HUNGARIAN UNIVERSITY OF AGRICULTURE AND LIFE SCIENCES

MARKET DEVELOPMENT TRENDS OF INVESTMENT FUND MANAGERS IN HUNGARY

Thesis of doctoral (PhD) dissertation

DOI: 10.54598/003640

Emese Melinda Bogáth
Gödöllő
2023

Doctoral School

Titel: Economic and Regional Sciences

Scientific field: Management and business administration sciences

Head: Dr. Zoltán Bujdosó PhD
full professor
MATE
Doctoral School of Economic and Regional Sciences

Supervisior: Dr. Judit Bárczi PhD
associate professor
NJE
Doctoral School of Management and Business Administration

....

Approved by the Head of School Approved by the Supervisor

1. INTRODUCTION

The 1989 regime change in Hungary have affected both social structures and the whole basis of the economical platform of the country. The centrally planned economy experienced a crisis due to the accumulated debt, the significant lack of funds and the collapse of the socialist market. Change was unavoidable with market economy being the only solution for the problem. Privatization seemed to help reducing public debt and the country opened its borders to western investors. This process allowed the country to start its integration into the European economy. When the last third of the 1990s rolled around, Hungary was favored by many foreign investors. As a result of this change, new "Western" products and innovations were introduced to the market and furthered the evolution of the financial culture of the country. Considering that the investment market was an unknown field for most private individuals, the liberalization of the capital and financial markets was a slow process.

The global economy crisis of 2008 had a tremendous effect on our daily lives as it irrevocably changed the landscape of the global economy and the financial sector. On a smaller scale, it also affected the financial decisions of our households. The change in the financial sector, directly or indirectly, has an impact on every sectors. This is the reason why the global economy crisis turned into a recession which affected almost all category of economic operators. To better understand this negative economic trend, we have to understand its origin.

Banks were responsible for the credit crisis happening between 2008-2013. It was actually indicated by the real estate market/property market, making it easy for everyone to have access to credit. There was no serious examination of credit scoring or credit history therefore such individuals had access to credit whose subsequent over-indebtedness was clear from the point of application. Over the years, this resulted in the skyrocketing of real-estate prices and people accumulating debt. Moreover, it was such an easy process to apply for credit that consumers even used loans to cover their daily necessities. Banks, on the other hand, were trying to regain their assets by issuing securities and selling their demand for assets to investment banks and consumer groups. At this stage, loans became connected with investment fields.

The investments of the Hungarian public were still defined by the risk levels of the financial resources. Considering the fact that the investors are not in favor of high risks, they tend to prefer low risk products which naturally means

lower yields as well. People preferring yields leans towards state securities, while those preferring liquidity rather chooses cash.

The way the crisis was handled after its end in 2013 initiated such process which still shapes and defines the current market environment. Since the repetition of the economy cycle was already confirmed, another recession cannot be avoided. Great example for the repetition of economic cycle is the crisis caused by the outbreak of the COVID-19 virus in 2019. We have experienced the diversified effect of the pandemic on several fields of life.

The COVID-19 crisis spread over the whole world in just a month and we had to face a completely different kind of crisis. In this instance there was no immediate correlation between the risk for health and the risk threatening the global economy. Historically, global commerce allowed for countries to share this risk. However, in this case, this opportunity was not attainable because the situation shocked the whole world. Interests reached historical lows and the crisis generated spillover effect impacting the supply chains. It seemed almost impossible to avoid another recession. Unexpected situations like this usually provokes an excessive reaction of the market which is mostly temporary. However, the extent of this setback depends on a couple factors. These factors are the preventative steps made in order to stop the spreading of COVID-19, the government's solution in assisting financially struggling families, the moderation of KKV's liquidity problems and the way companies prepare to restart their financial activities (Fernandes, 2020). We will only be able to judge the real extent of damage caused by the pandemic in years to come.

Due to the instable economic situation everyone started to play it safe. This change naturally affected the investment market. With lowering appetite for investments, new, alternative products came to the forefront and the products offering lower risks were favored by consumers.

2. AIMS AND OBJECTIVES

The aim of the present research is to examine the residential sector of the domestic investment market, particularly the investment funds. The economic crisis in 2008 initiated processes in the markets which are worth to explore and evaluate since they can bring us closer to a comprehensive evaluation of the factors affecting the market and their changes. Furthermore, it can help us to understand the reason of changes in the investment habits and provides an opportunity to estimate a possible forecast so that we can face a crisis better equipped in the future. This thesis also examines the period of the COVID-19 pandemic which broke out in 2019. Thus, two crises were analyzed with completely different direction and volume.

The research covers the period of the Hungarian investment market between 2005 and 2020, which was divided into five other periods. The development of the number of investment funds were compared in the portfolios of the three largest fund managers on the domestic investment market, particularly the investment policy, the distribution of the currency rate, asset value, exchange rate and the development of the annual yield.

As a comparison, the Austrian investment market and one of its most significant fund managers were examined in order to present a clear picture about the differences that we experience compared to an economy whose investment culture goes back further than our country.

Finally, the impact of the crisis was analyzed with the help of a cluster analysis, particularly its effects on the development of the number of funds available on the market based on the investment policy.

2.1 Hypotheses of the study

Chart 1 Hypotheses set up before the research

No.	Hypotheses (H)
H1.	The financial consequences of the global economic crisis affected the development of the number and asset value of domestic investment funds.
H2.	The development of the number and asset value of domestic investment fund was influenced by the economic impact of the COVID-19 pandemic.
H3.	In the past 15 years we have experienced fluctuations in the stock of domestic investment funds as a result of the transformation caused by the crisis in the economic processes.
H4.	In spite of the crisis, there is still a difference in the development of number between the Hungarian and the “Western” investment culture (Austria).
H5.	As a result of the crisis, a change can be experienced in the investment attitude, i.e. the funds on the market have changed in terms of their investment policy.
H6.	The measures taken as a response to the economic crisis supported the positive economic operation.

Source: Compiled by author

3. MATERIAL AND METHOD

This research examines the Hungarian investment market in connection with the impact of the global economic crisis and COVID-19 pandemic. The first part of this paper elaborates the literature of the examined theme, which helps to understand and interpret the topic and the processes taken place in a more comprehensive way. This chapter presents the extraction of the data used for the study and the statistical methods necessary for their processing.

Statistics is a practice of collecting, processing and analyzing data that occurs in large quantities. On the other hand, statistics is also a methodological science for collecting, describing, analyzing and communicating data. (Korpás et al., 1996)

There are four phases of statistical analysis.
Plan: First, we have to collect data and define the aim of statistical analysis. In Hungary, the data protection regulates the principle of usage. This means that in Hungary we can only use and process personal information for precisely determined legal purposes. This applies to every phase of data processing. It is prohibited to store data therefore the extent of collectable data should be determined. Furthermore, the frequency, time, place and method of collecting data need to be planned.
Survey: Survey means the collection of statistical data. This constitutes using other sources or gathering data. The modes of collection includes using questionnaire, taking observation and experiment.
Data capture: This phase involves examination and correction of data; classification and figures are created based on the results. This can happen manually or mechanically.
Analysis: This means making mathematical and logical operations therefore this stage includes the calculation, interpretation, textual analysis and graphical representation of various indicators.

3.1 Data and methodology used for the investigation

Some portion of the data collection and data capture serves as the starting point of statistical analysis. The collection of the core data requires great caution. For effective results of data capturing the statistical activity needs to be planned from data collection to its publication. In lack of this step, the observed phenomena and processing will be unsuitable for presentation. (Horváth, 1994)
Analysis and statistics are published by the Central Bank of Hungary (MNB) and other instructions dealing with the study of economy in Hungary. For the

following statistical analysis data was collected using the website of Association of Hungarian Investment Fund and Asset (BAMOSZ). As for the examination of the Austrian investment market, the website of The Association of Austrian Investment Fund Management Companies (Vereinigung Österreichischer Investmentgesellschaften, VÖIG) assisted this research.

The research consists of 4 stages.
For the examination, this paper applied mathematical statistical methods and comparative methods this means the correlation of two or more statistical data. Results emerging from these methods were concluded in figures and tables which assisted the easier evaluation.

First stage
The American financial crisis of 2007 has reached Europe by the autumn of 2008, and the united European market had to face the greatest economic deflation and economic downturn. Most of the EU members, including the largest countries, had to give up their aims for stability and convergence objectives. They also have to introduce programs to jumpstart their economy in order to balance out the reduction in consumption, production and number of workplaces and the collapse of defining sectors. By 2009 the crisis led to the global credit crunch and the shrinking of the real economy. There was distrust on the global credit market and financing the government debt was a challenge for certain countries. To avoid risk, investors fled the market of small-scale currency which led to the devaluation and crisis of currency. (Benczes-Kutasi, 2010) The transformed economic environment affected its every element, such as the investment market. This paragraph examined the domestic investment market.

The examination covers the interval between 2005 and 2020 which also includes the whole period of global economic crisis started in 2008 and the COVID-19 pandemic which was dominant from 2019 until the end of 2020. To get the full picture of the economic state of this era, this whole period needed to be examined. This paper researched the development of the number and asset value investment funds and the number and asset value of handled stock based on investment politics of the past 15 years. The investment politics has essential importance for the investors because it gives information about the risks, the cost efficiency and time course. These three factors are the main elements of investment politics, it can also include the portfolio’s component and the type of the financial product.

Second stage
In this phase of the research the three fund managers of the Hungarian market were examined, two market leaders and one middle-ranking company. They were chosen because the data published by them made them applicable for comparison on the bases of interval and data. In all three cases the same six aspects were considered for examination in the period of 2005 and 2020.

1) The development of the handled stock-number
2) The distribution of handled funds based on investment politics
3) The ratio of the handled funds based on currency (HUF, EUR, USD)
4) The development of the handled asset value
5) The development of the handled stock's exchange rate
6) The development of the handled stock based on average yield of the 3- and 5-years by providing the margin of error for variation.

The first two parts searched for the answer whether there was any change experienced in the domestic investment funds considering the examined 15 years divided into 5 phases due to the crisis.

Third stage
The research investigated whether the Austrian investment market and its fund managers acted in similar fashion as the domestic market participants in reaction to the crisis. The culture of investment greatly varies among the European countries. In contrast to our country, the Western nations have a more developed investment market and the market is operated in a more mature manner. In the light of this, it is presumed the Austrian market was less shaken by the economic crisis. In the past few years, the countries previously part of the Eastern Block went through a positive structural economic change. However, there is such a different pace regarding development in these countries that now even Eastern Europe has bipolar economy. In spite of the expanding market of investment funds in the euro area, 90% of investment fund shares were issued in five countries (Luxemburg, Germany, Ireland, France and the Netherlands). Thus, the rest of the 14 eurozone countries only make up 10% of shares.

This paper will study whether there was a change experienced in the customs of the Western European and Hungarian investment market in response to the global crisis. This is examined based on the development of the complete Austrian handled stock's and an Austrian fund manager's numbers and the asset value.

Fourth stage

The last research phase of this dissertation consisted of applying cluster analysis with the assistance of the SSPS program. Cluster analysis is a task of classification during which elements of data sets are classified into groups, so-called clusters. This is achieved by grouping the elements with similar features into the same category, in a broader perspective, they have to be close to each other. To complete this task it is necessary to determine a concept for distance which shows how close are two elements to each other. (Ilonczai, 2014)

Cluster analysis allows for methods and connecting algorithms the classification of certain objects into varied categories. (Szűcs, 2002)

The subject of this examination is the development of security investment funds registered in Hungary regarding numbers in certain interval. The intention was to reveal whether the consequences of the recession transformed the domestic investment customs and if so, in what ways.

4. RESULTS

4.1 The development of the Hungarian investment market between 2005 and 2020

This chapter of the research explores the development of the Hungarian investment market between 2005 and 2020. This 15-year interval was chosen since it covers five important periods.

- The period before the economic crisis (2005-2007): This interval was characterized by an optimist economic environment, dynamic economic growth and the rising of yield levels. In this period economic growth was accompanied by higher inflation. These macro factors affected positively the growth in the volume of investment funds.
- The period of the economic crisis (2008-2012): The economic global crisis affected Hungary approximately from 2008 until 2012. In this period the economic performance experienced a relapse which affected the investment markets. It can be argued, this period was characterized by negative economic environment. Every member of the economy came to an abrupt halt, everyone was looking for a way to salvage things.
- The period after the economic crisis (2013-2016): This is the period of economic activity without inflation – unique in the Hungarian history of economy. Inflation was around 0% and it was accompanied by strong economic growth. The low inflation and the high economic growth have ensured low inflation, interest rates and yields in the investment market. In the period of "dare to start", many members of the economy lost their trust therefore the optimistic thinking regarding investments was slow to revive.
- Cycle of high inflation business (between 2017-2019)
- The period of crisis caused by COVID-19 pandemic (2020): The period of the global pandemic (2020-May 2021) was analyzed based on the existing data. The economic environment was characterized by recession, but financial stability remained intact in Hungary and on international level. Considering the domestic investment market, most of the investment funds were unscathed by the COVID-19 crisis.

The Hungarian investment market is associated with cautious practice, especially in the private sector. People are scared to take risks and starting new things therefore many people are afraid to invest in something new. Menzel (1999) claims that the effort for slimming of consumption in the domestic households can only be realized in a limited manner. Most of them are controlled by liquidity. The residential property has the highest value in the

portfolio of households, its long-term value approximately three times of the net financial savings (Ábel - Siklós - Székely, 1998).
Naturally, there are investors taking higher risks in the hope of higher profit. Due to this duality, it is difficult to introduce new products to the market, which would attract wider range of investors. The name of the product is essential, as well as the investment politics. It is unlikely, that an ordinary men can make rational investment decisions, unless they have extensive knowledge and experience regarding economy and investment market. Fund managers can help them to minimalize and handle risks.

The following four figures examines the development of open-end and close-end funds of the stock registered by BAMOSZ between 2005 and 2020 in Hungary, taking into consideration the above mentioned five periods.

The first figure presents the development of the handled stock's number. It shows the continuous increase in number with two exceptions. One of these, is the year 2009, which had a stagnated number compared to 2008, the other one is, the year 2017, when a drop was experienced compared to the last year. The reason behind the first "hitch" is well-known; it was the economic recession of 2008 which caused a strong recoil in various economic fields, especially in the investment sector. It was unsuccessful to expand the selection of 492 funds by the year 2009. In itself it seems insignificant but taking into consideration the tendency of growth in the previous years, it has a great impact on the numbers. The change in the ratio of the open-end funds and other investment funds can be observed. In the period between 2005 and 2010 the open-end funds were preferred, however in 2008 this tendency reverted in favor of other funds. This is due to the fact that the fund of funds was reclassified from the group of the public open-end funds into the group of other funds.

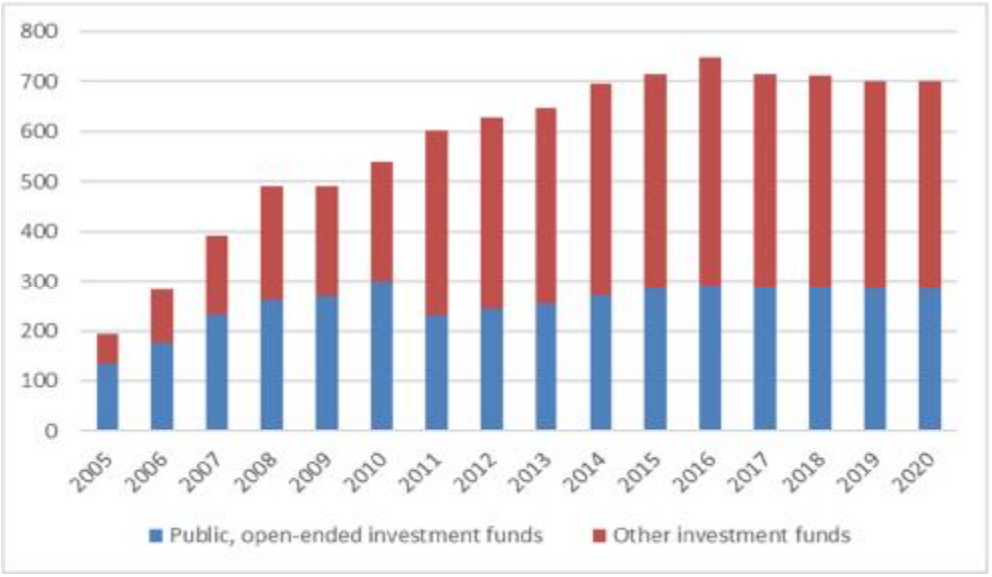

Figure 1: Development of the domestic stock numbers
Source: Compiled by author using data from BAMOSZ

The period of 2005 and 2020 is full of surprises regarding the development of the handled stock's asset value. From 2005 there is a significant growth, the asset value gained 56% in the first three years. Then the recession of 2008 occurred and the stock fell back with 22%. There were no striking results until the ends of 2012. There is a small rising tendency but it was always followed by drop back. This figure clearly presents the period before the crisis, the crisis itself and the years following. As soon as the critical period ended in 2012, the stock's asset value reached the 5 173,1124 billion HUF and this was followed by a rising tendency. Regarding its composition, investors preferred the public open-end investment funds and chose them to invest their savings. What is the reason for this? It is an important factor that this type of fund is very liquid which means that the distributor can sell the product on any day of distribution or they can return the investment tickets on the fund's daily asset rate. This option provides a way to escape and increases security for investors. Most domestic investors tend to avoid risks, therefore if they choose to invest in funds with the possibility of higher profit, they will try to get rid of them as soon as a problem occurs.

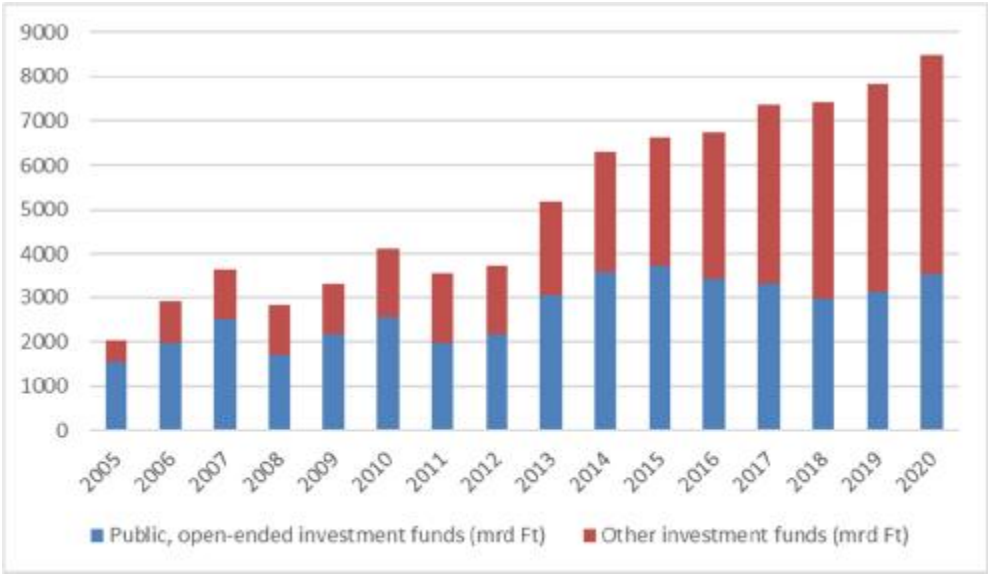

Figure 2: The development of the asset value of the handled stock (mrd HUF)

Source: Compiled by author using data from BAMOSZ

It is interesting to note the next figure which presents the percentage of numbers in the examined period on the basis of investment politics. There are nine fundamental types. Among these it can be found all the risk classifications such as funds of the financial market which are characterized by low risk; the mixed funds, which are characterized by moderate risk and the real estate and share finds, which are characterized by above average, high risk. Based on this, there was no significant change in the number of funds signaled by low risk and minimal yield. By the end of 2013, the market funds quantity reached 59 while the securities reached their height in 2015 and then again, they showed a decreasing tendency. The number of mixed funds and share funds indicated a rising tendency, despite smaller setbacks. The special funds are the unequivocal winners. The public open-end, close-end, guarantee and derivative funds belong in this category. The guarantee fund is a type of investment fund which guarantees the payment of the capital and additionally a possible yield when it expires. The most preferred fund of the last couple of years were the derivative funds, especially the ones following the strategy of absolute return. Their popularity lies in the fact that they aspire to be profitable in every condition of the market. Even their efficiency leaves much to be desired, their number grew from 37 to 258 by 2015 in a 10 year period. The hedge-hopping of the economy in the last decade caused uncertain economic environment, thus it supported the spread of such funds which allowed fund managers to freely affect the development of investment politics. The fund of funds was also leading the market because its stock of 25 grow to 146 by 2020.

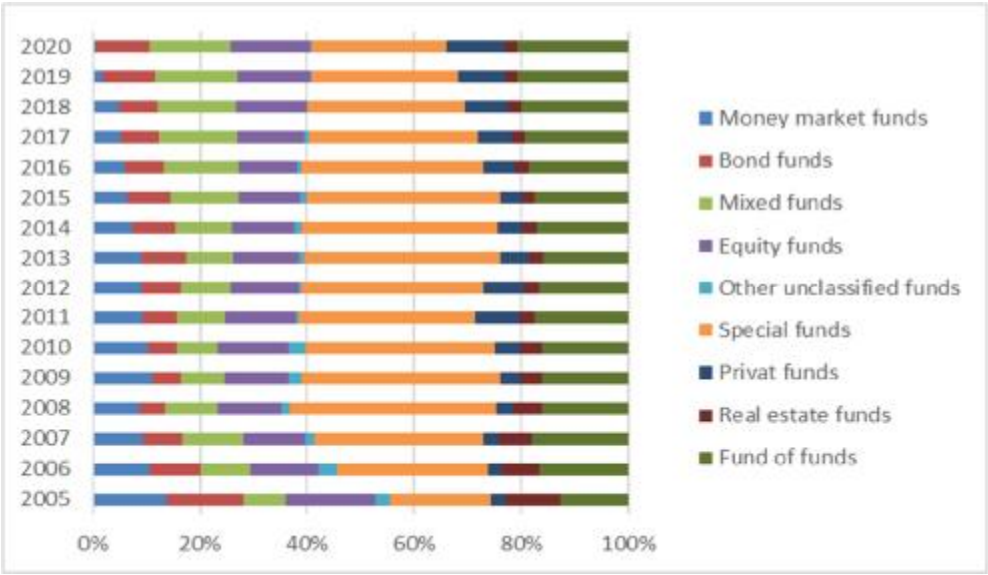

Figure 3: The distribution of the number of the handled stock based on investment politics

Source: Compiled by author using data from BAMOSZ

When examining asset value, it is worth mentioning the special funds. While in 2005 their value barely reached 89,0185 billion, in 2017 they reached 1 523,0530 billion, almost duplicating their asset value. It is interesting to note the change in the stock of closed-end security funds. In contrast to the other factors examined, their volume showed reverse tendency. Between 2005 and 2007 they cut a poor figure. However, with the explosion of the 2008 crisis, they showed exponential growth, in almost every year their number was duplicated. From 2011 they showed falling tendency until 2016 when again they started to increase in number therefore by 2020 the stock reached 660,1200 billion. Both the bond funds and the mixed funds achieved better results after their plummet due to the crisis. After a strong start in 2005, between 2006-2010 the bond funds started to decline. The year 2013 was a great year for bond funds, so much so, that they are displaying a growing tendency since then. The same applies to mixed funds, excluding the year 2005 when their asset value barely reached 65,2397 billion. When examining the figure, it is easy to distinguish the market funds marked with blue as a strong base. It shows the continuous tendency for a decrease after the peak experienced in 2012 and between 2019-2020 the number of stock was insignificant.

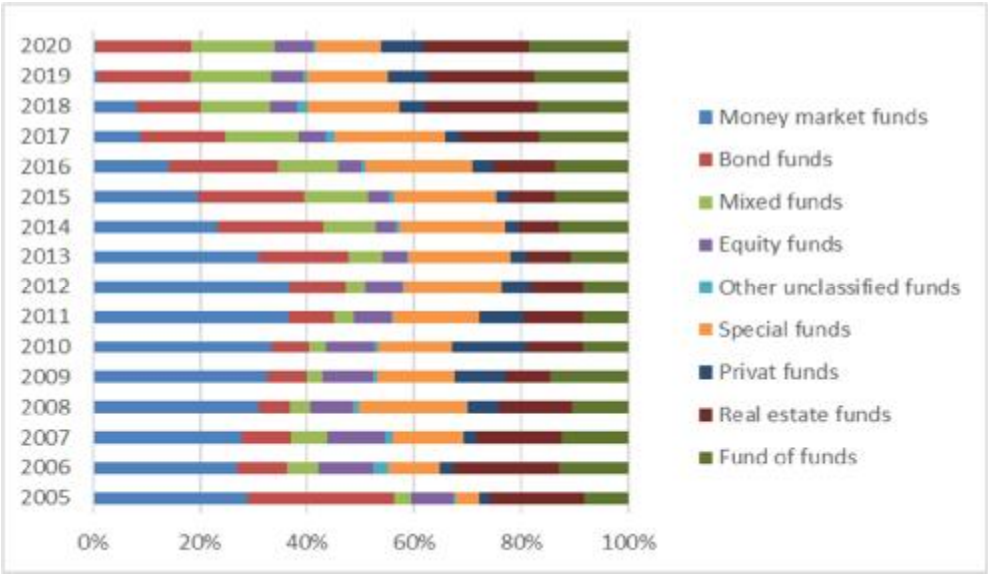

Figure 4: The distribution of the asse value of the handled stock based on investment politics

Source: Compiled by author using data from BAMOSZ

To sum up the examination of the four figures, it can be stated that the economic environment of the examined 5 periods affected the development of the funds, especially the years of the economic global crisis. This relates to the willingness to invest, to take risks and the quantity of investment capital. Between 2005 and 2007, the optimistic economic environment is illustrated by dynamic and consistent growth in the quantity and asset value of the number of investment funds. Investors were more likely to invest their capital into funds which comes with higher risk but offers greater profit. Between 2008 and 2012, the economic environment was signaled by negative attitude and panic. There was an unequivocal halt in every aspect, except the connection between the quantity and the special funds. As previously mentioned, people who still dared to invest, chose the safer option. This fund's number and asset value corrected the devastating economic results of this period. The period since 2013 is characterized by a tendency for stability and optimism. Considering the numbers, the willingness to invest slowly returned and there were new possibilities in the investment market. The exponential growth of the funds ended in 2019 with a small decline which lasted by 2020.

4.2 Cluster analysis – Analysis of the number of public, open-ended securities investment funds and other investment funds registered in Hungary between 2005 and May 2021

For my study, I chose the development of the number of open-ended securities investment funds and other investment funds registered in Hungary between May 2005 and May 2021. I am looking for the answer how the negative economic processes influenced the investment decisions, whether the previously preferred instruments still kept their position or whether the market needs changed.

It is a well-known rule of the investment market that a higher return can only be achieved by taking on greater risk, but if you are satisfied with a lower return, you can also invest in funds with lower risk. The investment policy can help in assessing the risks and their expected returns, knowing which investment decisions can be made more easily. The development of the number of units reflects well the economic situation and stability of an investment market. I examined the impact of the economic crisis on the Hungarian market's willingness to invest and whether the stabilization of the market after the recession brought about a renewed willingness to invest.

The investment funds listed in the tables can be classified in 9 different groups according to their investment policy.

Money market funds: these are funds where the average residual maturity of the bond-like instruments in the portfolio must not exceed 1 year.

Bond funds:
Short bond funds: funds where the average remaining maturity of the bond-like assets in the portfolio is 1-3 years.
Long bond funds: Funds with an average residual maturity of bond-like assets in the portfolio of more than 3 years.
Free Maturity Bond Funds: Free Maturity Bond Funds provide their investors with a share of the returns on government and corporate bonds, without any restrictions on the average remaining maturity, at a medium risk level.

Mixed funds: they mix bonds and equities in their portfolio.
Balanced: The proportion of non-bond type assets in the portfolio is approximately 35-65%. Non-equity type assets by category (e.g. real estate type, commodity type, etc.) are limited to a maximum of 40%.

Bond-weighted: The proportion of non-bond type assets in the portfolio should not exceed 35%. Non-equity type assets analysed by category (e.g. real estate type, commodity type, etc.) should not exceed 20%.

Equity funds: the proportion of equity-type assets in this type of portfolio exceeds 80%.

Other unclassified funds: securities not included in any of the other categories.

Fund of funds: the portfolio of fund of funds type investment funds consists of units of other investment funds. Typically, a fund of funds is a fund of funds that contains investment funds that are more difficult to access from Hungary with smaller investments.

Special funds: types of investment funds that cannot be classified as equity funds or debt funds. These funds are unique and work well for investors who have specific financial goals.
Absolute return funds: They are not tied to a specific asset class, but can freely move their assets between them depending on market events.
Derivative funds: invest in securities not directly but through some form of derivative instrument.
Capital protected funds: the capital invested is repaid in any case after the maturity or predetermined holding period.

Closed-end securities investment funds: During their issuance, the funds are offered exclusively to predetermined investors, based on the investor's prior declaration of intent.

Real estate funds: they invest in various commercial and residential properties.

I analysed data on the number of mutual funds examined in five different cycles.

1. Before the economic crisis (2005-2007)
2. Period during the financial crisis (2008-2012)
3. Business cycle without inflation (2013-2016)
4. Higher inflation business cycle (2017-2019)
5. COVID-19 crisis period (2020 to May 2021)

The following table shows the classification of the funds according to their investment policy. The different colours - which represent the different categories - will help us in comparing the analysis.

Table 2 The types of investment funds

Categories	2005-2007	2008-2012	2013-2016	2017-2019	2020-2021
Money market	Liquidity	Liquidity	Liquidity	Liquidity	Liquidity
	Money market	Money market	Money market	Money market	Money market
Bond funds	Short bond	Short bond	Short bond	Short bond	Short bond
	Long bond	Long bond	Long bond	Long bond	Long bond
	Free maturity bond	Free maturity bond	Free maturity bond	Free maturity bond	Free maturity bond
Mixed funds	Bond-weighted	Bond-weighted	Bond-weighted	Bond-weighted	Bond-weighted
	Balanced	Balanced	Balanced	Balanced	Balanced
	Dynamic	Dynamic	Dynamic	Dynamic	Dynamic
Equity funds	Equity overweight	Equity overweight	Equity	Equity	Equity
	Pure equity	Pure equity	-	-	-
Other unclassified funds	Other unclassified funds	Other unclassified funds	Other unclassified funds	Other unclassified funds	Other unclassified funds
Fund of funds	Fund of funds	Fund of funds	Fund of funds	Fund of funds	Fund of funds
Special funds	Guaranteed	Guaranteed	-	-	-
	-	Commodity market	Commodity market	Commodity market	Commodity market
	-	Absolute return	Absolute return	Absolute return	Absolute return
	-	Capital protected	Capital protected	Capital protected	Capital protected
	Derivative	Derivative	Derivative	Derivative	Derivative
Private funds	Money market	Money market	Money market	Money market	Money market
	Bond	Bond	Bond	Bond	Bond
	Mixed	Mixed	Mixed	Mixed	Mixed
	Equity	Equity	Equity	Equity	Equity
	-	Absolute return	Absolute return	Absolute return	Absolute return
	-	Capital protected	Capital protected	Capital protected	Capital protected
	-	Derivative	Derivative	Derivative	Derivative
	-	Real estate	Real estate	Real estate	Real estate
	Other	Other	-	-	-
Real estate funds	Real estate distributor	Real estate distributor	-	-	-
	Real estate developer	Real estate developer	-	-	-
	-	Investing directly in real estate	Investing directly in real estate	Investing directly in real estate	Investing directly
	-	Investing in indirect real estate	Investing in indirect real estate	Investing in indirect real estate	Investing in indirect real estate

Source: Compiled by author using data from BAMOSZ

In my analysis, I have carried out five hierarchical cluster analyses for the different periods I have defined. I did not predefine the number of clusters in the hierarchical cluster analysis. The resulting number of clusters was defined

at the lowest level. In this way, at least four clusters were identified for each of the five periods, but in some cases several clusters were created. Clusters were separated on the basis of quantitative and quantitative changes in the types of investment funds.
The average of the investment funds of the created clusters is compared with the total average of the investment fund types of the examined year. Thus, I get a difference that can be used to determine the extent to which Hungarian investment funds preferred the elements of a given cluster in their investment decisions in the current year.

The grouping is used to estimate the deviation from the mean. I formed the groups and their thresholds (Table 3) based on the normative choice of subjective expert opinion.

Table 3 Categories thresholds and marks

Category	Marking	Interval
Not valid	Ø	
Very below average	--	< -15
Slightly below average	-	[-15 – -5)
Around average	0	(-5 – 5)
Slightly above average	+	(5 – 15)
Very above average	++	(15 – 25]
Extra above average	+++	25 <

Source: Compiled by author

By running the basic data in the SPSS computer system, I got the following results.

Table 4 Cluster analysis of economic cycles

Before the economic crisis (2005-2007)					
Ward Method	2005		2006		2007
Very below average	(--) 0,88		(--) 1,13		(--) 1,63
Below average	(-) 6,6		(-) 10,6		(-) 11,4
Average	(0) 15,83		(0) 17,67		(0) 23,5
Above average	(++) 25		(+++) 47		(+++) 71
very above average	(+++) 35		(+++) 69		(+++) 110
Total average	9,29		13,52		18,67
Period during the financial crisis (2008-2012)					
Ward Method	2008.	2009.	2010.	2011.	2012.
Very below average	(--) 0,80	(--) 0,80	(--) 0,87	(-) 4,93	(-) 5,67
Disappearances and new mutual funds	(+) 22,40	(+) 23,20	(+) 29,20	(--) 0,60	(--) 1,20
Average	(0) 17,29	(0) 18,43	(0) 20,00	(+) 27,86	(+) 28,29
Above Average	(+++) 80,00	(+++) 79,00	(+++) 87,00	(+++) 106,00	(+++) 105,00
Above average new mutual funds	ø 0,00	ø 0,00	ø 0,00	(+++) 144,00	(+++) 154,00
Very above average, but disappearances	(+++) 167,00	(+++) 156,00	(+++) 153,00	ø0,00	ø 0,00
Total average	16,4	16,4	17,97	17,4	18,27
Business cycle without inflation (period 2013-2016)					
Ward Method	2013	2014	2015	2016	
Very below average	(--) 5,23	(--) 5,62	(--) 5,23	(--) 6,92	
Average	(0) 21,25	(0) 22,88	(0) 26,38	(0) 29,88	
Above average	(+++) 69,50	(+++) 74,00	(+++) 78,00	(+++) 82,50	
Very above average	(+++) 135,00	(+++) 146,00	(+++) 140,00	(+++) 127,00	
Total average	25,88	27,84	28,6	29,92	
Higher inflation business cycle (2017-2019)					
Ward Method	2017		2018		2019
Very below average	(--) 8,94		(--) 8,31		(--) 6,88
Above average	(+) 42,67		(+) 41,50		(+) 41,50
Very above average	(+++) 89,00		(+++) 94,50		(+++) 98,00
Extra above average	(+++) 138,00		(+++) 143,00		(+++) 146,00
Total average	28,6		28,56		28,04
COVID-19 crisis period (2020 to May 2021)					
Ward Method	2020		2021		
Very below average	(--) 7,29		(--) 7,29		
Above average	(++) 45,40		(++) 46,00		
Very above average	(+++) 102,00		(+++) 104,00		
Extra above average	(+++) 146,00		(+++) 144,00		
Total average	28,04		28,24		

Source: Compiled by author

Five clusters were created between 2005 and 2007. The five clusters include the changes in the total number of funds over the three years under review. These quantitative changes in the period before the financial crisis show that the deviation of the clusters from the overall average is not significant in any of the years. This means that there is no significant dispersion in the types of investment funds on the market over the period under review.

For the period 2008-2012, six clusters can be clearly distinguished from each other. Among the clusters, the "Disappearances and new mutuals" should be highlighted. This cluster includes those types of investment funds that have ceased to exist or have been created during the period under review. This cluster is therefore specific. Within the cluster, there has been a change of name over the years, as several investment fund types included in the cluster have ceased to exist in 2011, mainly due to market changes and government regulation. Furthermore, new fund types have been added to this cluster since 2011, but have not shown dynamic growth.

The fund, which belongs to the "above-average new mutual funds" cluster, was established in 2011 and has grown dynamically over the years. Between 2008 and 2010, the “Very above average but disappearances” cluster performed well above average in the three years studied. However, from 2011 onwards, the value of the indicator became immeasurable as the investment fund in the cluster ceased to exist.

In the next three examined periods, it can be said that the structure of the investment fund types developed similarly. The mutual funds were divided into four separate clusters for each of the three periods. An exception is the period 2013-2016, for which an “average” cluster has also emerged. This cluster does not differ significantly from the average.

Table 5 Classification of investment funds by cluster

2005-2007	2008-2012	2013-2016	2017-2019	2020-2021
Very below average	**Very below average**	**Very below average**	**Very below average**	**Very below average**
Free maturity bond	Short bond	Dynamic	Liquidity	Liquidity
Dynamic	Free maturity bond	Other unclassified funds	Money market	Money market
Equity	Dynamic	Commodity market	Long bond	Long bond
Bond	Commodity market	Money market	Free maturity bond	Free maturity bond
Mixed	Money market	Bond	Dynamic	Dynamic
Money market	Bond	Mixed	Other unclassified funds	Other unclassified funds
Other	Mixed	Equity	Commodity market	Commodity market
Real estate developer	Absolute return	Absolute return	Money market	Capital protected
Below average	Capital protected	Capital protected	Bond	Money market
Liquidity	Derivative	Derivative	Mixed	Bond
Short bond	Real estate	Real estate	Equity	Mixed
Pure equity	Other	Investing directly in	Absolute return	Equity
Other unclassified funds	Real estate developer	Investing in indirect real estate	Capital protected	Absolute return
Derivative	Investing directly in real estate	**Average**	Derivative	Capital protected
Average	Investing in indirect real estate	Liquidity	Investing directly in real estate	Derivative
Money market	**Disappearances and new mutual funds**	Money market	Investing in indirect real estate	Investing directly in real estate
Long bond	Equity overweight	Short bond	**Above average**	Investing in indirect real estate
Bond-weighted	Pure equity	Long bond	Short bond	**Above average**
Balanced	Other unclassified funds	Free maturity bond	Bond-weighted	Short bond
Equity overweight	Derivative	Bond-weighted	Balanced	Bond-weighted
Real estate distributor	Real estate distributor	Balanced	Capital protected	Balanced
Above average	**Average**	Derivative	Derivative	Derivative
Fund of funds	Liquidity	**Above average**	Real estate	Real estate
Very above average	Money market	Equity	**Very above average**	**Very above average**
Guaranteed	Long bond	Absolute return	Equity	Equity
	Bond-weighted	**Very above average**	Absolute return	Absolute return
	Balanced	Fund of funds	**Extra above average**	**Extra above average**
	Absolute return	Capital protected	Fund of funds	Fund of funds
	Equity			
	Above Average			
	Fund of funds			
	Above average new mutual funds			
	Capital protected			
	Very above average, but disappearances			
	Guaranteed			

Source: Compiled by author

The different colours indicate the classifying according to the investment policy.
In the comparison of the cluster analyses (Table 4), the composition of the types of investment funds has changed significantly for the periods under consideration. The results of the cluster analyses reflect these changes. The analysis of the periods shows that the structure of investment funds has changed as a result of both market changes and government intervention. This change has resulted in the disappearance of certain types of funds and the creation of new ones, as well as quantitative changes in the different types.

The period 2005-2007 was a period of dynamic economic growth in the Hungarian economy. During this period, economic growth was accompanied by a higher inflation rate. These macro factors have had a positive impact on the growth of the volume of investment funds. Based on the cluster analysis, it can be stated that the most popular type of Hungarian investment funds were guaranteed funds. These funds were considered innovative and low-risk products in the Hungarian investment market. Therefore, their popularity increased dynamically year by year.

The impact of the global economic crisis was felt in Hungary from approximately 2008 until 2012. During this period, economic performance declined significantly, which had an impact on investor markets. The majority of investment funds operating during this period were classified in the "average" or "very below average" cluster. The decline in the volume of investment funds is an excellent illustration of the negative trend in the propensity to invest. The exception to this is the closed equity fund type, which has seen a more significant increase in volume compared to the previous period. During this period, a number of funds have been closed down or withdrawn from the market, and these funds have been classified in the "Disapparances and new mutuals" cluster. Disappearance types in this cluster had a minimum above-average volume and newly created funds performed significantly below average in terms of volume.
In contrast, there are two clusters that are unique and the investment funds in these clusters have also had a unique character in the Hungarian investment fund market. The "Above Average New Investment Funds" cluster has achieved dynamic volume growth since its inception. The capital protected fund was, like the guaranteed fund of the previous period, an innovative, low-yielding but safe investment. Guaranteed funds were the dominant investment type between 2008 and 2010. However, from 2011 onwards, its volume value has been reduced to zero. It should be noted, however, that the high proportion until 2010 is largely due to the closed-end form of the funds. If they had been open-ended rather than closed-ended, the stock market crash that started in

October 2008 would probably have led investors to place a large number of redemption orders in these funds as well. This may have been the reason why these funds were placed in the "Very above average but disappearing" cluster.

The period of economic activity without inflation (2013-2016) is unique in the history of the Hungarian economy. Inflation was around 0% and this was coupled with strong economic growth. Low inflation and high economic growth have resulted in low interest rates and yields in the investment market. The effect of this was not a significant effect on the quantitative change of investment funds. At the same time, there has been a significant increase in volume for equity funds. Within the cluster of the previous period, the equity-type investment fund was already classified in the “above average” cluster within this period. Most mutual fund types should be for the first period because of the significant amount of growth, because the increase in the overall return on equities significantly exceeds the rate of return on other investment products on the market. The capital-protected and fund-of-funds types are grouped into the “Very Above Average” cluster. These base types retained their above-average values in the previous period. Following the cluster analysis, it can be observed that the structure of the investment fund types of the period is similar to the pre-crisis period (2005-2007).

The period 2017-2019 is a period with higher inflation in the Hungarian economy. Inflation growth may be a major factor influencing the reclassification of hedge funds to a “popular” cluster. The growth of private real estate funds, which was grouped into the “above average” cluster during the period, should be highlighted. During this period, the rate of return on real estate market investments showed a significant increase. The reason for this is, on the one hand, the low level of the international interest rate environment and, on the other hand, the emergence of Hungarian state transfers in the real estate market. The low interest rate environment also had a negative impact on money market and liquidity fund types. In contrast, overweight and balanced mixed funds show volume growth due to the low interest rate environment. During this period, the equity fund maintained its previous position.

I have analysed the pandemic period from 2020 to May 2021 based on existing data. The economic environment is characterised by recession, but financial stability has been maintained both in Hungary and internationally. Following the cluster analysis of investment funds, no major changes have occurred compared to the previous period. The exception to this is the capital protected fund type, which has been reclassified from the "above average" cluster of the previous period to the "very below average" cluster. In terms of quantitative

change, it has declined significantly over the years analysed. The impact of the crisis over the period under review is not observed in the change in the structure of investment funds. Apart from the capital protected funds, there was no significant quantitative reduction in the fund types analysed, nor was there a process of fund type closures, withdrawals and new fund type creation similar to that of the 2008-2012 financial crisis. Looking around the domestic investment market, it can be seen that the majority of investment funds have weathered the crisis of the COVID-19 crisis unscathed until the end of May 2021.
In my analysis, comparing the clusters of the two different deconjunctural periods, it can be stated that no identity can be observed in the quantitative changes of investment funds. I also point out that the two deconjunctures are fundamentally different, while the period 2008-2012 can be called a financial crisis, the crisis starting from 2020 is not a crisis due to the structure of the economy, but driven by an external factor. The stability of financial markets, in which national banks also play an important role, has a major impact on the relative stability of the structure of investment funds. Regardless of the rate of inflation, no significant structural change can be observed in periods of economic activity. At the same time, the quantitative change of some type of investments fund was significantly influenced by, for example: capital-protected funds, real estate funds. In the examined periods, the fund's investment type should be highlighted, which is grouped into the “above average” or “very above average” cluster in each period. The fund of funds is the sum of the units of other investment funds. So in this case, the investment fund’s portfolio does not include stocks, bonds and other derivatives, but only investment certificates.

In this thesis, I examined the change in the volume of investment funds over five economic periods. Hierarchical cluster analysis was used to analyse the change. The results show how economic downturns and cyclical periods affect the mutual fund market. I do not find consistent patterns in the quantitative change in the flow of investment funds between the two crisis periods examined. No typical quantitative change can be observed between the pre-crisis cyclical periods before the 2008 financial crisis and the pre-crisis COVID-19 changes. It can not be found significant difference in the composition of mutual funds over the five periods studied. However, for some investment fund types, there were significant volume changes during the periods under review.

The results show that changes in investment fund types largely follow investment market trends. The Hungarian investment fund market also responds to the interest and yield levels that determine the investment market,

as well as to the economic environment. This is underlined by the disappearance of guaranteed funds caused by changes in financial markets. In addition, the dynamic growth of the hedge fund market in the 2008 crisis and the decline in the volume of higher-inflation and lower-yield funds.

A feature of the Hungarian retail investment culture is the preference for real estate market investments (Balogh et al., 2019). However, in the investment fund market, the volume change of real estate funds was not significant during the periods under review. From 2017, on the other hand, the volume of private real estate funds increased significantly, while the change in the volume of funds investing in open-ended direct and indirect real estate did not increase significantly.
During the COVID-19 pandemic crisis, despite the economic recession, there was no significant decline in the volume of investment funds other than hedge funds, nor was there a process of liquidation, delisting and the creation of a new fund type similar to the 2008-2012 financial crisis. Based on these, it can be said that the majority of investment funds in the domestic investment market remained intact in the crisis caused by the coronavirus until the end of the period under review. This partly confirms the result of Pástor and Vorsatz (2020) that the measures taken by national banks to stabilize and liquidity investment markets have proved successful.

It can be established that hypothesis H5 is appropriate, that as a result of the crisis, there is a change in the investment attitude therefore the funds on the market have changed in terms of their investment policy. Changes in the stock of domestic investment funds can be seen in the three examined periods following the outbreak of the crisis. Although the change is not significant in my opinion, but it is evident. Examining the data after the economic recession, it can be seen that the cluster classification changed only slightly, thus it can be concluded that the development of yield and risk was similar in this period as well as in the period before the crisis. The well-chosen investment policies before the crisis proved to be effective even after the crisis occurred and confirmed their reliability. All of this is proven by the fact that equity funds - representing one of the riskiest investment policies - became the real losers of the crisis.

5. CONCLUSIONS, RECOMMENDATIONS

Conclusions based on processing the literature.

The topic of my thesis is the examination of economic cycles, including the 15 years between 2005 and 2020, including the last economic crisis. According to many literature the crisis that erupted in 2008 is included in the Kondratieff cycle, which spans 40-60 years. It is important to know the root cause of the crisis which is identified as a credit crisis by the experts, meaning obtaining and providing loans.

The causes of the crisis are complex, thanks to the unfortunate constellation of several factors, the problem has grown worldwide. Many believes, the desire for profit and overly loose budgetary and monetary policy and regulatory system were identified as the root causes. Observing the effects and consequences of the crisis, it can be concluded that it significantly transformed the money and capital markets, their regulation, risk assessment, and thanks to this, new products appeared on the market worldwide. The crisis also had a significant selection effect. Most of the companies with an unstable economic background went bankrupt, so it can be said that those who survived and adapted to the changed economic environment have more secure economic operations. The crisis not only shook the business sector, but also had a great impact on the private sector and households. The Hungarian investment market has always been characterized by caution. But if there is no risk, there is no return. Investors would rather give up the higher yield, just avoid the associated risk. On top of that, the crisis narrowed even the few opportunities which had proven to be attractive until then. That is why it was very important to transform the market after the crisis in such a way as to provide an alternative and create an incentive to invest in the excessively cautious economic environment.

Conclusions and proposals related to new research results.

In my research, I examined the domestic investment market, including three investment fund managers, OTP, K&H (KBC Asset Management N.V.) and Generali Alapkezelő Zrt. My aim was that the examination of my dissertation should not only focus on Hungary, but also have the possibility of comparison in international context. That's how I put the Austrian investment market under scrutiny. I examined the extracted data according to the following aspects.

- The development of the handled stock-number
- The distribution of handled funds based on investment politics
- The ratio of the handled funds based on currency (HUF, EUR, USD)
- The development of the handled asset value
- The development of the handled stock's exchange rate
- The development of the handled stock based on average yield of the 3- and 5-years by providing the margin of error for variation.

I have broken down the examined 15 years, which encompass 5 very important periods from the point of view of the economic cycle, as follows.

- Before the economic crisis (2005-2007)
- Period during the financial crisis (2008-2012)
- Business cycle without inflation (2013-2016)
- Higher inflation business cycle (2017-2019)
- COVID-19 crisis period (2020 to May 2021)

Examining the development of the number of units, it can be clearly established that a significant increase in volume was experienced not only by individual fund managers, but also by the entire domestic market. At the domestic level, this represented a 3,7 times increase, but all of the three investigated fund managers exceeded the national average. Examining the number of pieces, there is no significant stagnation or decline even in the years affected by the economic crisis.

Data from the Austrian investment market shows a completely different picture. The stock of 2083 units in 2005 - which reached 2321 units by 2007 - produced a continuous decrease starting from the following years. This decline resulted 1944 units by 2020. It is important to note that this process can also be observed at one of the largest Austrian investment fund managers. Raiffeisen Kapitalanlage GmbH had 287 funds in 2005, and 267 in 2020. The year 2011 marked the peak with 346 units.
Regarding the Austrian investment market, the product portfolio has a slightly different composition. The number of money market funds is extremely low. Bonds and stocks are among the most popular, but the winner of the neighboring market are balanced funds. This can be explained by the different investment culture and financial situation.

Examining the distribution of managed funds by currency, it can be concluded that the domestic investor market clearly prefers funds managed in HUF. The largest fund manager (OTP) has always had funds managed in euros and US dollars. While the number of funds denominated in dollars is negligible for all three investigated fund managers, OTP managed in euros accounted for nearly

a quarter of the portfolio. In the 15 examined years, their ratio ranged from 20,00 to 37,77%, while at K&H the USD appeared only in 2007, and the EUR in 2009. The ratio of USD funds always exceeded the ratio of EUR. At Generali these two types did not appear in the portfolio until the end of 2011. Only at this fund manager did we experience a higher portfolio managed in US dollars moving above 10%.

Looking at the asset value of all three domestic companies, it can be observed that the end of the crisis - the years 2012 and 2013 - brought the desire to invest. The reason for this was the appearance of the previously mentioned new products and the tightening of regulations. In Austria, the situation is a little different. In the case of the analyzed Austrian fund manager, no such strong fluctuations can be observed. Yes, there is a decline here too, but it can be said that this is not a consequence of the crisis.

In terms of exchange rates, the exchange rate of the two large domestic companies jumped significantly in 2014. This tendency is not observed in the smaller, mid-ranged Generali. Here, the exchange rate was always between 1,0659 and 1,4451 even during the crisis period.

In the graphs of the 3- and 5-year yield it is important to note that for all three fund managers, the nadir at the 3-year yield was between 2008 and 2010. In 2008 OTP achieved it with -2,23%, K&H with -5,99% and Generali with 0,55%. In the case of the 5-year yield the worst results were achieved between 2008 and 2012. All three fund managers produced the weakest returns in 2011, OTP with 1,77%, K&H with 1,12% and Generali with 2,15%.

6. NEW SCIENTIFIC RESULTS

1. The opportunities inherent in funds focusing on sustainable investments which appear as a result of the examined crises, are primarily exploited by the financially educated class who consciously manage their money, take into consideration the environmental opportunities inherent in long-term waiting.

Since the market share of this type of investment is not significant yet, investors who are financially qualified and have sufficient knowledge of the market "find" and prefer these products. Less conscious and educated customers make their decisions mostly based on yield and risk and do not count on the possibilities inherent in longer-term expectations. Higher consumer awareness, environmental and climate protection provide these products with a long-term raison.

2. The examined crises had an impact on the number of investment funds and the evolution of their asset value and at the same time on the need for more conscious investor behavior and decisions. Thus as a result of crises the demand for higher level management of portfolios is increasing, which main reasons are diversification and time management.

Appropriate financial knowledge is required for conscious investment decisions. Some of the investors already had this knowledge, but the number of clients who need market knowledge is growing. As a result of crises, the demand for higher level management of portfolios is increasing. One of the reasons for this is the appropriate diversification, time management and the increasing competition in the range of investment funds.

3. As the result of the crises the importance of investment policy has increased.

The examined crises significantly rearranged the economic processes. Those products of the investment market that could not identify with the changed environment and regulatory systems withdrew from the market. One of the most important means of survival was the appropriate adaptation of the investment policy in the new economic environment. There has been an increase in the demand for products whose investment policy is sufficiently reliable and represents an appropriate return-risk ratio for future customers. As a result of the increasing competition in the market of investment funds, investment policy is becoming more and more prominent in making investment decisions.

4. As the result of the crisis caused by the COVID-19 epidemic new products appeared on the investment market.

As the result of the crisis new investment opportunities came into focus such as alternative investment funds. These funds provide a safe alternative in times of global and financial stress. The negative changes in the market were temporary. Alternative investment funds were classified as stable market players even in periods of high volatility.

LIST OF PUBLICATION

Scientific journals (published in Hungarian)

Bogáth Emese, Gábor Ágnes: A magyar befektetési piac vizsgálata 2005 és 2017 között. CONTROLLER INFO VII: 2 pp. 36-38., 3 p. (2019), (ISSN: 2063-9309)

Bogáth Emese: A nemzetközi számviteli rendszerek harmonizációja. CONTROLLER INFO VI: 1 pp. 2-4., 2 p. (2018), (ISSN: 2063-9309)

Bogáth Emese, Medveczky Balázs: Foglalkoztatáspolitika humáncontrolling kérdései a pénzügyi, gazdasági világválság után a magyar versenyszféra területén. CONTROLLER INFO IV: 1 pp. 14-16., 1 p. (2016), (ISSN: 2063-9309)

Bogáth Emese Melinda, Bárczi Judit, Szakács Attila: Startup lehetőségek az új nyugdíjbiztosítás területén, figyelembe véve a 2007-2012 év között befektetési egységekhez kötött életbiztosítási állomány változásait. CONTROLLER INFO II: (1) pp. 28-32., 5 p.(2014), (ISSN: 2063-9309)

Bogáth Emese, Bárczi Judit: A befektetési piac alakulása az elmúlt évtizedben. CONTROLLER INFO II: 1 pp. 20-22., 3 p. (2014), (ISSN: 2063-9309)

Scientific journals (published in foreign languages)

Bogáth Emese Melinda, Bogáth Andrea Gabriella: The positive results and achievement of the economic crises of the 20th century. Economics & Working Capital Hungarian Special Issues, Science Journal. London, Egyesült Királyság, 3-4 pp. 53-57., 5 p. (2020), (ISSN: 2398-9491)

Bogáth Emese, Tóth Márk: A nemzetközi számviteli rendszerek összehasonlítása. CONTROLLER INFO III: 3 pp. 62-67., 6 p. (2015), (ISSN: 2063-9309)

Bookexcerpt (published in Hungarian)

Bogáth Emese Melinda, Bárczi Judit: Az EU szerepvállalása a befektetési piacok válság kezelésében. In: Csiszárik-Kocsir Ágnes (szerk.) Vállalkozásfejlesztés a XXI. században: VII. tanulmánykötet. Budapest, Magyarország: Óbudai Egyetem Keleti Károly Gazdasági Kar, 833 p. pp. 82-91. 10 p. (2017), (ISBN:978-963- 449 -028-9)

Bookexcerpt (published in foreign languages)

Bogáth Emese Melinda, Bárczi J, Li Jing: Investments and funds under crisis. In: Zéman Z, Ignatieva I, Kucherenko D, Chagrak N (szerk.). Theory and practice of social, economic and technological changes. Prága, Csehország: Nemoros, 386 p. pp. 142-147., 6 p. (2018), (ISBN: 978-617-673-747-6) dspace.pdaa.edu.ua:8080/bitstream/123456789/2119/1/monograph.pdf

Papers published in proceedings of scientific conferences (published in Hungarian)

Bogáth Emese: A befektetési piac alakulása Magyarországon az elmúlt évtizedben. Magyar tudomány ünnepe 2014: „Kockázat és Stabilitás" konferencia. Gödöllő, Magyarország: Szent István Egyetem. pp. 3-5., 3 p. (2014), (ISBN: 978-963-269-440-5)

Papers published in proceedings of scientific conferences (published in foreign languages)

Bogáth Emese, Gáspár Sándor, Kerekes Etelka: The influence of the conjuncture cycles and the economic crisis of 2008 to the nationa investment market. Proceedings of the 9th International Conference on Management: "People, Planet and Profit: Sustainable business and society": Volume II, Gödöllő, Magyarország: Szent István Egyetemi Nonprofit Kiadó Kft. pp. 95-101., 7 p. (2019), (ISBN: 978-963-269-882-3)

Péter Földi, Judit Tóth, **Emese Melinda Bogáth**: Situation of the building industry SMBs since the crisis. Vadyba: Journal of Management 31: 2 pp. 133-141., 9 p. (2017), (ISSN 1648-7974)

Bogáth Andrea, **Bogáth Emese**, Földi Péter, Yaser A. Alkahtani: Saving and investement under Crisis. In: Witold, Jedynak: Jaroslaw, Kinal (szerk,). From post-industrial to an information society; selected aspects, „Social and ethical dimensions of change" International Interactive Interdisciplinary Conference. Rzeszów, Lengyelország: Wydawnictwo Uniwesytetu Rzeszowskiego, 115 p. pp. 24-33., 9 p. (2015) (ISBN 978-83-7996-212-9)

Others

Bogáth Emese, Gáspár Sándor, Kerekes Etelka: Connection between the conjuncture cycles and the economic crisis of 2008 as reflected in the domestic and the austrian investment market. In: Fodor, Zita (szerk.), Book of Abstracts of the 9th International Conference on Management: "People, Planet and Profit: Sustainable business and society": 9th ICoM 2019, Gödöllő, Magyarország: Szent István Egyetemi Nonprofit Kiadó Kft. 178 p. pp. 99-99., 1 p. (2019), (ISBN: 978-963-269-836-6)

Bogáth Emese Melinda, Bárczi Judit, Jing Li: Investments and funds under crisis. Modern Science 2017, Prága, Csehország, 5 pp. 40-46., 7 p. (2017), (ISSN 2236-498X)