to adapt to new conditions that meet the criteria of safety for people or consumers, efficiency in an application, and flexibility to influencing factors. It is also possible to note the opposite effect in which the transition to non-cash payment reduces the physical presence and activity of consumers who will use services at home. As a result, the load and damage in the environment are reduced.
Legal	The legislation of the country is the basis for the transition of Kazakhstanis to cashless operations. The fact that obliges all small and medium-sized business owners to issue a check when making a transaction has an indirect effect on the demand for POS terminals that accept payment via a card and instantly issue a check. A negative aspect can be article 32 on the payment request, which states that the transaction between the beneficiary and the sending bank is carried out within 10 calendar days, which leads to a slowdown in the process.

Based on the research results for consumer-oriented strategies to increase cashless operations following recommendations are suggested for business owners:

• To segment consumers and create a portrait of a customer that will determine the main socio-demographic characteristics, psychological indicators and customer behavior.

• To develop a special loyalty program for consumers who make purchases and use services by cashless payment method.

• To respond to consumer requests and create conditions for different categories.

• To offer a variety of cash payment methods depending on the main target of consumers. If young people more precisely Millennials focus more on the functionality of mobile payment, then the generation aged 35-44 years prefer credit cards, etc.

• Digital high activity of female consumers can be used to activate the behavior of male consumers through the creation of complex paired offers and payment methods.

It is also important for society to involve different groups of specialists when switching to cashless payment. Therefore, the following recommendations are of a general nature.

Recommendations for policymakers:

• To organize joint work of different sectors such as the state, private business, consumers, commercial banks, etc.

• To affect society through a combination of hard and soft power, which will give maximum impact on people's behavior and consciousness.

• At the legislative level, to facilitate the transaction procedures for cashless payment methods.

• To motivate consumers through marketing benefits of cashless operations.

• To create favorable conditions for the development of digital literacy of the generation over 35 years old.

• To accelerate the process of providing Internet access to remote regions of the country.

Conclusion

The pandemic has significantly affected the habits of Kazakhstanis and changed the behavior of customers when using non-cash transactions in everyday life. Cash used to be used frequently, but our research now shows that it has become rare. Our first hypothesis was correct and our research proved it completely. In large cities of Kazakhstan, many companies, due to COVID-19, began to adapt to new realities and began to develop online platforms. During the pandemic, users began to trust online shopping and this was reflected in the habits of residents of large cities.

The second hypothesis is incorrect, as the study shows that Kaspi and the pandemic both played a big role in the development of cashless payments. Kaspi existed before the pandemic, but quarantine helped Kaspi develop many of its services. The pandemic has accelerated the digitalization process. Even in the regions, people are switching to cashless payments, and this is also convenient for them. They do not have as many apps as in major cities, but they do have transfers and card payments. Outside

the big cities, development is also underway, it is slower than in big cities, but it is continuing. The third hypothesis has been refuted and, according to our data, in other regions and cities, people also refuse cash payments and prefer transfers and card payments.

In the course of the study, there were limiting factors that were present during the quantitative method of research. The underdeveloped research literacy in society and the lack of available applications and databases with volunteer respondents complicated the process of collecting a large number of responses. However, the use of a variety of social networks in random sampling and distribution of the survey facilitated the situation. In addition, the reluctance of experts in the field of banking to participate in interviews served as a limitation. This kind of behavior is justified by various factors related to the difficulties of disclosing personal opinions, time management, etc. However, since the mixed method was used in the study, the presence of one interview was sufficient due to a large amount of primary data and survey results used. In further research, the priority will be to expand the diversity of respondents and increase their number. The opinions of experts from different fields who have direct activities with cashless procedures, such as business owners, employees of public organizations for the digitalization of the economy, specialists of banks of different levels, etc. will also be taken into account.

In general, the study has theoretical and practical importance due to the relevance of the research question, and the use of the mixed method for the full disclosure of the topic, the results of which are indicative. For an overview of the development of cashless payments in the time period after the pandemic, it has theoretical value for further research, since there is a minor research base with up-to-date data on the example of Kazakhstan. From a practical point of view, the findings and recommendations will be useful for business representatives who work with consumers of different generation categories, for local government organizations like Atameken business, etc. to implement digitalization projects in different regions of Kazakhstan.

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How is Income Level Affecting Consumer Behaviour in Digital Economy? New Trends in Consumer Behaviour in Big Cities of Kazakhstan

Zeinep Yergaliyeva, Akmaral Taubaldy, Dilyara Temirbolatova, Madina Khassen

Abstract

The change of the economic model from a planned economy to the establishment of a capitalist model after the collapse of the planned economy in terms of technological progress and general digitalization of business led to pertinent changes in people's consumption behavior and psychology. This does not only determine what goods and services would now be a priority for buyers, but it also defines the lifestyle and general standards of "comfort" and "quality of life". Based on these new principles, whole young generations of activists will grow and develop, for whom consumption will be both a way of life and a new way of thinking.

It is also essential to understand the medium and long-term consequences of all these trends and prospects on people. It depends on what values will most certainly be relevant and honored in society, as well as the general economic conditions of people and the country

as a whole. All this is crucial for building and understanding the laws and orders of society, under which capitalistic consumption is completely normal and commonplace.

Introduction
Socialism and Planned Economy

In 20th century, there were two completely different and opposite ideological approaches to the construction of society and its development, i.e. Western capitalism and socialism. The ideology of the Soviet Union was based precisely on the ideas of socialism, which were laid down by Karl Marx. In economic terms, socialism is characterized by the state's control over the economy – it refers to the production and the process of resource allocation. However, Marx's ideas were partly altered and radically interpreted, which led to the birth of communism, that in turn completely denied the concept of private property (Dagger, n.d.). This model of building society certainly affects the type of economy and its capabilities. Communism made an exclusively planned economy possible, which worked until the end of the collapse of the Soviet Union up until the early 90s of the 20th century. A core of a planned economy seems to be that financial assets are controlled by the government and allocated centrally, forcing people and businesses to follow a centralized economic strategy (Team, 2021).

Simply, the state decides what exactly needs to be produced, to what extent it needs to be produced and where and how it needs to be distributed in practice. The whole system was very centralized, and all key decisions were approved through Moscow. This approach led to the complete dependency of people and regions on the center better known as Moscow. The plan that was drawn for 3-5 years ahead, had to be diligently observed and whole generations grew up with the understanding that products and goods appear in stores merely because the state had decided that it is "necessary", and it is the state that knows better what people need and how much they need. As a result, millions of people lived without understanding that their desires and needs can be key in matters of production and consumption. This certainly had an impact on their consumer behavior after the collapse of the Soviet Union and the emergence of new, independent, and now capitalist countries like Kazakhstan where the economy is arranged according to completely different principles unlike the ones in the history of the USSR.

Capitalism and competitive market

After the collapse of the Union, a shortage of goods on the shelves became a serious issue since the production was decentralized and it took 10 to 15 years to adapt to a new economic regime (Team, 2022). In the 2000s, the first representatives of small and medium-sized businesses began to appear. It was the emergence of the private sector that marked the beginning of a new capitalist vector of the country's development, which resulted from the changes in people's perception of business, economy, and the concept of consumption. These profound changes in the country's economic policy led to an unconditional increase in consumption growth after the Soviet deficit for all goods and services within the state.

Digital economy and Marketing 4.0

Eventually, with the rapid development of technology, the business began to be digitalized. This means that businesses had the ability to create new opportunities for profit and increase the attractiveness of the product itself via the Internet, phones and computers. This is a new chance to generate and earn money without limiting the terrain and location (an example is the sale of DVDs in the city, instead of showing them in one cinema) (Digitization vs. digitalization: Differences, definitions and examples, 2021). Thus, it opened unique horizons for ventures and the entire global economy, which certainly affects the ways of selling and serving consumers through providing new products and services that would not have been possible before digitalization. The banking sector was transformed to the extent that online transfers and the use of credit cards were possible to control all of the online tradings around the world through store websites and online platforms. The entire industry is now founded upon the results of technological progress and the further development of its capabilities. This also affects people's tastes, attitudes, as well as the whole perception of the product.

Pricing strategy
"Customer Community Confirmation"

– Traditional advertising starts from segmentation that divides the market into different characteristics, such as geography, demographics, or psychographic factors in order to identify the general features that will guarantee the marketing campaign is tailored to the market's preferences. Following that, marketers concentrate on targeting, that aids in determining each segment's potential and commercial desirability.

Potential clients in the market have little to no influence on the marketers' insights while using this marketing strategy. Furthermore, clients are more likely to see an advertisement as irrelevant or as spam if there is no connection between the firm and its customers.

Brands must enter communities to ensure that their messages are accepted to avoid the above-mentioned outcome. To do this, they must approach their communities as a friend, and not as a marketer or a corporation, with the genuine aim of knowing their consumers' needs and wishes. Horizontal communication enables a more effective interchange by ensuring that the process of segmentation, targeting, and positioning is clear between the business and the client.

A brand is typically represented by a name, a logo, or a slogan in order to create an image that distinguishes it from other competitors, as well as to represent the product or service and overall experience that a company offers to its consumers. To build great brand equity, positioning is essential. A brand's positioning may be interpreted as the way a brand wants to be viewed by customers. It is often the responsibility of brands to build a core proposition, online value proposition, and brand development, to mention a few.

In this digital era of marketing, however, businesses must be dynamic and flexible in the messages they provide and the manner in which they communicate them. While they must adapt to the new era, they also ought to ensure that the messages they transmit remain true to the brand's character and ethics.

"Commercializing the 4C's"

The 4Cs – Co-creation, Communal Activation, Currency, and Conversation – have emerged as a new marketing mix that allows for greater customer engagement in the new digital economy.

The rise in direct client connection and participation in the product development process is referred to as co-creation (replacing Product).

The Peer-to-Peer distribution model may also be used to understand Communal Activation (replacing Place), allowing customers to get closer to the items and services they require.

Positioning is the process of finding a market position for a company, product or service that will compare favorably with that of another company.

Currency (replacing Price) assists businesses in achieving optimal profitability while managing the supply and demand more effectively.

The two-way connection between consumers that allows them to convey their ideas, views, and ratings about a brand or a product is referred to as Conversation (replacing Promotion).

Marketing 4.0 is a hybrid of conventional and digital marketing methods aimed at improving consumer engagement. Marketers may recognize and plan for improved consumer interaction and advocacy by utilizing both online and offline relationships.

Sharing economy

Rising capitalism of the post-Soviet background along with the digitalization era has created a completely new understanding of economics – the sharing economy - a new culture and economic business model whereby people exchange their assets by means of technology and online platforms (Moroshkina, 2022). This is a contemporary way of thinking about tangible and intangible assets, where the focus is more on using, instead of owning things. Speaking in the context of the car, as an example, the trip itself is more important than the ownership of the car. Therefore, carsharing (a short-term car rental) will be more convenient and more comfortable than buying a car and its further maintenance. Material values like an apartment, car and money are kept in a bank that subsequently limits the most necessary capacity of mobility and liquidity of the resources. Thus, efficient sharing can be visualized with an example of a car, which becomes useless when the person is doing anything but driving it.

The result of this economic model is the creation

of services such as Apple Music, Anytime Car sharing, Jet sharing (service provides the opportunity to fly a business jet in a chair rental format), Glovo, Krisha KZ. All these services that work successfully in Kazakhstan are examples of profitable companies that are leaders in their markets, but the conditions of that growth are the new behavioral patterns and consumption habits of society in Kazakhstan. This occurred owing to the development of technology, digitalization, and sharing economy that caused the change in the behavioral model of people.

Hypothesis 1: Consumers in big cities such as Almaty, Nur-Sultan and Shymkent have overall higher income levels and sources, which influence their Consumer Behavior, and there are several models of behavior

Hypothesis 2: Income Level is not affecting the Consumer Behavior models and overall consumption in regional cities (Aktobe, Kostanay, Karaganda).

Literature Review

To understand the mechanisms and all the processes of this thesis, it is significant to figure out the fundamental principles that enable a deep comprehension of the research topic itself. Using the knowledge of economics, marketing, and referring to the basic knowledge of human psychology, it is necessary to draw conclusions about the behavioral model of society and different subgroups based on various factors, such as gender, age, language, type of work, and city.

E-commerce

Electronic commerce unites all platforms and services where payment takes place online. One of them is online stores that accept electronic payments. In fact, this is the core of the rapidly emerging digital economy in the world and the result of the explosive pace of development of telecommunications capacities over the past decade.

With the growth of digitalization and the massive transition to online platforms, e-commerce has become the driving force of key changes in the global economy. Access to e-commerce is now possible from any smart device: at the end of 2020, there were almost 10 billion smartphones, computers and tablets connected to the Internet in the world.

This already exceeds the world's population (almost 8 billion people). A great example of e-commerce is Alibaba, a monopolist of the Chinese e-commerce market and one of the largest companies in the world. Alibaba's market capitalization as of April 2021 was $637 billion, making it the ninth most expensive company in the world. The company was founded in 1999 and has been operating in three directions: b2c (Tmall and Aliexpress), b2b (Alibaba), and c2c (Taobao). All three platforms have already entered the international market (including Kazakhstan), but the main share still falls on the domestic market. The company also has its own Alipay payment system, which works as an international one. Alibaba's model is similar to eBay: it acts as an aggregator for sellers — individuals, stores, or manufacturers — who themselves send goods to customers.

Primary data

Economic concepts

Income – often defined as the value or quantity an individual or business receives monetary funds or tangible assets received by the state, an individual or a legal entity as a result of any activity for a certain period of time (Scott, 2022). Here also, income is the exchange of time and effort expressed in monetary terms. In our case, income equates to the salary.

Household income – would be the overall total income of all people in the household who are over a specific age. In certain circumstances, individuals do not need to be connected in any way to be regarding respondent of the same household. (Scott, 2022)

Income source – something that provides a regular supply of money, such as employment, investments, a pension etc. (Income source definition and meaning: Collins English dictionary).

Purchasing power parity (PPP) – are currency conversion rates that eliminate pricing discrepancies across nations, therefore equating the buying power of various currencies. Yet in this research paper, this is the purchasing power of individual regions based on a certain consumer basket.

Sharing economy IT products – are the IT business platforms available in Kazakhstan, which include "Anytime" car sharing, jet sharing,

Kaspi, Halyk, Cber, Jusan banks, Chocofamily (all their products), Kolesa Group, OLX, Yandex company products, Glovo, Wolt delivery, Lamoda, Wildberries platforms, Aviata, Booking etc.

Marketing concepts

Insight – the capacity to have a clear, profound, and often unexpected comprehension of a hard subject or situation is known as insight (Insight, Cambridge University).

Habit – is a learned behavior pattern that is followed on a frequent basis until it becomes practically involuntary (Habit definition & meaning).

Acquired habit – is a state of mind that develops through time as a result of one's own activity and the repetition of particular activities (Dictionary: Acquired habit).

Consumer behavior – is the research of individuals, their psychological, intellectual, and cognitive reactions, and the power to make decisions, use (consume), and reject products and services. (Panaitescu & Predoiu, 2022)

Market segmentation – is the practice of breaking down your target audience into manageable groups. Segmentation separates an industry into divisions based on demographics, needs, goals, common interests, and behavioral factors that might help you better understand your target audience (Your guide to market segmentation, 2022). In this case, people are segmented by geographical factor, as well as by gender and age.

Lifestyle –A person's lifestyle is defined as a combination of hobbies, interests, habits, philosophies, and other characteristics that set one group of individuals apart from others. In this research, people with one lifestyle should be analyzed and compared with people leading a different lifestyle. Only then will it be completely appropriate. For example, students of KAZGUU and students of Turan University may be taken for carrying out such comparisons.

Complex buying behavior – Clients engage in sophisticated buying behavior while purchasing expensive, infrequently purchased commodities. They are significantly involved in the purchasing process as well as buyer personas prior to focusing on high purchase (Panaitescu & Predoiu, 2022).

Dissonance-reducing - The customer is strongly involved in the purchase process yet has difficulty discriminating between brands. Incongruence occurs when a customer is apprehensive that they will regret their choice. (Panaitescu & Predoiu, 2022)

Habitual purchasing behavior - is characterized by a user's lack of interest in a certain specific product. (Panaitescu & Predoiu, 2022).

Variety seeking behavior - a consumer gets a different product because they want variety, not because they were dissatisfied with the prior one. (Panaitescu & Predoiu, 2022)

Price segmentation – Price differential based on ability to pay is referred to as a desire to pay variation. It stems from the fact that price sensitivity varies widely from one customer to the next and throughout all of the places in which they use the product.

AIDA – AIDA - the model of interaction with the user on the way to purchase. The AIDA framework divides communication with visitors into certain stages depending on their willingness to purchase.

Attention: The first stage of the AIDA model is to attract the attention of potential buyers. It should be kept in mind that users are not familiar with the product yet. The task of the business is to identify the target audience and figure out how to capture its attention. To do this, it is necessary to research potential customers, study their pains and needs and choose channels for interaction with the CA.

Interest: At the second stage of the AIDA model, the task of the business is to arouse user interest in the product. If the attention of a potential buyer has already been captured, it is likely that they noticed the advertisement and followed it to the site.

Desire: At the third stage of AIDA, the task of marketing and sales is to create a desire to buy. The user is already interested in the product, familiar with the company, but still not ready for the last step.

Action - The last stage of AIDA in marketing and sales is a call to action. When a buyer is ready to make a purchase or sign a contract, but does not dare to say "yes", they need to be pushed to action.

Digital marketing – This is marketing, which uses new and technological tools, such as the Internet, social networks, email, to attract

customers (Kotler and Armstrong, 2009). It allows many-to-many connections and is commonly used to offer goods or services in a quick, appropriate, personable, and cost-effective way because of its significant level of connection. (Bains et al., 2011).

QR Codes – A QR code37 may be thought of as a link that interacts with the real and internet worlds. Advertisements, brochures, posters, and even clothes or billboards may all employ QR codes to send consumers to mobile landing sites with considerably more details and interaction than in any other form. This type of digital instrument allows the business to communicate at different levels of perception (Summerfield, n.d).

Consumer behavior model – model that defines why and how individuals purchase goods. By putting out a consistent map of client decisions up to conversion, consumer behavior models help you lead every stage of the buyer's journey (Needle, 2021).

Howard Sheth Model of Buying Behavior – According to Howard Sheth's consumer model, buying is a journey that can be described as an extremely rational and balanced decision. At each stage of the purchase, people solve their problems by choosing, while taking into account the circumstances that greatly affect the final result.(Needle, 2021).

There are three parts of decision-making, according to this model:

For people, the most important thing is to solve their pertinent problem, hence they are guided by this logic, despite the brands and products. They are not aware of them.

Limited Problem-Solving: After they realize that they can solve their problem, they begin to slow down due to the understanding of having a choice. It is the knowledge that they can solve their problem and the fact that they have a choice that helps them choose consciously and for the long run.

As a result of the choice and analysis and the whole path that the consumer has passed, they already know which brands and products spark their curiosity and are useful to them, and only after that, they are ready to buy (Needle, 2021).

Other factors and concepts
When studying the model of behavioral change,

an article by Barbu was considered, in which, through the quantitative method of research, an algorithm for decision-making, changing the mindset of consumers of sharing products was discovered (Barbu, 2018). According to the results of the questionnaire for Uber consumers, a behavioral model was studied where consumer satisfaction occurs along a different trajectory since the price is created by three sources such as the driver, the passenger, and the algorithm of the Uber application software. The author's use of the quantitative research method has proven its effectiveness as it is possible to determine the significant influences and links between different variables (Barbu, 2018).

When searching for studies conducted on the example of Kazakhstan's market, an article by Shulgin and Kolesnikov provides a similar approach but with the examination of the fast-moving consumer goods market and trends in consumer behavior (Kolesnikov, 2019). The researchers agreed on the concept of the market's chaotic development in which the influence of various technological advances transformed consumer preferences. The heterogeneous formation of the market complicates the process of consumption and purchasing behavior of people in the country. In addition, in this study, as well as on the example of the Barbu, the negative aspects of which need to be monitored and regulated both on a short-term and a long-term basis were taken into account. The article was published recently in 2019 and has up-to-date data which directed the research questions further.

Clearly, trends in consumer behavior remain influenced by various factors and conditions. The article by Alexander Ostrovsky expresses opinions on the connection of socio-psychological aspects and purchasing power in the conditions of Kazakhstan and its market (Ostrovskiy & Rybina, 2021). The open economy of the country creates conditions for commodity exchange in which it is possible to find products from different countries and from different manufacturers. When making decisions, buyers are not always reasonable and rational and can start from different parameters that create a purchasing stereotype. In other words, the researchers found consumer attitudes toward the products of neighboring countries and individual preferences that depend on the country of origin. This kind of trend is also

relevant for sharing products that have been formed in different countries (Ostrovskiy & Rybina, 2021). For example, Yandex taxi and DiDi taxi services are commonly used but differ in the level of trust from consumers due to the country that founded them. In this study, the empirical approach is the most suitable, since the interaction of different economic and social indicators on the behavioral deformations of consumers is detected. The article by Ahmad Hussain, who studied the decision-making process regarding Fast Moving Consumer Goods (short-term goods that are quick sales at a relatively low price), turned out to be practical when studying the use of empirical data to detect correlation. Here, similarly to Barbu's research, a questionnaire was organized among buyers. After that, a regression analysis of the findings was carried out where a trend and relationship were detected.

Researchers Curtin and Kardes agreed on the use of empirical data collected during the survey as an effective research method for the proposed research, where the first author conducted an extensive study of consumer behavior indicators based on the survey. Statistical data were collected for several decades in order to effectively detect visible changes in consumer behavior. This kind of research method is acceptable for extensive research for a long time, while for short-term research, a survey model and sample research parameters can be formed. The research was based on the theoretical knowledge derived from the book written by Kardes, who wrote a textbook on consumer behavior. In particular, the first chapter on the definition of consumer behavior and research in this area turned out to be both informative and useful. According to the author, it is important to determine the purpose and objectives that further design the type of activity for the study of buyer behavior. According to the author, the study of consumers can be carried out as basic research or applied with further practical use for marketing purposes. Kardes also argues how valuable it is to use empirical data that form an overview of various indicators such as the profitability of consumers from an economic perspective. However, we cannot infer that there is only one parameter that determines the consumer's decision-making process, as the author defined consumer behavior as the decision-making, use, and even processing of the product depending on physical, mental, psychological, social, and other factors (Kardes & Cline, 2014).

In the further study, it was important to discover the lifestyle of Kazakhstani consumers, which is a parameter integrated due to the national and cultural characteristics of the people. Gupta's scientific article on the effect of these factors on consumer behavior under the conditions of the sharing economy served as an illustration of individuals' intention in the market. The author, using an example from several developed and developing countries with a sharing product economy, discovered how different the behavior of people was, who, depending on the product category, were ready or against using sharing products. The attitude and desires of consumers are formed due to various parameters related to economic, national, and cultural character traits (Gupta & Tennant, 2019). Accordingly, for Kazakhstan, the study has a similar character yet quite distinctive given data, since the country differs in the levels of economic, social development, demographic diversity, etc.

After a thorough study of the collected database of research papers, books, and textbooks, it can be concluded that research will be a proper addition to the scientific community as there are no similar research publications that study identical research questions from different perspectives. In addition, trends in consumer behavior have a variable nature, which decreases the relevance even after a certain period of time has passed. Therefore, the planned study using an integrated approach of information collection and qualitative analysis is found to be a unique addition relevant for the 2021-2022 post-covid market environment.

For this study, which should take into account completely different groups of people and separate them not only by age and gender but also by behavioral type, targeted studies are crucial. Thus, for a clearer and more detailed analysis, it is necessary to conduct primary studies that would really show all the results and conditions of the analysis. At this stage of the study, questions such as "What is the demand for streaming services in Kazakhstan among young people under 25 in Nur-Sultan compared to the generation of people over 45?" will be asked. To understand these inquiries primary research and data are needed and can

be obtained through various tools, such as questionnaires and surveys.

2.2 Secondary data

For a detailed and successful analysis in research, secondary sources were examined, as well as data that would help to analyze the problem, test the hypothesis, and save a lot of time that could be spent on highly important studies, data collection, and analysis. The results of such studies that have been conducted for other scholarly works could be used correctly, and appropriately, and can play a key role in the overall concept justification and proof of the hypothesis. However, after receiving the data, it is essential to apply the correct method of analysis and interpretation. For a sophisticated understanding, two methods of analysis will be used: quantitative and qualitative, which are complementary methods that can be combined in surveys to obtain comprehensive results.

Important Findings:

A good number of studies have been conducted on the topic of consumer behavior, which shows how and what people spend money on, but there were some researchers whose studies will be beneficial in the current project. Scholars polled 1,000 American consumers on December 8, 2020. They were asked 24 questions concerning in-person encounters and online alternatives, along with their habits, attitudes, and behaviors. Respondents provided information on their age, gender, income, and other demographics that might be useful to in-location experienced managers seeking the most detailed understanding of certain customer categories. Respondents were asked the following questions:

1.   Has the on-site experience improved or deteriorated in the last year?

2.   How has COVID-19 changed your behavior when it comes to on-the-ground experiences?

3.   What makes in-person encounters more appealing than virtual counterparts?

4.   What makes in-person encounters less appealing than virtual counterparts?

The results of the research are as follows:

1.   When given the option, 46% of respondents stated they prefer to purchase in person rather than online, which still is a 9% decrease from the last research made by the State of Consumer Behavior in 2020 (Raydiant, 2021).

2.   Customers continue to appreciate the direct interaction with items. Because they want to be able to see and touch things. For instance, 33% of respondents prefer shopping in physical stores, while 26% appreciate the whole experience of buying in person.

3.   COVID-19 has had a significant influence on consumer behavior. Since COVID-19, 40% of respondents have visited physical sites less frequently.

4.   There is a lack of brand loyalty. 48% of respondents indicated they have switched from buying things in physical locations to buying them online from competitors.

5.   Brands are reinforcing their efforts to improve the offline customer experience. In-store customer service has improved in the last year, according to 29.8% of respondents.

One of the most recent and important studies that McKinsey cited was on the topic of changes in consumer behavior among clients. Studies were conducted on different groups of people based on age parameters.

Today, many people associate themselves with a brand, and not because of a specific or exclusive product, but because they also look at how companies and manufacturers are trying to innovate and impress them through marketing and digital instruments without any contradiction to their convenience and needs.

It is important to mention that a particular product can be easily obtained. Due to Covid, this has changed, an attribute of the availability of goods has become as important as price or quality. For example, before there were only large players who could do high-quality and fast logistics, but now almost every company can be proud of this. Also, for a Westerner, the goals and values of the company that it promotes are important aspects. If your company does not believe that fighting the climate and natural problems is vital, violence or bullying is unacceptable, then it is likely that people will simply not buy or let alone consider your product for the reason of non-compliance with values (Alldredge and Grimmelt, 2021).

Limitations

Many studies that are conducted on the topic of behavioral patterns of buyers in the 21st century

are tied exclusively to one particular country, a city, or an area of research. Oftentimes, the venue is America or developed countries, like Australia or European countries, where the average standard of living is several times higher compared to Kazakhstan. This is evidenced by the fact that the number of years it takes to earn a million dollars in Kazakhstan is 240 years, and in the countries of America and Europe from 30 to 45 years. These studies are based entirely on understanding the habits of people, however, in Kazakhstan and in America people have different income levels and expenses, level of education and culture, due to this it is not the objective to compare them. Based on this, there is a completely different understanding of what is important and what is not. There are no studies that would test behavioral patterns among residents of developing countries.

Next, in the "Researches of Consumer Behavior In Market Shopping in The Gender Context", consumer behavior surrounding market shopping was studied. The study's goal was to see if customers' retail buying habits change based on their gender. The data collecting approach was the "Structured Observation Technique", and the data was obtained by the researcher through the means of participant observation. Between the 12th and 22nd of March, 225 observations were conducted in a retail chain shop in Batman province, spanning four time periods and two weekends. The observation form on collected data was created based on the information obtained from the literature and shop staff. The information and data that were included in the observation form were collected through reports of store personnel and observations. This included such aspects as: time observation, gender, hour observation, getting help with the purchase, time to make a purchase, prices, attitude to prices, discounts and promotions, and payment method. Female clients mostly seem to opt for food, cleaning supplies, and other household items. Male clients, on the other hand, tend to buy snacks, repair, and personal care items.

According to the favorite shopping day, there is no substantial difference between male and female shoppers (weekdays, weekends). However, the number of people who shop on weekdays (178; 79%) is larger than those who shop on weekends (47; 21%). In contrast to this survey, the literature shows that customers prefer to purchase on weekends (Marangoz, 2006). This disparity might be attributable to the retail market's characteristics. The market where this study is conducted is one of the chain markets that are unsuitable for relaxing and spending time, and where people simply buy what they need and go. According to the study's findings, female clients spend more time shopping, while male buyers have been seen to be solely focused on the goods. Men seek to save time, and they desire to purchase as quickly as feasible with maximum efficiency. Men regard shopping as a chore, whereas women love it. (Barletta, 2003) Female consumers generally buy basic food, cleaning supplies, and cosmetics, items for the home. Male consumers are more interested in snack foods and repair services but also personal care goods.

Kazakhstani statistics

Due to the global situation, precisely with Covid-19, the world economy has received a blow. The activity of Kazakhstan's economy decreased after the pandemic. Quarantine measures continued in Kazakhstan further in 2021, but despite this, the country's short-term economic activity was reinforced. According to the National Bureau of the Republic of Kazakhstan, the short-term economic indicator from January-April 2022 to January-April 2021 is 106%. Comparatively, between January-June 2020 to January-June 2019, they equated to 99%. The short-term indicator is carried out to ensure efficiency and is based on changes in output indices of basic industries: agriculture, industry, construction, trade, transport and communications, accounting for over 60% of GDP.

According to the National Bureau, as of April 2022, Kazakhstan's unemployment rate was 4.9%. The volume of production of industrial products (goods, services) with respect to the types of economic activity of the country in the period between January-December for 2021 (37,047,606 million tenge) compared to 2020 (26,743,437 million tenge) had seen an increase of 10,304,169 million tenge. The gross domestic product by production method for January-September 2021 (production of agricultural, forestry and fisheries, industry, electricity and water supply, construction, etc.) is 53,029,265,7 million tenge, and in 2020 GDP by production method yielded 45,803,255.2 million tenge.

There are 14 regions and 3 cities in the Republic of Kazakhstan (Nur-Sultan, Almaty, and Shymkent). According to the Aktobe region, the subsistence minimum in April 2022 amounted to 38,381 tenge, and in the North Kazakhstan region, it is 37,285 tenge. In the West Kazakhstan region, the VPM is equal to 39,054 tenge. Previously, in the city of Nur-Sultan, the VPM is 41,962 tenge. The value of the subsistence minimum is the required minimum monetary income per person, equal (in value) to the value of the minimum consumer basket. The food basket contains 43 food items: meat, fish, dairy, fat oil, bread, fruits and vegetables and their types, eggs, sugar, tea, spices and others. The price of food products is 21,110 tenge in the Aktobe region, 21,480 tenge in the West Kazakhstan region, and about 22,391 tenge in the capital. Consumer spending of residents of Karaganda region, on average per capita, amounted to 885.9 thousand tenge in 2021. Moreover, expenditures on food products in 2021 in the region of Karaganda were 466.4 thousand tenge.

Over the past decade, people in Kazakhstan have switched to online applications. Online applications are gaining momentum annually and developing at a high speed. 7-10 years ago, people stood in queues at airports, train stations or travel agencies to buy tickets for their trips, people who lived in large cities paid for utilities at the cash desks of various banks or in АстанаЭнергоСбыт, АлматыЭнергоСбыт and in cities of regional significance, people frequented Kazpost. And the trend of food delivery in Kazakhstan exploded with the onset of COVID-19, people created new habits by changing the old ones. Nowadays, people often order food to work or go home late at night after a long day at work. The taxi service industry is developing rapidly, various convenient taxi service applications are appearing, while 5-7 years ago residents of large cities called taxi companies or have been picked up on the road. During the pandemic, the demand for online stores augmented, which led to long queues and violations of social distance, which affected the opening of new formats of retail products. Food delivery in Kazakhstan is currently not developed as wholesome food delivery, since the target audience of 35-65 years old persistently prefers to buy products in markets or in large supermarkets like Magnum, Small, Galmart themselves. However, citizens of Kazakhstan aged 20-35 actively use food delivery, as it was found to save time for young people. After COVID-19 in Kazakhstan, citizens are capable of getting documents online within one working day through the application known as EGOV.kz (for example, a certificate of no criminal record, an account, a vaccination passport, a driver's license, etc.), yet 2-3 years ago, in order to obtain such certificates, it was necessary to go to the Service Center of Citizens of the Republic of Kazakhstan. Recently, Kaspi.Kz added the online function to the mobile application of registering a car in a span of 15 minutes, albeit before the appearance of the function, people spent a whole day in the Center servicing citizens.

Methodology
Quantitative data

In order to make the research as objective and unbiased as possible an anonymous form of an in-depth survey will be used. The survey was created to understand human consumer behavior. It is designed in such a way as to objectively and impartially assess what principles are used to make purchases and what factors influence their decisions.

The questions will be distributed among 660 respondents in the different cities of Kazakhstan including the ones with republican significance, such as Nur-Sultan, Almaty and Shymkent. There will be 5 groups of subjects in total, separated by the terms of age and consequent payment ability. Participants include students and undergraduates, entrepreneurs, freelancers and self-employees, employees in the companies and pensioners. The questionnaires will be both quantitative and qualitative, where open-ended questions will require a detailed explanation of respondents' answers and motives. The numbers drawn from the different categories of groups will help to create statistics to contrast and compare the popularity of the applications. With the help of the numbers, we plan to compare them to each other, as well as the usage of the app in different regions, and within categories such as gender, age, occupation, etc. This aids to draw an overall image, yet not sufficient to make concise and deep conclusions, which must be backed by qualitative analysis as well (Types of market research: Primary vs secondary - the Hartford, n.d.).

The survey is made as simple as possible, so that the respondent merely chooses from the options provided and makes it easier for themselves to take the questionnaire. In matters where a person can think individually and express their own position, we specifically left the fill-in field empty so that the individual themselves would think and write what they consider necessary with no pressure whatsoever.

Qualitative data

Qualitative data provides descriptive information rather than measuring. These can be impressions, opinions, or views of people. A qualitative survey is less structured — it is aimed at in-depth analysis of the topic under consideration in order to get information about people's motivation, their views, and attitudes. Such a survey, on the one hand, provides an extensive understanding of the research issues, and on the other hand, complicates the analysis of the results. In our case, these may be specific questions about the reasons for using a particular social network or service. This gives broader understanding of a particular issue.

It can be an interview or a consultation with experts of the market or the field that is being studied. Interviewees may be analysts, managers, performers, marketers and other people who are the representatives of their respective fields, who observe and are aware of the situation from the inside.

Both quantitative and qualitative methodology is done to make the research on the current project as objective as it can be.

Analysis of research findings and results.

On users of online applications

Magnum

According to Maria Moon, head of Marketing at Magnum", the target audience of people who use the food delivery service is quite extensive as the motive to use it relates to the needs, not desires, which are tied to certain interests. Therefore, different categories of people use online services without reference to age, gender, place of residence or social status. Then convenience comes to the fore as a major motive and reasoning behind the willingness to pay for the delivery and use the apps for online purchase, respectively. Still, it is worth noting that there is a tendency of women being more opt to use online services compared to men. The fact that the female audience spends 15-20% more per order than the male, along with the fact that the distribution of female consumers prevails over male by more than 5%, makes women a slightly more attractive target for marketing and advertising.

Chocofood

According to the Operating director, free shipping performs a different role, i.e when the customer is offered free shipping, the frequency of orders increases, but this does not affect the receipt in any way. The "free" function has a different psychological feature in the context of food delivery. In addition, the interviewee also noted that the strongest jump in gross orders was in Almaty and Astana. THere is a rise from

month to month or year to year basis for all other cities of Kazakhstan. If we compare the cities of millions of citizens, the number one place would be granted to Almaty. To the question "Have you noticed a trend in big cities that more orders come from areas where everything is urbanized, there are a lot of business and shopping centers, and elite residential complexes?", he replied that this is due to the high density of people, undoubtedly has a certain attitude and prosperity, for instance, the Samal district has a high weighted average frequency of orders in comparison with the "Orbita" area. Also, distinctive characteristics are user habits: an order for dinner at home or an order for lunch at work. Olzhas Tamabayev remarked that the solvent population is from 18 to 40 years old.

Glovo

Brand Partnership Senior Manager Timur Izbergenov noted that this online service of ordering food is not fully developed in Kazakhstan, but its market is very favorable for development and expansion.

Also, the growth in orders depends on the penetration in cities, the higher the level of penetration, the greater the growth of orders.

Survey results

For in-depth analysis the questionnaire was distributed among all regions of Kazakhstan. 660 residents from Nur-Sultan, Almaty, Shymkent, Aktobe, Aktay, Kostanay, Petropavlovsk, Semei, Uralsk, Karaganda, Kokshetau, and Taraz shared answers about their habits and lifestyle. Average age among people is 25-40 years old (70% – female and 30% – male). The respondents were divided into groups according to their occupation and income level: students/undergraduates (i.e a person without stable source of income), entrepreneurs (a person with stable source of income), freelancers or self-employed, employees in a company, firm or state (stable income, employment), and the retired (on a well-deserved rest). Average income level among respondents is 200,000 KZT.

Influence of income level on consumer behavior: comparison of republic and regional significance cities.

Income level: above average

Residents from cities of republic significance with above average income level are mostly inclined to online shopping/services applications. Their main asset is time, that is why they are easily accustomed to all new services and they are the ones who are eager to pay for them, pursuing one goal – saving time for more important things than a conventional trip to the grocery store. Their food basket includes a huge range of products depending on their wishes and food preferences. On average, they are ready to pay more than 100,000 KZT (person per month). Generation Y has completely switched to product delivery services, while generation X still prefers to buy goods personally in supermarkets such Magnum and Small. This is presumably linked to their childhood habits (e.g being used to frequenting bazaars with their parents) and subsequent scheduled visits to such supermarkets, resembling a sort of a ritual or a familial custom. The main aspect of using taxi services are safety and the possibility of choosing comfort and premium class cars. Most frequent payment methods are Apple/Google Pay and Kaspi QR. Overall, residents with more than average income level use online services no worse than Generation Z; this confirms their technical proficiency and openness to new services and applications.There is no such thing as time management in their understanding as they were not taught this back in the day, and young people value their time more, and therefore, they have a different mindset.

Residents from regional significance cities with above average income level are less used to online service applications. General food basket consists of the same products, but here people are ready to pay no more than 80,000 KZT (person per month) for it, giving a preference to supermarket Small. Despite the fact that in republic significance cities Small is not about premium segment, in regional cities this supermarket chain is considered relatively new and gain status because of its existence in Nur-Sultan and Almaty. Millennials utilize food delivery services, especially monthly subscriptions for daily delivery for proper nutrition. On the other hand Generation X still gives a preference to visiting restaurants hence maintaining high personal status. The most frequent payment method is bank cards.

Relatively, in such cities people only recently have began to trust online service applications. For example, they can completely rely on online applications in buying devices or tickets, while the responsibility of choosing products they still entrust only to themselves. Adults are used to calling via phone, as they often do not employ taxi services. We also noticed that in the South, people prefer to catch a ride. Moreover, adults, regardless of how much they earn, prefer to buy food at the markets, also considering it a special weekend tradition and speculate that only there are the fresh products.

Income level: average

Residents from republic significance cities utilize online applications because of many reasons. First, ability to find most affordable price on the same good through the means of smartphones. Second, free and fast delivery plays main role in food delivery services. People with an average income in this cities live mostly very modestly often use installments and loans from banks. Their grocery basket costs 10 000-35 000 KZT . They use food delivery on a holiday, mostly adults ask children to help and do not use online services themselves. Taxi services are often used mainly by Yandex. Generation Y and Z because of the fact that they were born in the age of the Internet, it is easier for them to order delivery because it makes their life easier.

Residents from regional significance cities

These people have the most positive attitude to life. They live modestly, buy a grocery basket at bazaars or supermarkets, because there is an outdated thinking that it is more expensive and not fresh products in the supermarket, and they are ready to pay about 10,000-30,000 per month for it. From the online services, Kaspi.kz is most often used, thanks to the possibility of buying in installments. Taxi-hailing apps are used very rarely, they travel mostly by bus. Food delivery is also rarely ordered, mostly only for celebrating small family holidays.

Income level: below average

Residents from republic and regional significance cities are mostly similar to each other. Entry level segment has only essential product in their food basket, that might cost from 10,000KZT to 35,000KZT per person per month. They are neutral to new online service applications, use only basic one such a Kaspi.

kz, because of the ability to buy in installments. There is no need in delivery services, they try to cook at home most of the time. They tend to gravitate towards being picked up by a taxi on the road, in order to discuss the price with the driver on their way. Bazaars are the main source of groceries.

Payment method-mostly cash.

Students and Undergraduates

Students from cities of republican significance are more accustomed to this pace of life. Those who stayed in regional cities are students from families with lower-average incomes. They don't order food delivery, cook at home, go to restaurants on holidays. Their lives didn't change much after school.

Students who have left regional cities for cities of republican significance cannot afford delivery, live very modestly, mostly work, are more responsible for money. A visiting student from a regional city from a family with an average or lower average income has the same habits as a student from the region. Students from well-off families do not think much about their grocery basket, do not know the prices of products, spend mostly only on their own needs. Students from poor families already at this age are more responsible, work and buy groceries home.

Freelancers/self-employed

Freelancers from regional cities appreciate convenience and comfort, but they can work in different conditions. Because of their work, they are very technically equipped, they often use food delivery where the main criterion is a large selection of dishes and fast delivery, in matters of a taxi, the choice also goes according to comfort factors and fast delivery. Additionally, they use food delivery services and are not afraid to try something new. Freelancers from cities of regional importance prefer to cook at home, order food delivery only in cases of time deficiency. They have a lot of free time and it is convenient for them to visit different cafe, restaurants to work online , because they work with good Internet access. Freelancers from big cities order food home because they don't want to waste time cooking food. However, freelancers in regional cities prefer to cook from home. Freelancers can work remotely and cook

food between jobs and continue working back. But, freelancers in big cities do not want to be distracted by household chores.Food is bought in supermarkets, expenditures being about 10000-35000 tenge. Taxi call services are often used, when choosing a fare, they also consider fast delivery to be the most important factor.

Entrepreneurs

Entrepreneurs try to keep up with trends and popular applications due to the specifics of their work. They are always open to everything new and ready to explore and try different areas. It is safe to state that an entrepreneur from cities of republican significance is more digitalized. They hold videoconference meetings, value their time and manage it for greater productivity. Due to these factors, they often order food delivery from different restaurants, try different taxi fares, and order clothes. At the same time, they do not forget to visit restaurants or visit shopping centers. Before buying, they may analyze the advantages and disadvantages of the product. The grocery basket, once again, depends on the level of income.

The entrepreneur from the cities of regional significance has not yet completely switched to digital, they are only establishing trusting relationships. Taxi services are often used, the main factor being the comfort in the cabin and an adequate driver. They tend to buy groceries in local supermarkets, and do not use delivery.

Employees in company or state

The main difference is that in regional significance cities people generally cook at home and bring it with them to the work for a lunch. At the same time employees prefer to eat in cafes and order food delivery. Also workers from regional significance cities care more about their health than employees from regional significance cities.

Pensioners

Pensioners in different cities have the same consumer behavior. The difference lies in pensioners from cities of republican significance being more digital. They have the knowledge of using Internet banking. At the same time, they do not use applications for food delivery or taxi services, albeit opt for them hence feeling as having a characteristics of younger generations. The main aspect for them is not fast delivery, but comfort and quality. Pensioners communicating with the younger generations imperceptibly change their habits and make purchases that are not peculiar to them in order to stay young for themselves.

To sum up, people from cities of republican significance choose their food basket in consistency with their income level. Residents with less than average income do not necessarily possess a variety neither in potential products of choice nor in opportunities. Only starting from people with an average income, the choice in a variety of products appears, while the prices they are seeking to pay for a food basket are only twice higher than the price that people who make ends meet spend.

Correlation

1.	After analyzing and collecting data, it is possible to correlate between entrepreneurs and freelancers, resorting to Maslow's pyramid of needs, that consumer behavior and their decisions also depend on the need for recognition, respect and approval in society. It can be noted that entrepreneurs and freelancers are self-sufficient and freedom-loving people who prove to others that they can achieve success by themselves. Therefore, it can be concluded that such people prefer to physically visit establishments, instead of ordering food at home to show society their status and success. Also, it can be seen in their choice of taxi, because they mostly order Comfort+ and Business Class, instead of Economy Class.

2.	In this research, it can be noted that a person from a city of Republican significance with an average salary in Kazakhstan (250,000 tenge) is similar in his consumer behavior in the digital economy to a person from a regional city with a salary below the average in Kazakhstan (150,000 tenge). They rarely use the app to call a Taxi and mostly choose the "Economy" fare, do not order food delivery, instead, they cook themselves at home, buy groceries at markets or large wholesale supermarkets, and generally are not active users of online services.

3.	Generation Y and Z are the most advanced consumers of online services, as they all use online applications on a regular basis. Since generation Z was born and grew up in

the century of the Internet and mobile phones, generation Y easily adapted to the digital economy.

Research findings and research analysis

The respondents' answers are presented in the charts below.

Age
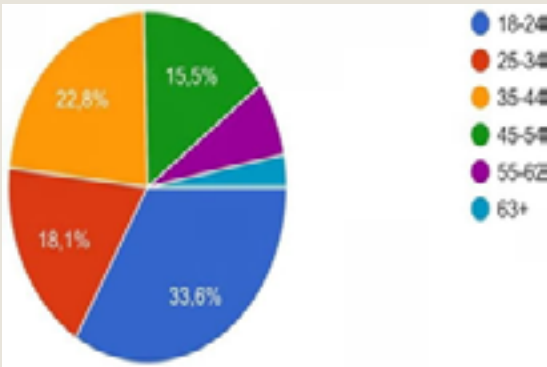
Sex
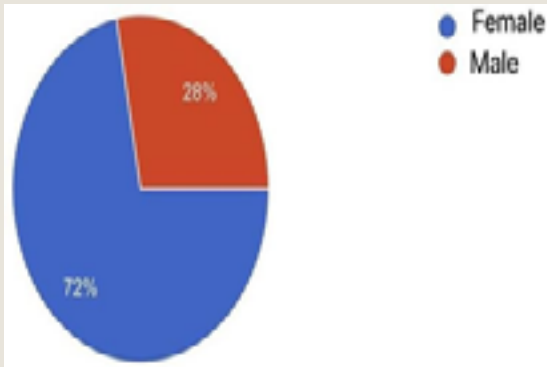
City of residence

Category
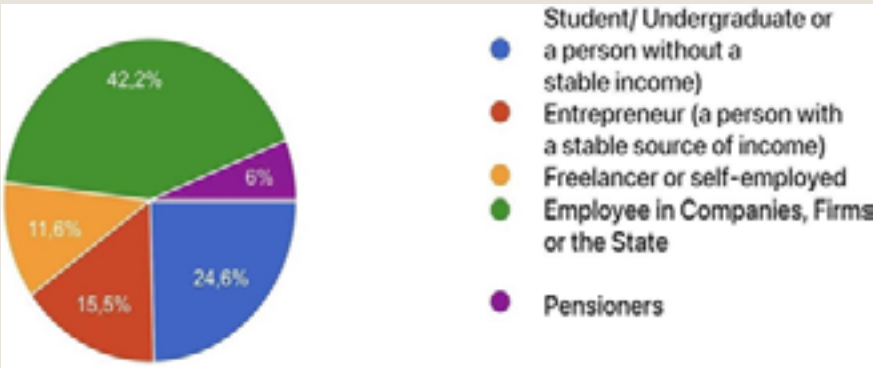
Monthly income
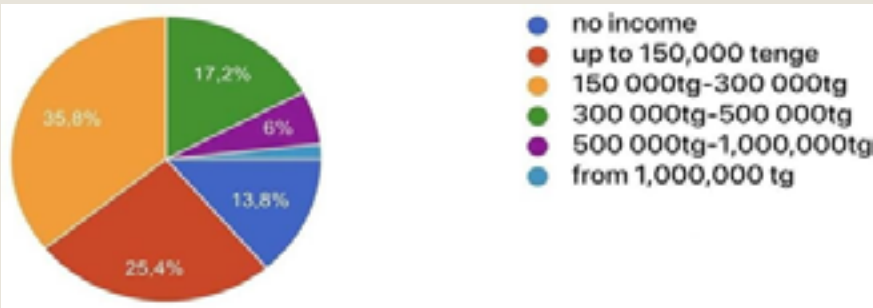
Monthly income
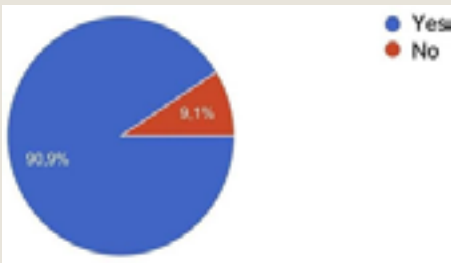
Where do you most often buy groceries for home?
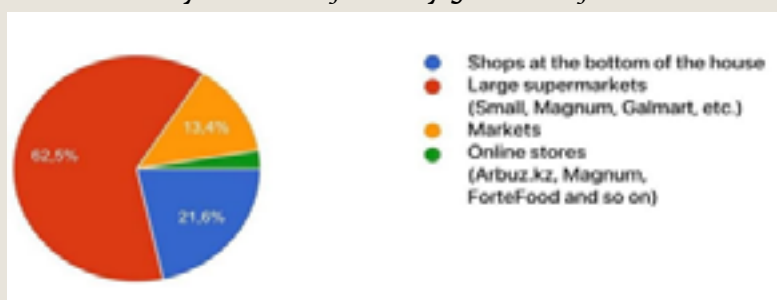
Which payment method do you use most often?
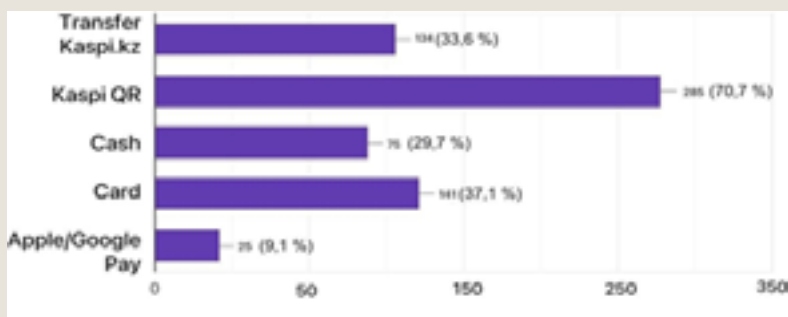
How do you call a taxi?
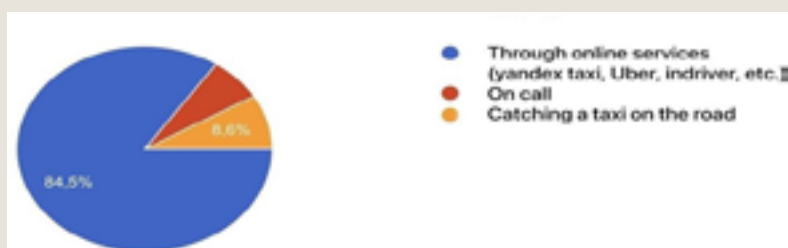
For what reason do you use the app to call a taxi? If not, write why.
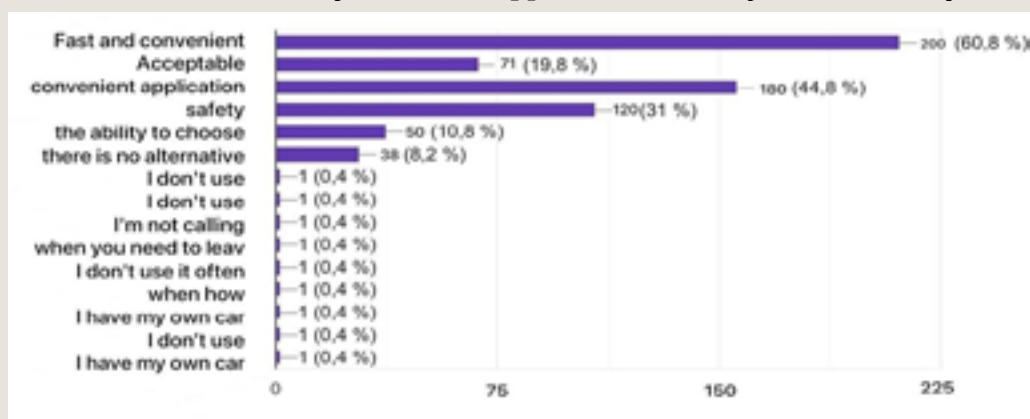
What is the most important aspect when choosing a tariff?

Do you cook food at home?

- Yes
- No, I prefer to eat in cafes/restaurants
- No, I prefer online delivery
- Smn cook for me
- My chef is cooking

90,1%
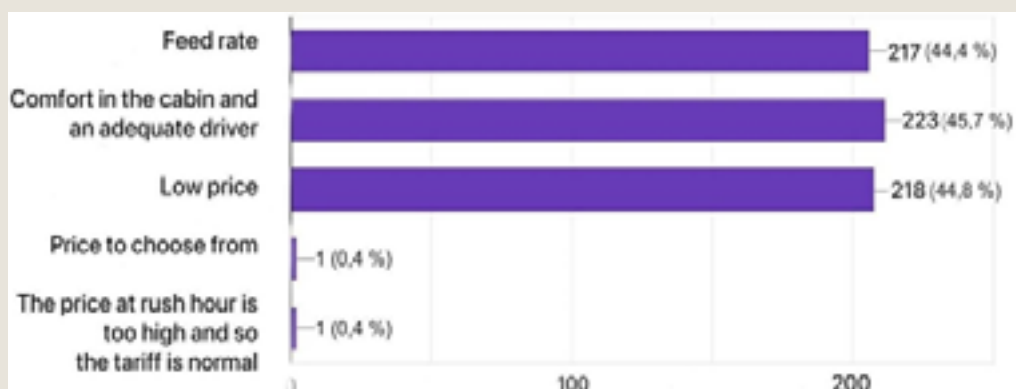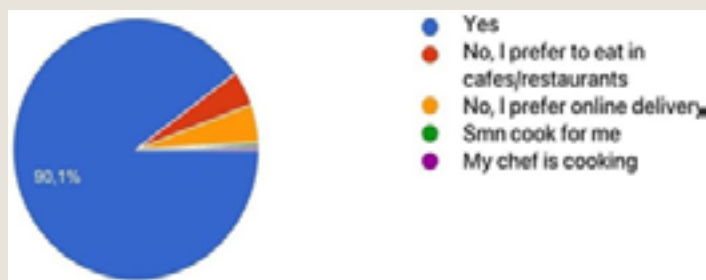
How often do you go shopping in stores/shopping malls?

- Once a week
- A couple of times a month
- Once every few months
- I don't go, I prefer to buy online
- Until the purchased clothes lose color or a hole appears
- Not using
- Once a year
- I don't go

42,7% 6% 10,8% 38,8%
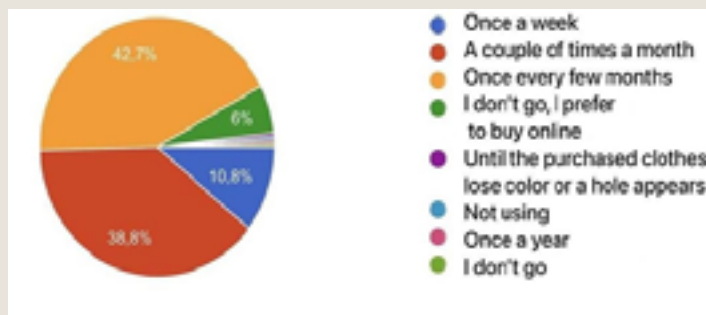
What category of products or services do you purchase most often?

- Tickets(Railway, Air or events)
- Household Goods
- Technic
- Clothing and accessories
- Products
- Products
- Products

33,6% 40,9% 23,7%
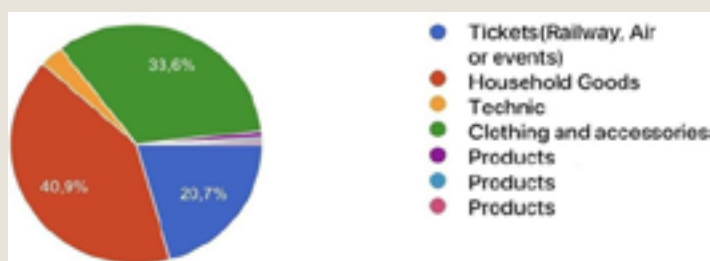
What information about the product do you analyze before buying?

- Are there similar products, but cheaper
- Advantages and advantages of the product
- Customer Reviews
- Price, quality, delicious or not (...
- What's over
- Quality, composition

25,9% 51,3% 21,6%
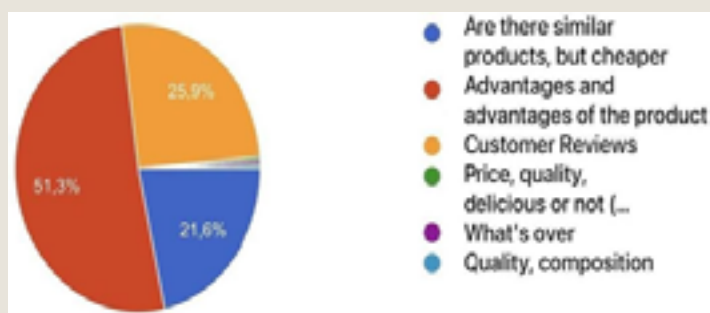
What is included in your daily grocery basket?

- Common foods (such as bread, milk, eggs, meat without special varieties)
- Essential products
- A wide variety of products (Including seafood...)
- What do you need
- Sweets

31% 18,1% 50%
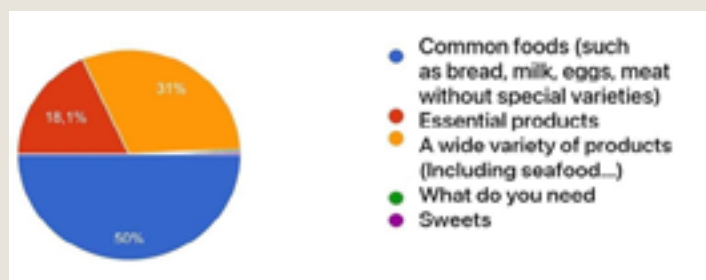
Why do you use food delivery apps?

- Big choice... — 132(25,9 %)
- Convenience... — 298 (44,4 %)
- Cheap... — 52(15,5 %)
- Too lazy to... — 112(19,8 %)
- Discounts... — 33 (12,1 %)
- Not using — 7 (3 %)
- Not using — 4 (1,7 %)
- Sometimes — 2 (0,9 %)
- Not using — 1 (0,4 %)
- Cooking at — 1 (0,4 %)
- Cooking at — 1 (0,4 %)
- Not necessary — 1 (0,4 %)
- I don't order — 1 (0,4 %)
- Eat only... — 1 (0,4 %)
- For a change.. — 1 (0,4 %)
- Celebrating... — 1 (0,4 %)
- Sometimes... — 1 (0,4 %)
- Cooking... — 1 (0,4 %)
- Sometimes — 1 (0,4 %)
- Time saving — 1 (0,4 %)
- Not using — 1 (0,4 %)
- We rarely... — 1 (0,4 %)
- Sometimes — 1 (0,4 %)
- Rarely use — 1 (0,4 %)
- Time saving — 1 (0,4 %)
- Rarely use — 1 (0,4 %)

0   300

How much are you willing to pay for this grocery basket per month? (per person)

- 10,000 tg-35,000 tg
- 35 000tg-60 000tg
- 60 000tg - 100 000tg
- from 100,000 tg

33,2% 15,5% 46,6%
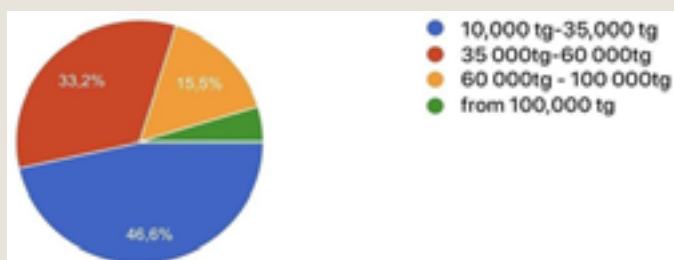
What factors determine your grocery basket budget?

- Income level
- The desire for certain products
- Unspent salary balance

45,3% 50,9%
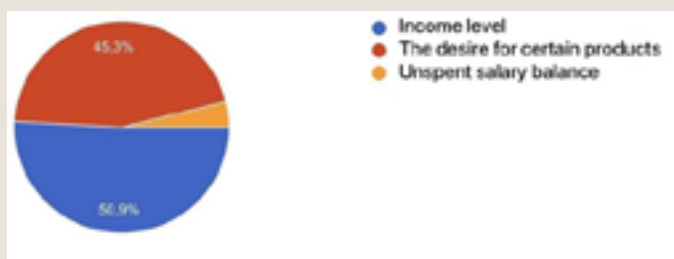
How much do you like to shop online? Please rate from 1 to 10 and explain your choice. (where 1-is negative, 5-is neutral and 10-is positive)
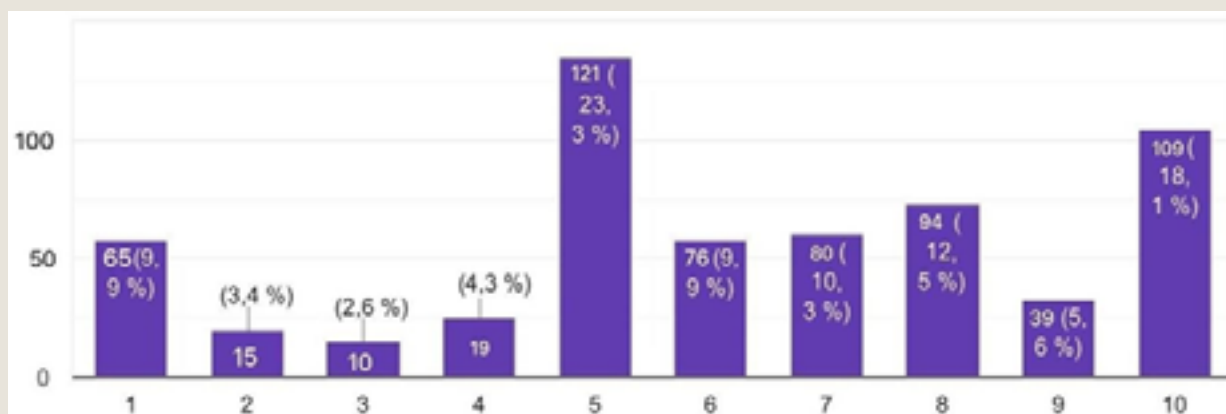
Why do you prefer online shopping?
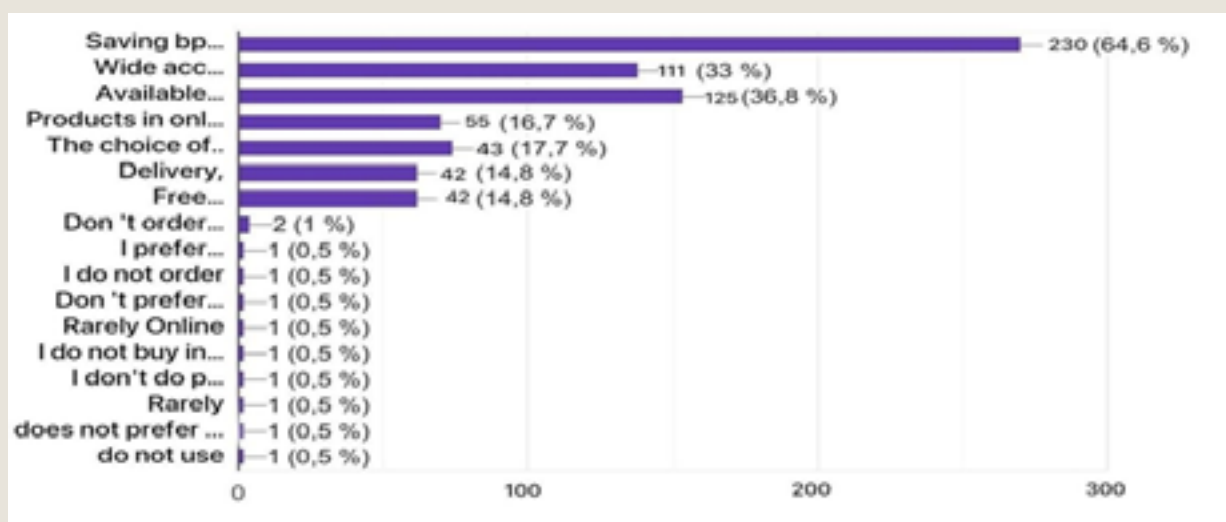
Conclusion

Nowadays, Kazakhstani residents give online services more and more preference.

According to the survey, 90% of all people surveyed in the Republic of Kazakhstan employ online services, which indicates a fairly high level of technical literacy. Among people who use online services, the proportion of women is 5-8% higher compared to the proportion of men, regardless of the city and income level. Students and Freelancers are the most trained and technically equipped ones who use online applications, people who use services at least 20% more often than employees or private entrepreneurs, and 40-50% more than pensioners, regardless of neither gender nor city.

City status has a direct effect on the level of online services users.

In cities with a population of millions of people, the market is absolutely competitive, on the account of this, prices for some products or services in online applications are much inexpensive. People have a choice, accordingly, this plays a central role in the rapid transition of people into digital life. In cities of regional significance, online services are not sufficiently established to completely change consumer behavior.

Online services are mostly popular among students and people with above average income level in republic significance cities.

Students use online services to save money with the help of finding various discounts and bonuses, while somewhat wealthy people intend to save their time.

According to the analysis Hypothesis 1 was accepted.

The level of income in the cities of Republican significance influence consumer behavior in different ways, the main reasons and motives for using online services are the desire to receive good quality services and fast delivery. Residents

here have a higher level of technical literacy, which afford them to find different online applications and evaluate them. They are open to any innovations, like bonuses and try to save their time as much as possible.

According to the analysis, Hypothesis 2 was rejected.

However, despite the fact that the income level is lower in regional cities, this in no way seems to have an impact on people's consumer behavior. Considering that technical skills are quite weaker in the regions, nevertheless, people use food delivery, and somewhat often use taxi ordering services. Only grocery delivery services are declining in these regions.

Kazakhstani residents are divided into 5 groups by their consumer behavior.

-Wealthy people of generation X: earn from 1,000,000 tenge per month while still buying products in the bazaars and supermarkets such Magnum or Small, not because of low prices. This comes from childhood habits - going to the market on a day off was considered a family tradition.

- Freelancers and self-employed people are very responsible about expenses because they feel insecure about the future.

- Pensioners mostly ignore digitalization and do not want to delve into online services themselves, although they need them. They rely on the younger generation in this matter.

- Entry-level segment makes ends meet, so they rarely use online services, but have a good level of technological literacy.

- Employees of companies feel confident but worried. They try to buy everything they need and want but save on it.

Groups	From Big cities	From regional cities
Entrepreneurs	• Average age - 35 y.o • Average income - 550 000 KZT • Digitalized (using online banking, Glovo, Magnum, Arbuz, Yandex) • Open to updates • Main Idea behind using apps- manage time for a greater productivity • Before buying, firstly explore advantages and disadvantages	• Average age - 42 y.o • Average income - 380 000 KZT • Try to now the trends, do not completely trust online services • Still prefer to buy in-person • Goes for shopping to big cities
Pensioners	**Modern pensioners** • Average age- 65 y.o • Average income- 180 000 KZT + pension 90 000 KZT (still working) • Living in big cities like Almaty and Nur-Sultan • Save up for travel, buy tickets through online services such as Kaspi Travel or Tickets.kz • Asking their kids to order online food delivery for them twice a month.	**Pensioners who ignore digitalization** • Average age- 70 y.o • Average income- 80 000 KZT (only pension) • Buy groceries on bazaars, only essential products, like bread, milk, buckweat and etc. • Cannot use online banking, has only cash • Do not order online food delivery and taxi services

Students	• Average age-20 y.o. • Average income- 80 000 KZT+ parental help • Nonresident students lead a modest lifestyle, use food services if delivery is not expensive or there are discounts and bonuses • Local students feel more confident, their consumer behavior has not changed much since school days.	• Average age-19 y.o. • Average income-60 000 KZT+ parental help • Often they order food, due to lack of time or unwillingness to cook. • Try to keep updated • Feel confident, often use clothing delivery services, because of desire to be trendy
Freelancers	• Average age - 25 y.o • Average income - 200 000 KZT • Appreciate convenience and comfort • Main criterion- large range and fast delivery • Open to updates • Mainly Arbuz and Magnum users • Feel unconfident about future, tries to save money.	• Average age - 22 y.o • Average income - 150 000 KZT • Cook at home, order food only in cases of time deficiency • Prefer to buy products in supermarkets • Order clothes delivery or buy • at local stores
Employees	• Average age- 35 y.o • Average income-250 000 KZT • Digitalized (using online banking, Wolt, Magnum, Yandex, Arbuz) • Open to updates • Main idea behind using apps- lack of time and proper use of time, convenient apps • Before buying explore quality of goods and low prices.	• Average age- 35 y.o • Average income-250 000 KZT • Digitalized (using online banking, Wolt, Magnum, Yandex, Arbuz) • Open to updates • Main idea behind using apps- lack of time and proper use of time, convenient apps • Before buying explore quality • of goods and low prices.

Consumers from Kazakhstan might be divided in 10 groups

Retired (ex-government officials, ex-military servants) from Nur-Sultan and Almaty (2,5%)
Buy groceries on bazaars or supermarkets. Cooking at home, on holidays eat with grandchildren in cafe

Entry level segment (14,3%)
Buy groceries on bazaars, only essential products

Wealthy people of generation X (5,2%)
Despite the high income that occurs in childhood, for example, the traditional day off to go to the market

Pensioners who ignore digitalization (0,4%)
Buy groceries on bazaars, only essential products, like bread, milk, buckweat and etc.

Entrepreneurs, Generation (3,1%): Y and Z
Entrepreneurs are digitalized because of their profession, but also not Have confidence in the future

Modern Pensioners (3,1%)
Save up for travel, buy tickets through online services such as Kaspi Travel or Tickets.kz

Entrepreneurs, Generation X (7,3%)
Main idea behind using apps- manage time for a greater productivity

Employees of companies feel confident but worried (42,2%)
Open to updates, Appreciate convenience and comfort

Students/undegraduates (10,3%)
Often they order food, due to lack of time or unwillingness to cook

Freelancers and self-employed feel insecure about future (11,6%)
Order clothes delivery or buy at local stores

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Sustainable Marketing: How Eco-Labelling Affect Consumer Preferences in Food Industry?

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Abstract

This paper is focused on the issue of how eco-labeling affects consumer preferences. The purpose of this study is to identify the effect of eco-labeling to consumers' purchase decisions when buying food products in Nur-Sultan in the context of sustainable consumption. Since

customers are one of the most powerful forces and crucial parts of sustainable marketing, the study will be supported by data from an online survey conducted among the residents of Nur-Sultan city as well as articles from past literature in this field.

The quantitative method was used and 206 respondents were interviewed, of which almost 32% buy eco-products on a permanent basis and the same amount are concerned about environmental problems. Based on research findings and previous literature, it was revealed that consumers are highly involved in the buying process of food and pay attention to the presence of eco-labels and composition. Consumers' awareness of sustainable consumption influences their choice during buying food products with eco labeling in the city of Nur-Sultan.

Introduction

The field of marketing has been studied for many decades starting from the beginning of the XX century. Marketing is highly influenced by changes in economy, traditions and society. Therefore, the current concerns in society shapes the strategies in marketing that businesses use. Marketing has seen rapid innovations in terms of sustainable marketing strategies. Labels indicating the sustainable background of the product in terms of production, storage, transportations, and products' composition being one of the significant elements of sustainable marketing strategies (Canavari & Coderoni, 2019).

One of the global issues nowadays is how to maintain sustainable development to make sure that future generations will have access to all the resources we have now. Hence, there is a lot of groundwork about sustainable marketing and how to adapt to the new changes happening in the society. According to Kotler and Armstrong (2018), Sustainable marketing – "socially and environmentally responsible marketing that meets the present needs of consumers and businesses while also preserving or enhancing the ability of future generations to meet their needs" (p. 572). Moreover, nowadays to ensure the stable development of the business, the said businesses try to align their marketing strategy to the needs of consumers for sustainability. Whereas businesses in the food market try

to adapt to the changing market trends, the initial consumers' response to the concept of sustainable marketing is usually related to environmental concerns, excluding economic and social aspects of sustainability (Arvola et al., 2008).

Inherently, sustainable marketing strategy was aimed to attain competitive advantage, however, nowadays being socially responsible is rather a requirement than preference (Kumar et al., 2012). The cause of sustainable marketing campaigns is that consumers' attitude straightly influences a businesses' success. The more consumers' concerns are increasing about global issues such as environmental degradation, social inequality and poverty the more businesses are trying to be sustainable, which corresponds to the law of supply and demand (Smith, 2008).

Furthermore, many recent studies have focused on the problem of identifying sustainability in marketing, and what types of strategy and drivers exist (Kumar et al., 2012). There is a term called Willingness to Pay (WTP) in economics that defines the highest price point of goods & services consumers are ready to pay (Le Gall-Ely, 2009). While there has been research on it, there is still an uncertainty of how eco labeling affects the preferences of consumers and whether it has any effect on their willingness to purchase food products. Eco-labels give information on the environmental impact of the product or service for consumers' understanding and labels help to identify the "eco" product among other regular commodities based on the product's life cycle. On the other hand, there were studies that suggested the ecolabels' influence on the final purchase decision of green consumers is still uncertain (Melovic et al., 2020).

The purpose of this paper is to identify how eco-labeling affects consumer preferences in the food industry in the region of Nur-Sultan city. The study argues whether the awareness of sustainability among consumers influences the choices made during purchase of food products. The research will be supported by the collective data of conducted surveys, and arguments stated in the previous studies in the field.

Literature Review

To define the Environmentally Sustainable Food Consumption, shortly ESFC - the consumption of food products that use minimal natural

resources in their production avoiding materials with toxic ingredients, try to minimize the waste and pollution during all the stages of the life cycle of the product, including production and consumption while respecting the basic needs of current generation and without sabotaging the future of the next generations.(Vermeir et al., 2020).

The literature researching consumer behavior in sustainable food consumption is only growing in recent years. Firstly, sustainable marketing was mainly linked to the environmental crisis, hence there is a fair amount of literature about the environmental impacts of the food industry (Kroyer, 1995; Pimentel et al., 1988). Green marketing was established in the 1970s, which tries to maintain marketing activities that serve in favor of the environment to help in solving global issues in order to maintain a sustainable future for next generations (Hennion and Kinnear, 1976).

Green and sustainable marketing methods for promotion such as eco-labels and eco-packaging can help to raise market awareness and affect perceptions of consumers to more environmentally favorable product qualities (Ahmad et al., 2020). Environmental advertising was used in the media to promote awareness and present their products to environmentally sensitive consumers. A positive corellation between green product and customer behavior was found by Dhurup and Muposhi (2017) during their study.

Human factors have a huge impact on the environment, especially when it comes to consumption. Fortunately, consumers are getting more environmentally sensitive these days (Teo, 2016).

In order to push people towards Environmentally Sustainable Food Consumption (ESFC), the end state should have a positive value (Vermeir et al.,2020). Customers prefer to consume green products due to the fact they feel the contribution to the solution of the problem of environmental protection (Lončar et al., 2019). The cause of environmentally friendly manners is that people value the environment and are concerned about its state (A. C. Hoek et al., 2017).

While conducting the study among consumers in the German market scientists found out the four marketing types of sustainability -

performers, followers, indecisive, and passives (Belz & Schmidt-Riediger, 2010). Their research questionnaire was designed with the focus on aspects that related to social and environmental problems in the food products including the all of the stages of product lifecycle of the products, and usage of five Likert scale (ranging from "Strongly agree" to "Strongly disagree").

About two-fifth of participated companies in the food industry incorporate social or ecological aspects into their "high degree" products. As results show, the most influential people on a strategic view in the sustainable market are top management and consumers. Brands try to consider socio-ecological issues by adding some extra value to their products in order to increase demand. However, there is a price sensitive consumer segment who are mostly concerned and driven by the price neither social or ecological problems (Vanclay et al., 2011). Additionally, usage of accredited symbols such as "green", "environmentally sustainable" or "eco-friendly" does not help in increasing demand (Bhaskaran et al., 2006). Accredited symbols help to identify organic foods in a range of similar products (Delafrooz et al., 2014). Although, customers are unaware because of improper use of symbols earlier. Consumer behavior follows all of the stages that are included in the purchasing lifecycle (before, during and after purchase) and the purchase decision are highly affected by other independent factors like emotions and mental responses of consumers for different situations (Kardes et al., 2015).

Moreover, consumer behavior is influenced by a variety of elements, according to Goh and Wahid (2015), including culture, value, orientation, knowledge, attitude, and demographic dynamics.

After examining the existing literature, there was identified a gap of understanding how sustainability can actually be useful in a relationship between eco-labeling and consumer perception. The study aimed to analyze in depth the attitude of Nur-Sultan citizens towards sustainability attributes of food products, in particular eco-labeling.

Sustainable food consumption

The definition of sustainable development is the "development of current economy and society which gives the next generations the chance to

satisfy their own needs with current and future resources while the present population still has the opportunities to satisfy their own", which was provided by the Brundtland Commission, a high-level United Nations body charged with fostering international cooperation for better living conditions in a sustainable future in 1987.

As it was mentioned before, the Oslo Symposium proposed the definition of sustainable consumption in 1994. Sustainable consumption includes the entire impact of purchasing patterns, not just consumption. While consumption has a direct impact on environmental sustainability, purchasing behavior has an indirect impact through commodity production and marketing (Han & Hansen, 2012). Sustainable consumption, according to Wolff and Schönherr (2011), is an approach of utilizing goods and services before, during and after the purchasing process and considering all of the environmental and social concerns of the said goods and services.

Food safety, environmental sustainability, and social equity concerns have sparked new consumer habits aimed at achieving social, economic, and environmental sustainability in recent years. Consumers' rising preference for organic, domestic, and other environmentally friendly food service consumption, as well as the spread of alternative channels of distribution that highlight domestic food production, short-term food transportation, and direct consumer-producer interactions, are examples of this (Estell et al., 2021).

Consumers engage with producers, farmers, industries, retailers, traders, governments, and a variety of other actors in a dynamic system, as mentioned in the Global Analysis report. However, assuming that physiological needs and purchasing power are the fundamental determinants of food consumption behavior is foolish. Culture, traditions, values, trends, exposure (availability, promotion), personal observations such as taste, health, and household demographic features (age, income, education, and etc.) are all key elements that influence consuming behavior.

Eco-labeling

Theoretically, eco labels on food products are widely accepted as the main instrument for the promotion of sustainable consumption, since eco-labeling simultaneously reminds consumers of substitute to environmentally friendly products and at once minimizes the time spent by consumers searching for environmentally friendly products Hence, the marketers or businesses have the responsibility of informing and educating consumers on the environmental footprint of the product that are based on eco-labels' indicators, which help to increase the rate of purchases of food products that are not harmful for the environment or society (Solér, 2012).

Eco-labels are a collection of information on environmental impact of the product, process or service that is part of their labeling and/or accompanying documentation. The information can be given both in text form or graphic image, or combination of both. One of the most common statements in eco-labeling is that the product is "environmentally friendly".

Considering that packaging is one of the crucial parts of most food products and carries various useful information about them, most of the eco-labels are placed on the packaging and often reflect the information about the packaging itself. (Testa et al., 2015).

The concept of eco labeling helps to provide consumers (users) and other interested parties with reliable information about the environmental friendliness of the objects under consideration (processes, their products and services) and is used voluntarily to form, on this basis, sustainable consumer demand for eco-friendly goods. (Frey et al., 2013).

Consumer segment

A customer fragment may be a way of separating a company's clients into classes of related sorts to think about how to offer to each sort more cost-effectively (Cambridge Dictionary Press). Consumer segments are most regularly based on character, way of life, culture, and numerous other human variables. Ghali-Zinoubi and Toukabri (2019) clarified that the more sensitive individuals are to the cost of normal items, the more they are not inclined to purchase these items since they are more costly than ordinary food products. Other literature also expressed that a negative relationship has been appeared between item cost affectability and consumer behavior (Goldsmith et al., 2010). This relationship is more vital within the case of

natural nourishments since their cost is higher compared to their routine partners. The cost of items is the viewpoint that decides their buy (Marian et al., 2014; Rödiger & Hamm, 2015).

Methodology

The research was conducted by using a quantitative research approach with the usage of online survey. The purpose of the survey is to establish whether eco-labels influence the choice of consumers' during food purchase. The survey was conducted with the purpose to:

1. Identify factors that influence the decision to eco-purchase;

2. Analyze respondents who buy eco-labeled food products.

The respondents were adults over 18 years who made purchases of food products. The sample of this survey is non-probabilistic. The selection of respondents is random, through the social networks Instagram, WhatsApp.

The survey was sent only to those candidates who indicated Nur-Sultan as the city of residence. Since the population in Nur-Sultan is 1,2 million people, the sample size in this study is 206 respondents (with an error of ± 5%). The survey was intended to test the following hypotheses:

H1: "Eco-consumers are more involved in the buying process";

H2: "The more consumers are informed about sustainable consumption, the higher chances of them purchasing food products with eco labels";

H3: "The more product has eco labels, the more consumers prefer that product".

For this, the following statistical processing method was used:

• 		Descriptive statistics (frequency analysis).

Survey Design

According to Creswell, Research Design 5e

Research topic	Sustainable Marketing: How eco-labeling affect consumer preferences in food industry
The survey design	
Purpose of the survey	To find out the impact of eco-labels on the choice of Nur-Sultan consumers on food products in the context of sustainable consumption.
Survey type	Online, primary data
The population and sample	
The population	Nur-Sultan citizens
Sampling design and selection process	Non-probabilistic sample (snowball). The number of people survey was sent out: 317. Response rate: 64%. The respondents were chosen based on their convenience and availability
Sampling frame	Question in Google Forms
Instrumentation	
Survey instrument	Google Forms
Sample item	2 open questions, 22 multiple choice questions
Data analysis and interpretation	
Expected outcome	Consumers' behavior to eco-labeling on food products among residents of the city of Nur-Sultan

Data analysis

The research is aimed to analyze the relationship between eco-labeling and consumer preferences in the food industry between citizens of Nur-Sultan city. Of those surveyed, approximately 60% of respondents are females and about 40%

males and 0.5% preferred to not to assign. 32% of respondents have children, while other 68% do not.

Table 1
Socio-demographic variables

Variable	n	%
Gender		
Male	82	39.8%
Female	123	59.7%
Prefer to do not answer	1	0.5%
Age		
18-25	116	56.3%
25-40	43	20.9%
40-55	33	16%
55+	14	6.8%
Income		
On the provision	37	18%
Up to 100.000 kzt	15	15%
100.000-150.000 kzt	46	22.3%
150.000-250.000 kzt	46	22.3%
250.000 kzt +	62	30.1%
Education		
Secondary general education	9	4.4%
Secondary specialized education	16	7.8%
Incomplete higher education	56	27.2%
Higher education	97	47.1%
Postgraduate education	28	13.6%
Marital status		
Married	68	33%
Not married	138	67%
Children		
Have children	66	32%
Do not have children	140	68%

If we look at the chart, we will see that 56.3% of participants are people aged from 18 to 25 years and about 45% of total participants know what Sustainable consumption is, but did not research it in depth, 39.3% know what it is, while other 15.5% do not. More than a half of participated people are concerned with ecological problems nowadays; however, they take minimal effort.

Figure 1. Are you concerned about ecological issues?
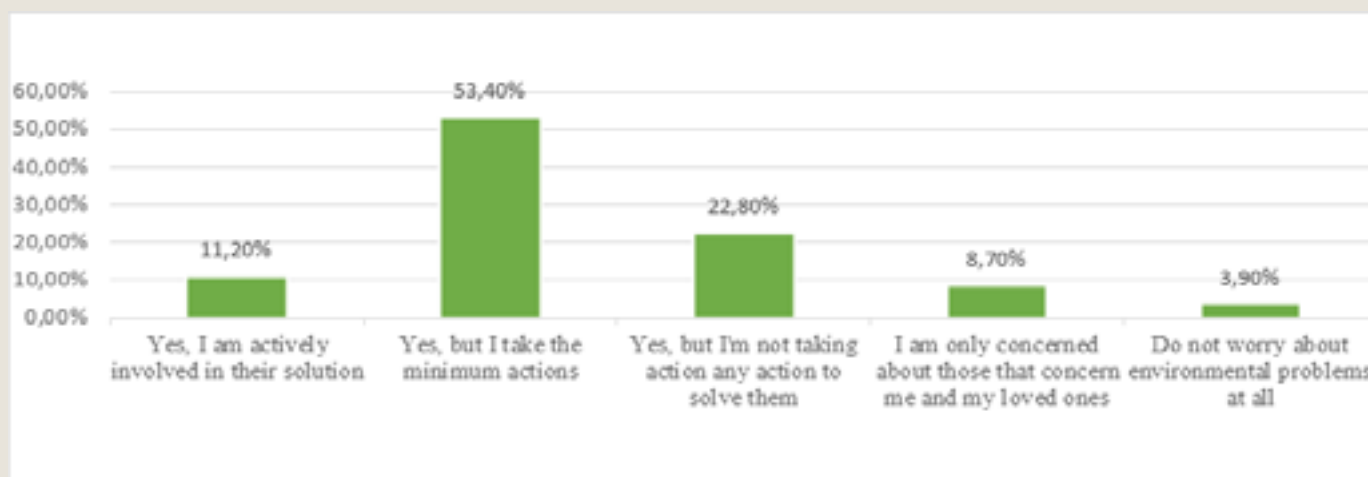
Even if the biggest part of participants with the percentage of 30.1% have an income over 250 000 tg., there are still price sensitive people who are concerned about product price (71.4%).

Figure 2
Are you ready to overpay for products made from eco-friendly, recyclable materials?
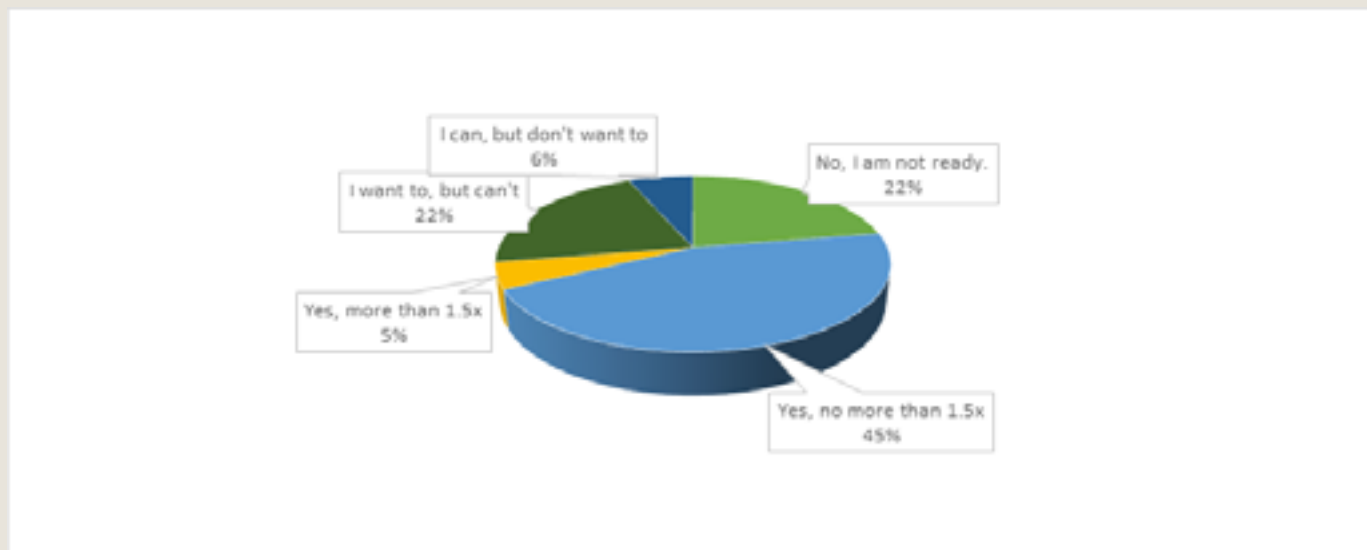
Also, the quality and product composition are highly important in the choosing process. The brand's participation in charity, mission, and the minimal use of natural deposits in the manufacturing process are the least important components of the buying process. Mostly (51.5%) people tend to buy products they are used to and about 48% of participants read the products' composition. Only 14.6% of people pay attention to packaging and spend a lot of time on product analysis.

Figure 3
How does the food purchase process usually go?
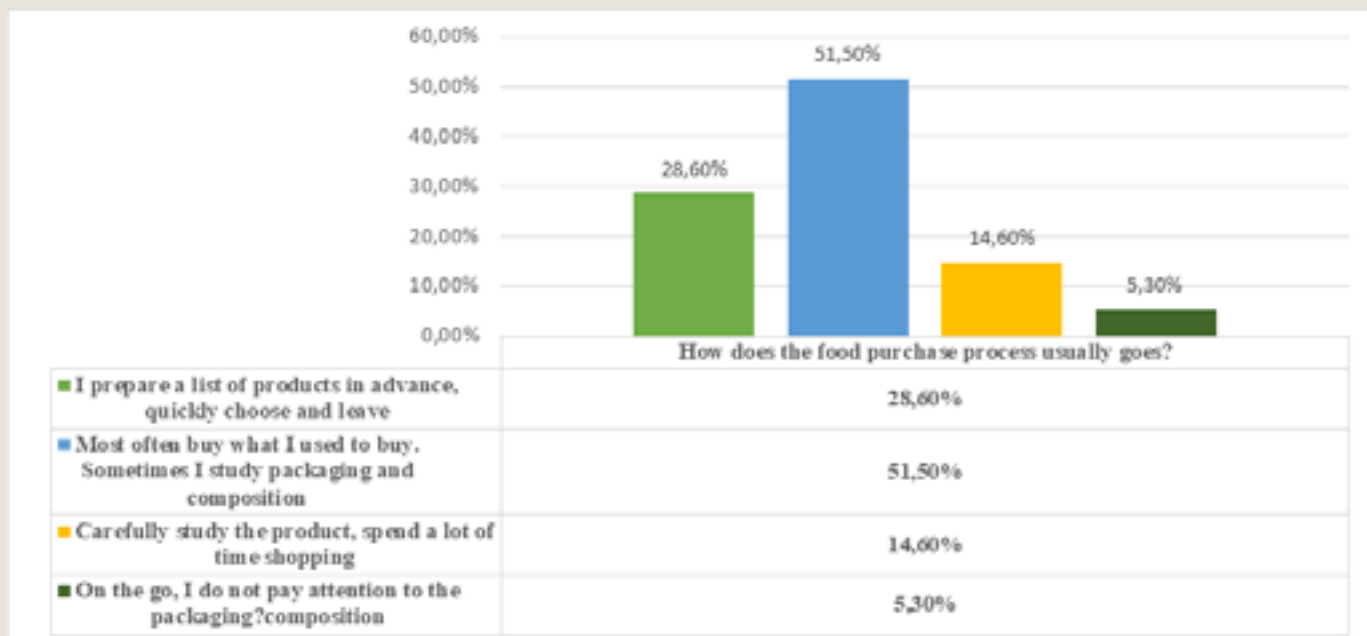
On the other hand, 45.1% of people are ready to pay extra money for sustainable products no more than x1.5 more. Usually the food products with eco labels are priced higher than common products (Aschemann-Witzel & Zielke, 2017). The attitude towards the price policy of food products with eco labels varies among the responders – 55% think that the higher price is partly justified, 18% states that it is completely justifiable, and 17,5% states that the higher pricing is not justifiable, and 10% of responders do not pay attention to the pricing of food products.

Do you think the increased price of food products labeled "ECO", "BIO", "ORGANIC" is justified than that of conventional products?
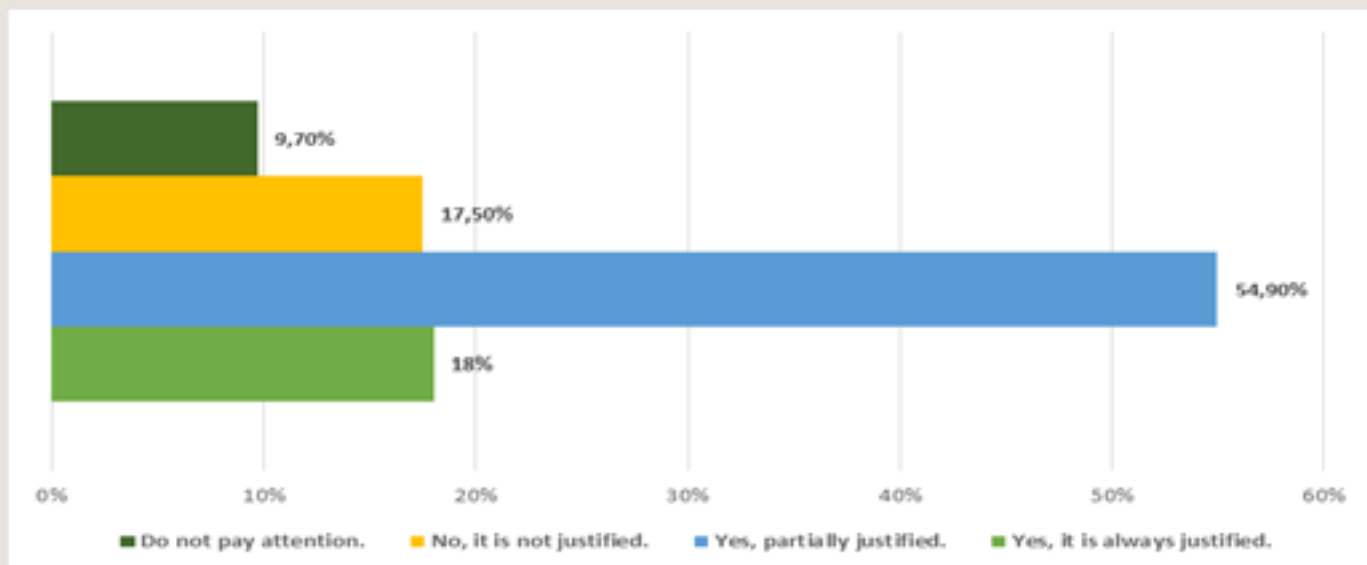
Overall, it was identified that most people are concerned more about the composition of the food products rather than the packaging materials. Only 30% of responders answered "Yes" to the question "Do you pay attention to the materials of the packaging of food products?", while almost 50% of responders read the composition of the products. 20% of responders are indifferent when it comes to the packaging, and 51,5% of responders sometimes pay attention to the packaging. Almost 8% of responders never read the composition on the product, and 44% responded that they sometimes read the composition.

Figure 5
Do you pay attention to the material from which packaging of food products is made?
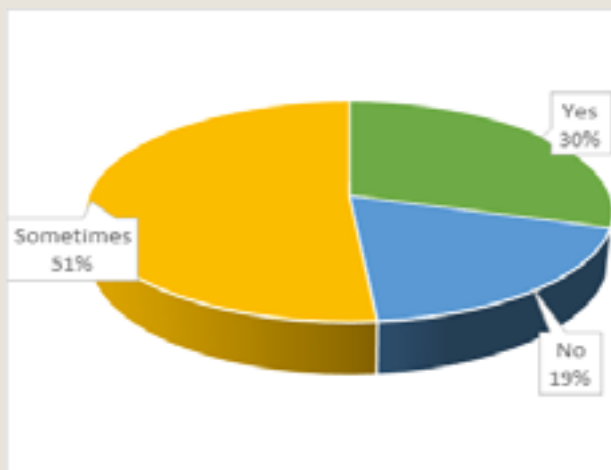
Figure 6
Do you read the composition of the products?
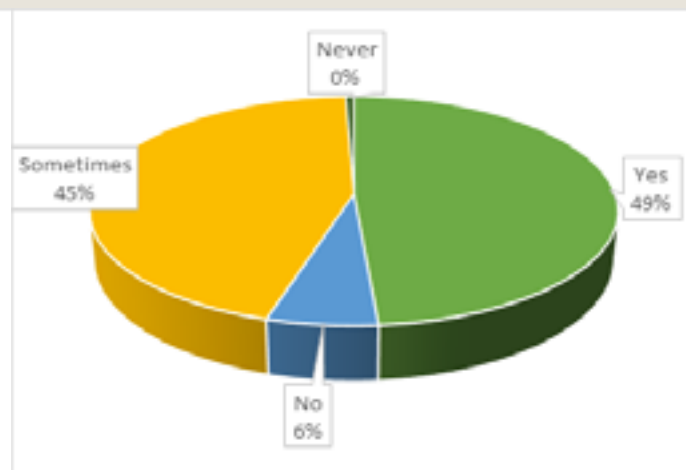
Furthermore, during a trip to the store, almost 60% buy only what they really need, 36.9% buy products with a sustainable approach sometimes and 3.9% are not sustainable. To the question "How often have you come across advertisements promoting organic food?" 52.4% answered that rarely, 38.9% very often and the rest answered that very rarely or never.

Figure 7
I consciously approach the purchase of this or that thing and buy only what I really need.
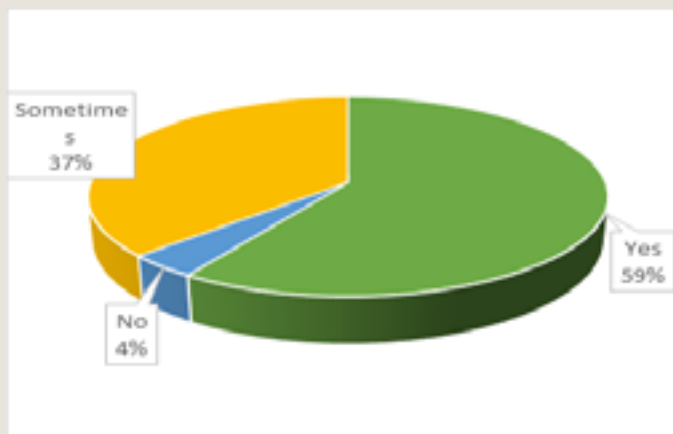
Figure 8
How often have you come across ads promoting organic food?
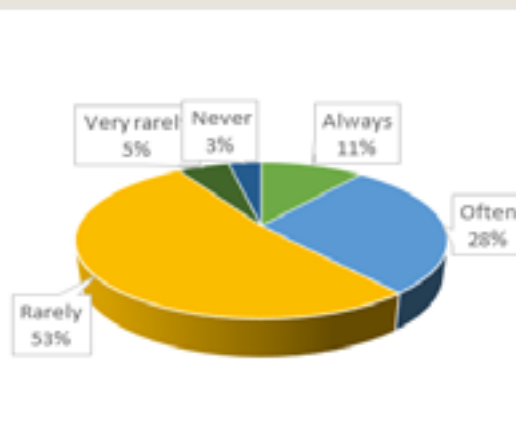
It has been detected that almost half of the respondents, i.e. 47.1% support the concept of sustainable consumption in the food industry, and about 40% support it but do not apply it in practice, 15% have never thought about it and only 1 respondent, i.e. 0.5% consider the sustainable consumption as useless.

Figure 9
Do you support the concept of conscious consumption in the food industry?

Yes, I try to consume sustainably	47,10%
Yes, but I am not a sustainable consumer	37,40%
No, I never thought about it	15%
No, I think it's useless	0,50%
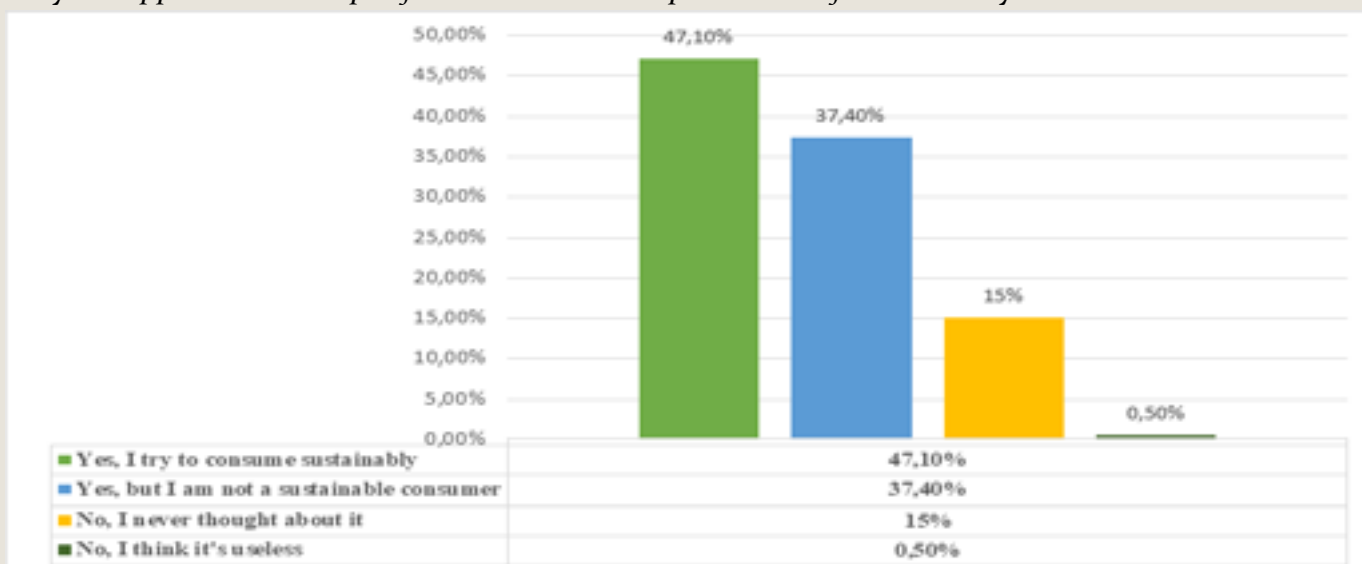
More than a half of citizens, particularly 56.3% familiar with people, who actively support the concept of sustainability, another 43,7% are not. Also, almost 54% of respondents are motivated by their close people who support this concept, while 13.6% of people are not motivated at all.

Figure 10
Are there people in your close environment who actively practice sustainable consumption?
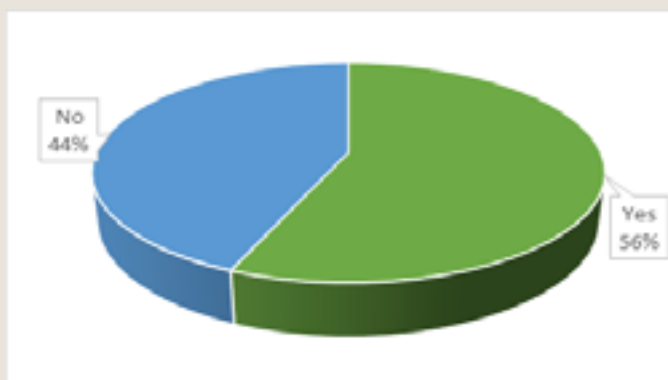
Figure 11
Does a close environment that supports sustainable food brands motivate you to consume more sustainable?
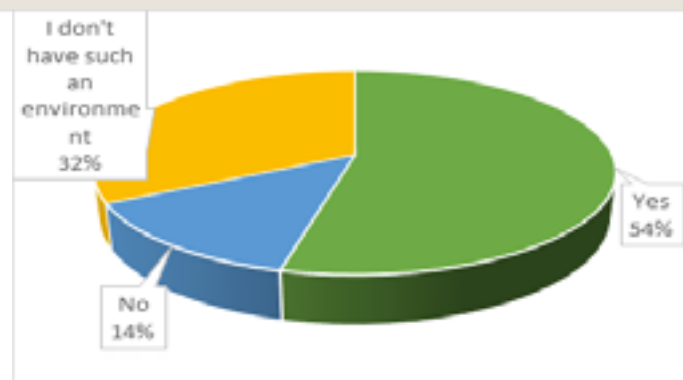
To add, as it was mentioned earlier, 39.3% of participants declared their knowledge of sustainable consumption and other 45.1% were slightly aware about it. However, by analyzing answers to open question, we can see that right answers were given for about 21% less. Moreover, if we look in detail, we will see that most people think sustainable consumption is about rational consumption and buying a product when it's needed. Only a few gave full answers by considering sustainability as an environmentally friendly approach with the total satisfaction of needs and wants. On the other hand, there is an opinion that sustainable consumption means consumption of eco products. Also, the responders answered what eco labels they expect to see on the packaging. The most common answers were – "Not tested on animals", "BIO", "ECO", "Vegan", "Recyclable materials" and "Do not know/do not care". As shown in the diagram, among the 206 respondents surveyed, about three quarters (77%) buy products with labels "ECO", "BIO" or "ORGANIC", while the remaining smaller part (19%) do not pay attention to them, and the rest do not prefer products with these labels. About 54% answered that they rarely buy products with labels "ECO", "BIO" or "ORGANIC", while almost 30% always buy such products, and the rest never buy them.

Figure 12
Have you bought products with labels
"ECO"/"BIO"/"ORGANIC"?
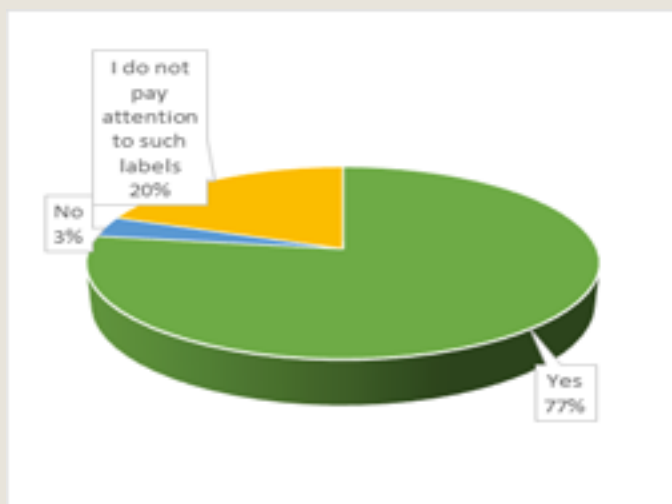
Figure 13
How often do you buy products labeled "ECO",
"BIO" or "ORGANIC"?
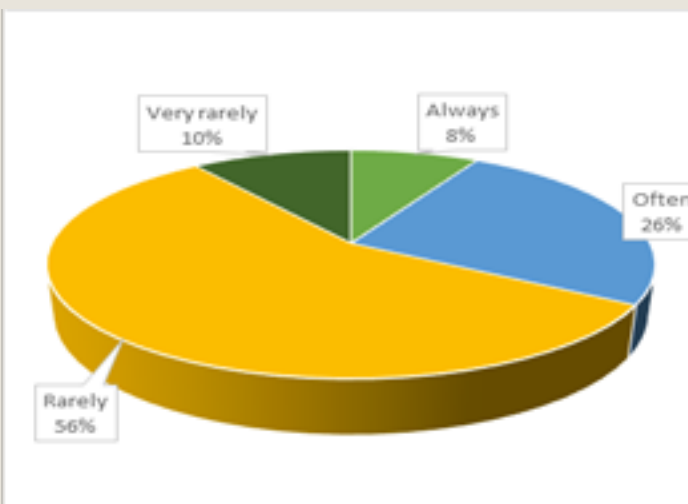
When it comes to eco labels, such as "ECO", "BIO", "ORGANIC", the survey identified responders the attitude towards the trust in these eco labeled food products with a higher price tag. 50% of responders somewhat agree that food products marked with eco labels are healthier than other products and 49% of responders stated that they somewhat agree with the statement – "I trust these eco labels", therefore relationship between them comes pretty close. Only 18% of responders strongly agree with the statement "Food products marked with "ECO", "BIO", "ORGANIC" labels are healthier than common products", 24% responders took the neutral position, 6% somewhat disagree, and only 3 people stated that they strongly disagree with such statement. When it comes to the trust of the consumers to such labels, again 27% of responders took the neutral position, similar to the previous statement. Only 15% completely trust the eco labels on the food products. 6% somewhat disagree and 3% strongly disagree with the statement.

Figure 14
Consumers' attitude towards food products with eco labels
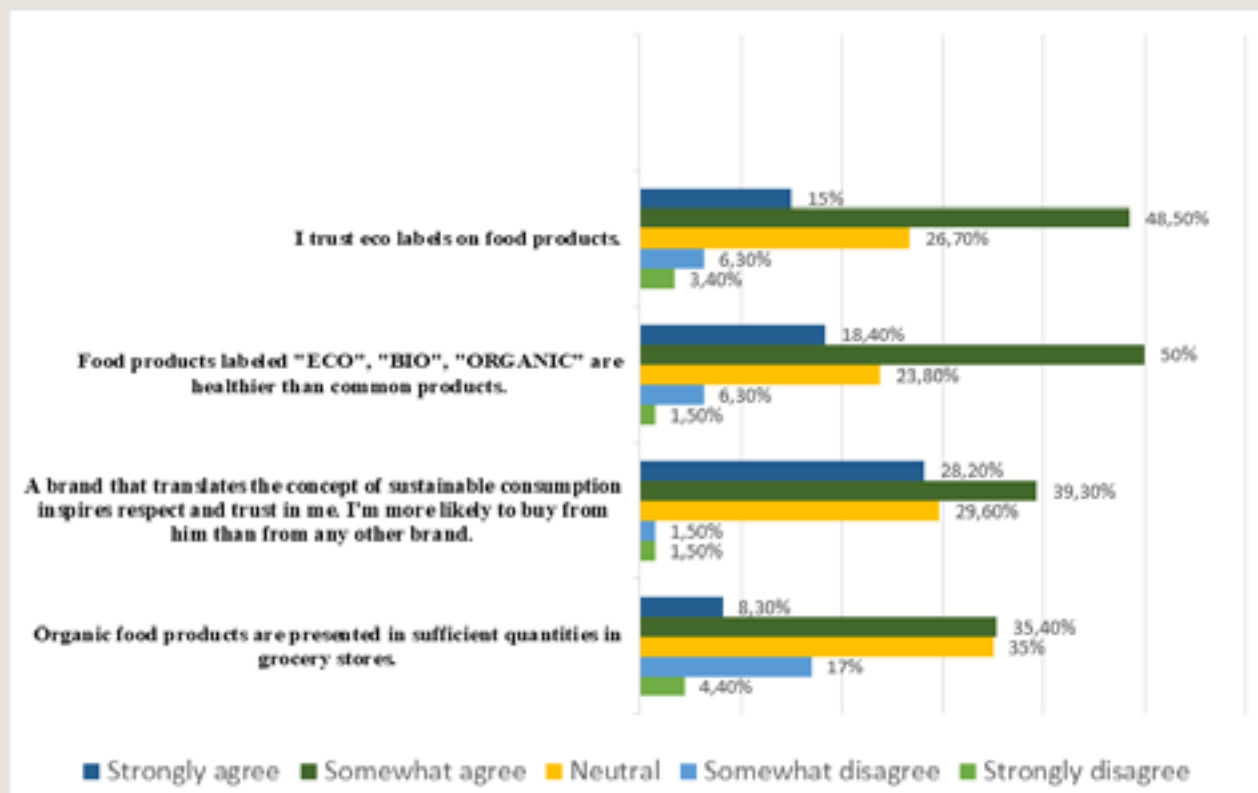
People who choose to buy products from brands that promote sustainable consumption represented for 28,2% totally. At the same time, two-fifths (39%) partially agree with this, and 29% are neutral about this position, the rest do not agree with it at all.

Almost 44% of people do not pay attention to products at all when they make a choice between local and foreign manufacturers, then 14,1% make a choice in favor of foreign companies, and 18% of local ones, and the remaining 24% prefer them equally.

According to the statement from the survey "Eco-food alternatives are presented in sufficient quantities in stores/supermarkets" there are 35% of people believe that there are enough alternatives of eco-products in supermarkets, while almost the 35% do not pay attention to this, and the remaining 17% partially agree with this, 8.3% completely agree, and the rest do not agree with this opinion at all.

Hypothesis testing

Hypothesis #1
Throughout the research process it was found that the first hypothesis, which sounds like "Eco-consumers are more involved in the buying process" has a positive outcome. Firstly, eco consumer is the consumer who is sensitive to the protection environment when he/she makes a buying decision (Banyte J.; Braziuniene L.; Gadeikiene A., 2010), accordingly for this type of consumers each step of the product cycle is very important, from the composition and packaging to the mode of transportation and storage, which means that eco-consumers can be more involved in the buying process. Secondly, based on a survey conducted among the population of the Nur-Sultan, it has been analyzed that 64% of respondents who carefully study the composition of products keep the concept of sustainable consumption and 11,2 % of the whole respondents identified themselves as eco concerned and actively involved in environmental issues. Among eco-consumers, 61% are sustainable during the buying process, they prepare a list of necessary products in advance, as well as carefully study the packaging itself. Also, 70% of them pay attention to the material of the packaging and 83% read the composition of the products. Based on all these factors the hypothesis "Eco-consumers are more involved in the buying process" can be proved positive.

Hypothesis #2

The second hypothesis of the study indicates that the more informed consumers are about sustainability the more likely they will purchase the food products with eco-labeling.

To prove the hypothesis the paper used a quantitative research method based on the data from the conducted survey. Dependent variable on this hypothesis is frequency of purchase for food products with eco-labeling. Independent variables are internal knowledge and external knowledge about sustainable consumption. The expected outcome for the hypothesis is the knowledge of sustainable consumption of consumer will positively affect the purchase decision when it comes to food products with eco labels.

Research showed that 41% of responders who knows what sustainable consumption is often or always buy food products with eco labels; and 25% who do not know what sustainable consumption buys food products with eco-labels on regular basis; and similarly 27% of responders who heard what sustainable consumption is but didn't go into details buys food labeled "ECO", "BIO", etc. On the other hand, based on the survey 75% of people who do not know what sustainable consumption is rarely or never buys food with eco-labels, while the results for answers "I know what is sustainable consumption" and "Heard, but never went into details" are 59% and 73% respectively.

The knowledge about sustainable consumption might be the internal factor that affects the consumer's buying behavior, but there are also some external factors. One of them being the advertisements promoting organic and ecological food.

The 39% of responders always or often come across these types of advertisements based on the research findings. 53% of them buy food with eco labels on a regular basis, while the other 47% do not buy or rarely buy these types of food products. Most of the 61% of responders who rarely or never come across the said advertisements do not buy food products with eco labels. Only 19% buy food products labeled eco, despite the fact that they rarely or never see the advertisements on the eco food products. In addition, people who never saw those types of advertisements (3,4% of total responders) was the only segment who never or rarely buys the food products labeled eco.

Overall, based on the survey results the hypothesis "The more consumers are informed about sustainability, the higher chances of them purchasing food products with eco labels" can be proved positive. Also, the results can conclude that external factors, such as advertisements are more influencing the purchase decision of the consumer rather than internal factors.

Hypothesis #3

The hypothesis that we put forward "The more product has eco labels, the more consumers prefer that product" suggests that buyers are interested in environmentally friendly products, because they pay attention to the composition, packaging and brand that represents this product. In our case, we are considering issues related to how consumers make purchases, what they prefer when choosing a product: eco-friendly or ordinary. Among those who answered "Yes" to the question "Have you bought products that had the label "ECO"/"BIO"/"ORGANIC"?" there were 77.2%, of which 32.1% always buy products with these labels. Among 206 respondents, 68.4% believe that eco-products with such labels are much more useful than conventional ones. Also, 49% of respondents trust products with "ECO"/"BIO"/"ORGANIC" labeled and prefer to buy them than conventional food. Based on this, it should be assumed that the hypothesis is confirmed, since environmentally friendly products are the most consumed among buyers.

Purpose of the paper

To sum up, the research was aimed to identify factors influencing people on eco-purchase in the field of food industry. One of the factors identified, most of the respondents have a close people supporting sustainable consumption (56.3%), moreover this environment motivates approximately the same amount of people (53.9%) to act more sustainably proactive. Furthermore, more than a half (51.9%) of participants rarely or do not pay attention on product composition while buying process. In addition, if we look in details, we will see that the higher price for eco products may demotivate people from buying such products. 71.4% of surveyed respondents are concerned about products' price and 49% of total participants cannot afford the higher price of eco

products. Also, about 54% of participants rarely buy products with eco-labels, however, from consumers' view brand's translating sustainable consumption concept seems more trustworthy and respectful. To add, approximately two-fifths (38.9%) of surveyed people declared they often come across advertisements promoting eco products, and there is a positive indicators with frequency of buying eco products. In total 32.1% of participants buy organic products very often or permanently, which suggests their higher engagement and willingness to buy eco labeled products.

Overall, people buying eco-labeled food products very often or always (66 of 206 or 32%) are aged from 18 to 25, and least often are over 55 years. The bigger part with the percentage of 56% have a bachelor degree, while the other 33.3% have a secondary general, secondary specialized or incomplete education. Among all participants, only 1 person replied that they do not care about ecological problems and do not consume sustainably. Mostly, people take minimal efforts in a fight against eco-problems. In addition, people buy products they are used to, and about 52% are ready to pay extra money no more than 1.5 times, only 4.5% can afford the higher price but do not want it. Moreover, about 18% of people pay attention to packaging and the purchasing process takes plenty of time. 71.2% read the products' composition and 81.8% trust or partially trust on labeling such as "ECO", "BIO", "ORGANIC". Moreover, almost the same amount of people (80.3%) replied that food products with eco-labels are healthier than regular products.

Conclusion

The major purpose of eco-labels is to increase customer knowledge about the benefits of the ecologically friendly products and to stimulate people to buy them. Consumer purchasing behavior is being studied to better understand the role of eco-labels in real-world situations. However, as it was mentioned earlier, eco labels do not always indicate the environmental friendliness of a product. Companies may establish whether eco-labels are useful as a communication tool for eco-label items by examining consumer purchase behavior and preferences. By conducting a full analysis of these metrics, companies can identify more effective development strategies for themselves, thereby it may lead to higher sales and positively impact consumer demand.

The purpose of the study was to look into the impact of eco-labels on consumer preferences in the food industry in Nur-Sultan.

Based on the quantitative research, it has been analyzed that eco-labels can affect the selection, purchase, and consumption of the products with eco labels. Despite the fact that the results are based on a survey among Nur-Sultan residents with likely biased samples and expressed preferences, the survey indicates that the impact of the eco-labels to the consumer purchase behavior does really exist. The results are broadly consistent with earlier studies demonstrating that respondents who attach high value to food products labeled "ECO", "BIO", "ORGANIC", etc., and the products which are produced with a low environmental impact and have a more positive effect on human health, also tend to attribute a positive increase to the price of eco-labeled products. In addition, evidence supports that eco labels may be more efficient in combination with lower or equal prices for regular products (Vanclay et al., 2011). Eco-labels help consumers make faster decisions and to distinguish the products they want to buy from other products. From the results of the study we can conclude that buying products which are positioned as Eco is difficult, due to the fact that people have to consider different factors before buying: the price of the product, the quality, the guarantee of sustainability and where to find such products. During the study it was found that most of the residents of Nur-Sultan city have a positive attitude towards food products with eco-labels and, therefore, were willing to buy these products.

Limitations and recommendations

There are some limitations that came across during conducting this paper which should be taken into account while evaluating research findings. Foremost, the sample of the study being limited is the most obvious of the limitations that can result in biased research findings. The limited sample is described in sample size and lack of diversity in the age range. Most respondents (55.3%) were in the age range of 18-25. Such statistical disadvantage can lead to insufficient response

rate and cannot represent the preferences of all types of consumers living in Nur-Sultan city, because of the inevitable biased sample, where younger people with higher education are overrepresented. These factors generally can affect the overall credibility of data analysis.

Secondly, due to the geopolitical situation between the Russian Federation and Ukraine (Kommenda, 2022), the Post-Soviet countries could see the impact on their economy and financial market. Consequently, there could be shifts in consumer behavior regarding the price of products. As the survey was shared (March 16, 2022) after the start of the conflict, the results can be biased, because of the price increase of the food products. The inflation on food products in Kazakhstan has increased up to 10% from February, 2022. (Dyussengulova, 2022, para. 10).

Also, there was a shortage of theoretical framework, which prohibited the study of deep and more profound research based on previous literature. Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan) is considered an economically developing region. Therefore, the information on the eco-labeling as a sustainable marketing strategy and consumer's attitudes to them is limited, as many works described the market state in developed regions, such as Italy, Hong Kong, and etc.

Due to the restrictions of the research, there is a necessity for deeper analysis in order to indicate the clients' preferences in a relation to eco-labels. Further research should contain wider sample size for more representative results for prevention of challenges related to slanted sampling of available people. In addition, it may include comprehensive analysis with the purpose to identify the correlation between sustainable marketing consumer behavior and besides eco-labels. Further research could take into the consideration more precise factors for the analysis, such as the examination of state policies on sustainability, more variables that can affect willingness to pay (WTP) of food products with eco-labels, covering not only the environmental impact of the food industry and sociodemographic factors of consumers.

Reliability of the survey

This research was aimed to develop a new theoretical framework in Central Asia (Kazakhstan) and to determine whether the eco-labeling affects consumers' preferences. The research data was conducted by the group of 4th year students of M. Narikbayev KAZGUU University under supervision of master's degree in marketing professor Lyazzat Khairullina. The research was not sponsored by any other third party and was done only with the purpose to answer the research question. Also, the participants were not paid for participation. Research method is a quantitative method with usage of online survey source (google survey) consisting of multiple choice and open questions. For the survey a non-probabilistic sample (snowball) was chosen which means that people to be surveyed were chosen among available people, so not every individual had an equal chance to participate. Accordingly, the research results may not be representative as the sample could be out of the target population.

Survey sample might give biased results, and due to the limited number of respondents it may affect the credibility of data analysis. Overall, it may lead to insufficient results.

The research questionnaire was created from scratch by the researchers and no secondary data was used. The authenticity and up to date information are the additional merits of primary data collection, while duration of collection is the disadvantage.

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Appendix

Evaluation of bank lending practices and credit management in Kazakhstan.

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ROA

Average maximum risk exposure

NPL

Net income

Average liquidity

Average liquidity coverage ratio

Inflation rate

GDP

Appendix 2.3. Multiple Regression results.

Model summary						
Model	R-square	Adjusted R-square	RSE	Degree of freedom	F-statistic	p-value	
1	0.8851	0.875	0.1578	57	87.81 on 5 and 57 DF	< 2.2e-16	
2	0.9706	0.9675	0.1406	47	310.8 on 5 and 47 DF	< 2.2e-16	

Coefficients							
Model		Estimate	St. Error	t-value	Pr(>|t|)	Confidential 2.5%	97.5%	
1	(Intercept)	2.90E-01	3.24E-01	0.894	0.374878	-3.59E-01	9.38E-01
	T_ЦNI	5.15E-05	2.68E-06	19.242	< 2e-16	4.61E-05	5.68E-05
	T_NPL	-1.80E-04	1.25E-04	-1.441	0.155	-4.29E-04	6.99E-05
	AV_LIQ	8.42E-02	2.30E-02	3.654	0.001	3.81E-02	1.30E-01
	INF_R	-4.65E+00	2.09E+00	-2.226	0.030	-8.83E+00	-4.66E-01
	GDP	1.47E-01	5.68E-01	0.259	0.797	-9.91E-01	1.28E+00
2	(Intercept)	-7.500	0.825	-9.093	6.29E-12	-9.160	-5.841
	T_NI	0.996	0.027	37.294	< 2e-16	0.942	1.049
	T_NPL	-0.582	0.140	-4.161	0.000134	-0.863	-0.300
	AV_LIQ	0.479	0.061	7.812	4.87E-10	0.356	0.603
	INF_R	-0.462	0.144	-3.22	0.002327	-0.751	-0.173
	GDP	-0.023	0.041	-0.573	0.569177	-0.106	0.059
3	(Intercept)	-12.131	0.872	-13.913	9.56E-12	-13.949	-10.312
	T_NI	0.991	0.016	60.76	< 2e-16	0.957	1.025
	T_NPL	0.111	0.113	0.979	0.339	-0.126	0.348
	AV_LIQ	0.112	0.097	1.157	0.261	-0.090	0.314
	INF_R	-0.442	0.085	-5.229	4.07E-05	-0.618	-0.266
	GDP	-0.021	0.018	-1.186	0.25	-0.058	0.016
	AV_LCR	0.195	0.118	1.651	0.114	-0.051	0.442
	AV_SFR	-0.322	0.241	-1.335	0.197	-0.826	0.181

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