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## **A DESCRIPTIVE INVESTIGATION ON ALTERNATIVE INVESTMENTS IN FINANCIAL SYSTEM FOR SMALL INVESTORS IN ALBANIA**

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**Abstract.** This study seeks to investigate possible investment alternatives by small investors in Albania. The analysis is mainly descriptive and analytical of the main factors that have influenced the existence of a limited number of investment alternatives. Furthermore, a comparison was made of the shares that each of the investment alternatives occupies within the financial system, interpreting the data in the study qualitatively. The descriptive data are from the last 5 years, reflecting the dynamics of current post-Covid pandemic event and the war in Ukraine.

It is concluded that the spread of mutual investment funds serves as a competitive alternative to bank deposits since this form of investment requires a small amount for investment and is liquid, therefore preferable for the investor. The only limitation lies in the level of risk, which is higher than other forms of investment in bank deposits and government securities. This risk is perceived to be even higher, especially in the current situation of the war in Ukraine, which has led to increased global inflation and an upward trend in interest rates, which puts the value of investment portfolios in fixed income securities at risk.

**Keywords:** Treasure Bills, Investment Fund, Interest Rate, Central Bank, Investment.

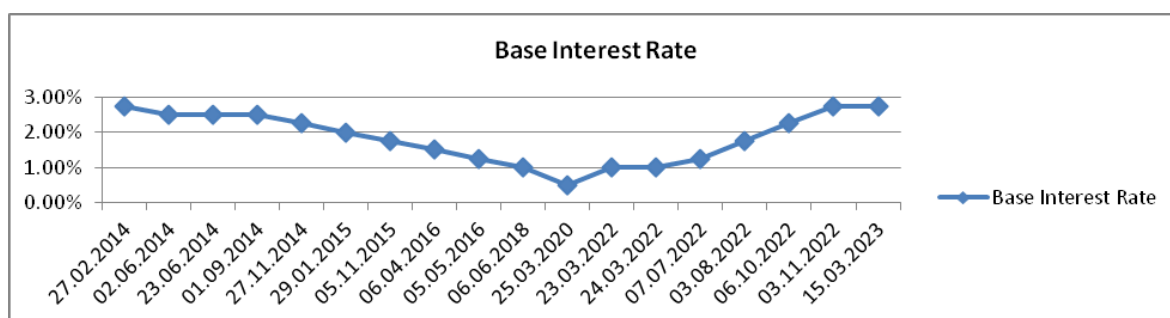
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### **Introduction**

Apart from the positive developments realized in the framework of the legal and regulatory basis of the financial markets in the last two years, the Albanian financial market is again limited in its alternatives offered to the investing public. The 2022 Progress Report of the European Commission especially evaluates the modernization that the new acts in the legal and sub-legal framework have provided for the financial markets by aligning with the European Directives. (Authority, 2021)

The advantages conveyed in this framework affect the establishment of European standards in the organization and activity of entities that provide investment services. The harmonization of Albanian legislation with that of the European Union for financial markets increases the opportunities for diversification by expanding the presence of internationals in the financial markets, improving supervision and increasing market standards.

Investing money in distinct investment alternatives is a difficult task and involves a deep understanding of risk-return analysis (Bhaskaran & Andavan, 2012). In every economy, both developed and less developed, the main levers for stimulating economic growth are focused on entrepreneurship. The two most important indicators of economic growth and development are considered human capital and entrepreneurial behavior. It is considered of high importance that the investment is made in an intelligent way because only in this way it would enable the increase of wealth. Investment initiatives do not necessarily lead to "all or nothing". This also depends on the attitude that each of the investors has towards investment risk.



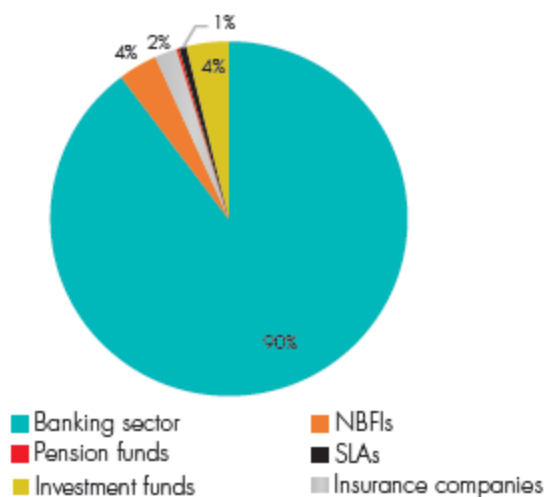
**Figure 1. Progress of the basic interest rate**

Source: (Interest rate statistics) Bank of Albania

Financial markets around the world, from the end of 2021 onwards, have been faced with a rapid change in interest rates. After a long period of low interest rates, even touching historical minimums (March 2020 at 0.5%), the Ukraine-Russia war brought inflationary pressures around the world, animating interest rates as well. Most of the Central Banks have increased the reference rates and this has been reflected in the interest rates of financial products. As in Albania, an increasing tendency of the basic interest rate is also proven, resulting in a rate of 2.75% nowadays.

In financial markets such as Albania, which lacks an active stock exchange and where international investment alternatives are still limited, the drop in interest rates leads to the removal of interest to keep savings invested in traditional financial instruments. The rising growth of interest rates makes the financial market more attractive in absorbing savings towards investment alternatives mainly for small individual investors.

In order to start the analysis of the investment alternatives that prevail in Albania for small savings, it is necessary to study the structure of the weight of the segments of the financial system. Figure 2 reflects the dominant weight of the banking system of 90% to the total financial system. The important role of the banking system is attributed to the level of economic development, the lack of development of the capital markets and the support that this market segment offers to all market participants. It is also noted that the second important segment of the market is occupied by investment funds which have had an upward trend since 2012 until today, clearly competing with other market segments and being positioned second after the banking sector.



**Figure 2. Share of financial system segments / total assets of financial system**

Source: (Financial Stability Report, June 2022)

The overview of shares of the segments of the Albanian financial system provides information on how savings are oriented within the system. Being a developing economy, the study analyzed small investors as they represent the majority of accumulated savings in a limited investment reality like in Albania. More specifically, the analysis will focus on the alternatives such as: investment funds, bank deposits and public securities.

### Literature Review

From the review of past studies, it is found that a large number of researches have been conducted in different countries to analyze the most important factors that influence the behavior of investors in their investment decisions. Across different countries, researchers have evaluated the investor's behavior and tried to grow our insights of how investors be able to do their investment management in diversification (Kaur & Kaushik, 2016). Investment involves the engagement of money funds and assets with the investment objective of making and receiving regular income or capital appreciation and sometimes both (Bishnoi, 2014). Many researchers and academics have evidenced that most investors avoid investing in options, shares and portfolios built on such theoretical assumptions. (Mamun, Syeed, & Yasmeen, 2015). Instead, there are numerous factors, namely, perception, interest, attitudes, pattern, awareness, and so on, that persuaded the financial decision making of individual investors (Hemalatha, 2019).

(Huberman, Gur, Iyenga, & Jiang, 2007) show that the availability of an employer match increases participation and contributions, especially among low-income employees. Individuals with below average financial knowledge become “overwhelmed” by making investment decisions (Agnew, Julie, & Szykman, 2005).

(Karlsson, Massa, & Simonov, 2006) find evidence that investors choose assets as a function of the way they are represented in the menu available to them. Meanwhile, according to (Benartzi, Shlomo, & Thaler, 2001), employees who follow a "naïve diversification strategy," allocate their income in shares indirectly through an investment fund.

### Methods

Secondary data from supervisory financial institutions and mutual investment funds were used in the analysis of this study. The information is collected from the official bulletin of the Bank of Albania, Albanian Financial Supervisory Authority, Raiffeisen Prestigj Fund. In the study, statistical data, analysis, trend and comparative analysis are used. The descriptive data are from the last 5 years, reflecting the dynamics of current post-Covid pandemic event and the war in Ukraine.

Descriptive data analysis seeks to provide a critical and interpretive judgment of the real situation. The most important data are interest rates on repos, treasury bills (3,6,12 months) and government bonds (2Y, 3Y, 5Y, 7Y, 10Y and 15Y). In order to analyze the market of investment funds, data was obtained on the participants in this market, the structure of the assets of the investment portfolio of the investment funds and the annual return of the Raiffeisen Prestige Fund.

### Results

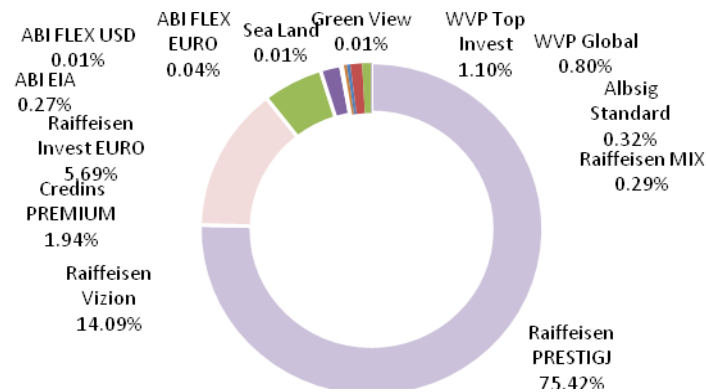
In order to internally analyze the investment alternatives for investors in the Albanian financial market, table 1 presents the main characteristics of the investment funds market in Albania. What is noticed is the dominance of individual participants inside investment funds with about 99% compared to legal entities. It is proven that these funds serve as a valuable alternative for investing in small amount. Currently, 14 investment funds are operating, a trend which has been increasing from year to year. The first fund established is Raiffeisen Prestigj in 2012 with an investment portfolio in the domestic currency Lek.

**Table 1**  
**Characteristics of Investment Funds Market**

<i>Key characteristics of IFs' Market</i>			
<i>Specification</i>	<i>Membership</i>		<i>Change (in %)</i>
<i>Period</i>	31.12.2021	31.12.2022	31.12.'21-31.12.'22
<i>Membership</i>			
<i>IFs' members</i>	<b>40,054</b>	<b>28,953</b>	<b>(27.72)</b>
<b><i>Of which:</i></b>			
<i>Individuals</i>	40,028	28,929	<b>(27.73)</b>
<i>Legal entities</i>	30	24	<b>(20.00)</b>
<b><i>Number of investment funds management companies</i></b>	<b>5</b>	<b>5</b>	<b>-</b>
<i>Number of investment funds</i>	<b>13</b>	<b>14</b>	<b>7.69</b>

Source: (Statistical Report of Albanian Financial Supervisory Authority, 2022)

The presence of the Raiffeisen Prestigj fund is the earliest among mutual investment funds in the capital market in Albania. Its elite position is also observed in Figure 3, holding a dominant market position of 75.42%. For this reason, this fund will serve in our analysis as a reference fund to compare it with other investment alternatives.

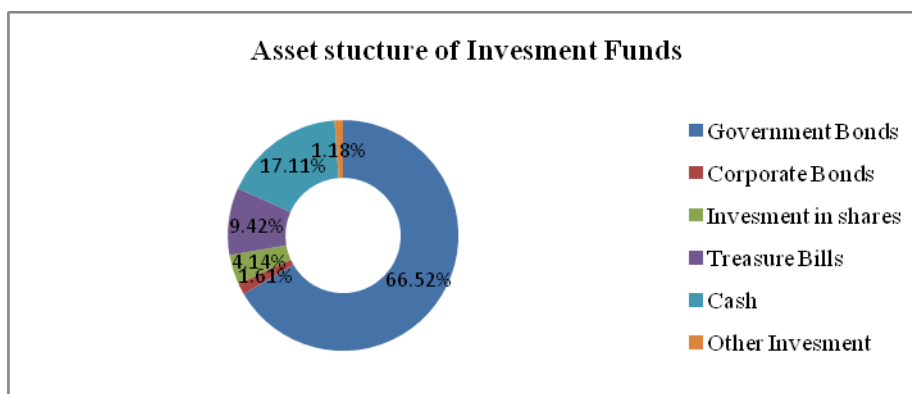


**Figure 3. Investment Funds members in %**

Source: (Statistical Report of Albanian Financial Supervisory Authority, 2022)

In any investment plan, it is very important that the investor's attitude towards the risk and the generated return. Based on the view that small investors mainly prefer non-risky alternatives, we first analyze the asset structure of investment funds in Albania. According to the latest published statistics, can be observed the dominance of Government Bonds (66.52%) and Treasury Bills (9.42%).

This investment attitude seeks to meet the main demand of local investors against risk, but on the other hand, it is conditioned by the lack of development of the capital market in Albania. The secondary retail market of public securities is organized in the form of the Over-the-Counter Market and includes only trades between licensed brokerage firms (mainly banks) and individual investors or investors-legal entities.

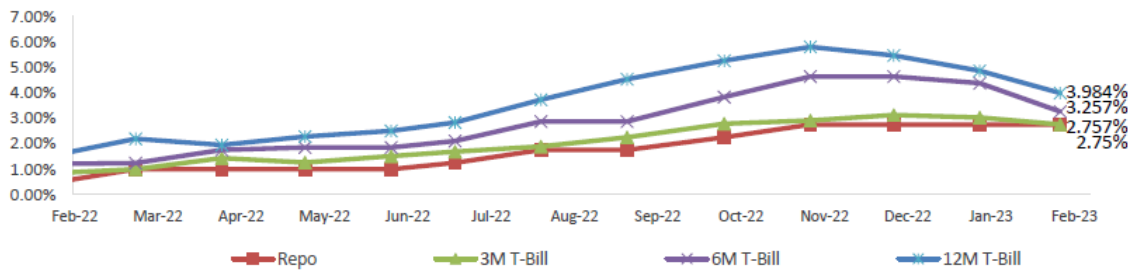


**Figure 4. Asset structure of investment funds (21.12.'22)**

Source: (Statistical Report of Albanian Financial Supervisory Authority, 2022)

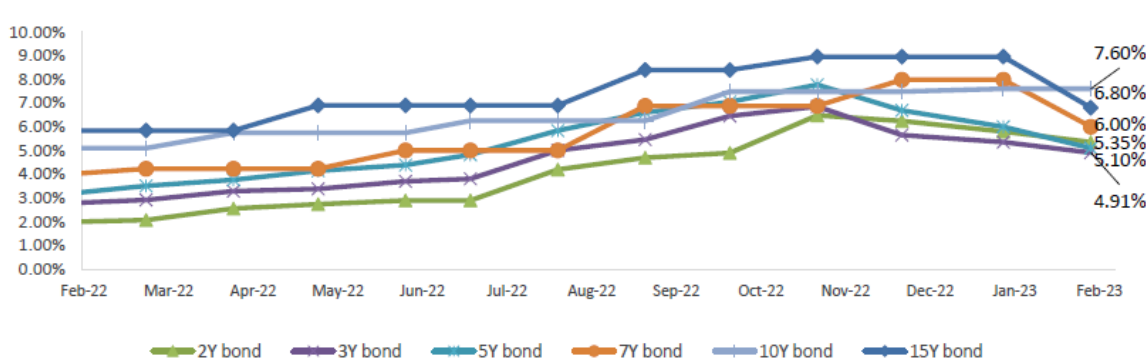
The measures taken by the Central Bank of Albania to maintain unchanged the basic interest rate at 2.75% has given its first effects in recent months, resulting in a decrease in inflation in recent months. In February 2023, the inflation rate fell to 7.1%, which was also reflected in a decrease in the interest rates of bonds and treasury bonds during the beginning of this year. The evidence of this decline is also reflected in Figure 5 and 6.

It is predicted that this decline will continue throughout the first 6 months of 2023 and further a stabilization until the end of the year. The yield of 3- and 6-month Treasury Bonds decreased by 0.27% and 1.12%, respectively, compared to the previous auctions. The 12-month Treasury Bond yield was 3.984%, falling by 0.88% compared to the January auction.



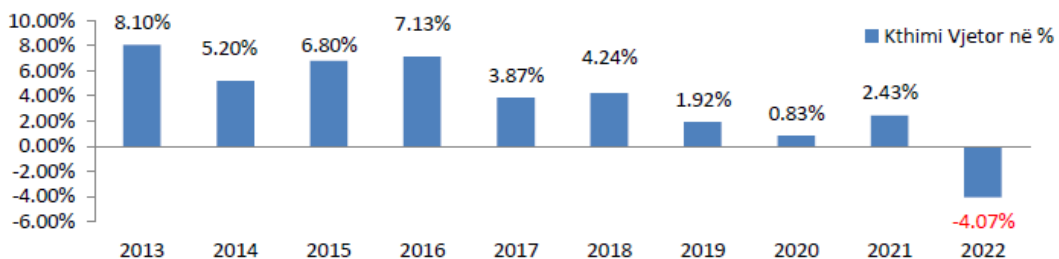
**Figure 5. Progress of interest rates of the Treasury Bills of Albanian Government**  
 Source: (Raiffeisen Prestige Monthly Report , February 2023)

Regarding bonds, chart 6, the yield of the 2-year bond was 5.35%, falling by 0.45% compared to the yield in the previous auction. The reference 3-year bond was 4.984%, falling by 1.30%, the 7-year bond resulted in 6.00%, falling by 1.98% and the 15-year bond resulted in 6.80%, falling by 2.15% compared to the previous auction.



**Figure 6. Progress of the interest rates of the Treasury Bonds of the Albanian Government**  
 Source: (Raiffeisen Prestige Monthly Report , February 2023)

Since the investment funds are oriented towards investments in public securities within the country, the representative case of Raiffeisen Invest, the performance of the interest rates of these securities affects the performance of these funds. Considering that the rate of return varies depending on market conditions, the continuous increase in interest rates during 2022, dictated by the increase in inflation, caused a negative impact on the annual rate of return of this fund (-4.07%) and reflected in Figure 7.



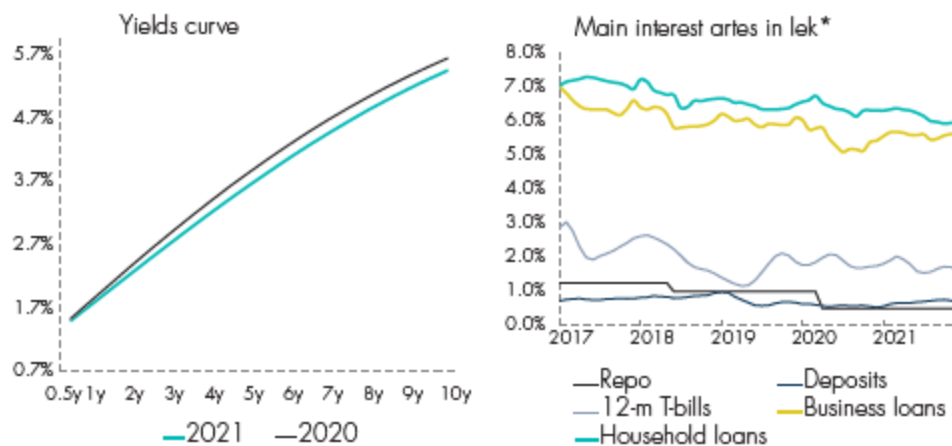
**Figure 7. Historical annual return of Raiffeisen Prestige Fund**  
 Source: (Raiffeisen Prestige Monthly Report , February 2023)

Throughout 2023, the drop in interest rates has had a positive impact on the investment portfolio. In addition to the performance of market factors, it is suggested that investors in mutual investment funds have a longer investment horizon, mainly in the medium and long term to recover the negative effects created in the short term.

The traditional alternative of investing small savings for risk-averse investors is through bank deposits. The form of investment is considered safe and liquid, but the guaranteed return compared to investing in investment funds or treasury bonds is again a little lower. This result is



also evidenced in Figure 8, in which the 12-month interest curve for treasury bills is historically above the 12-month deposit return curve.



**Figure 8. Performance of yields in primary market and interest rates in ALL**

Source: (Stability Report of Bank of Albania , 2022)

In the risk-return ratio, the return of deposits should dominate, but the way trading is organized and the absorption of public securities in the Albanian financial market brings such a result. A significant weight of public securities is absorbed by commercial banks by imposing such behavior of interest rates of public securities on bank deposit rates.

**Conclusion**

This study seeks to investigate possible investment alternatives by small investors in Albania. The analysis is mainly descriptive and analytical of the main factors that have influenced the existence of a limited number of investment alternatives.

During the study, it is evident that the Albanian financial system is limited in the number of segments of its representative markets. According to the data analysis, it was proven that the banking system occupies an important role (90%) of the entire system. The important role of the banking system is attributed to the level of economic development, the lack of development of the capital markets and the support that this market segment offers to all market participants. It is also noted that the second important segment of the market is occupied by investment funds which have had an upward trend since 2012 until today, clearly competing with other market segments and being positioned second after the banking sector.

After a decline in returns experienced during 2022 as a result of rising interest rates, throughout 2023, the drop in interest rates has had a positive impact on the investment portfolio of investment funds. In addition to the performance of market factors, it is suggested that investors in mutual investment funds have a longer investment horizon, mainly in the medium and long term to recover the negative effects created in the short term.

It is suggested that; regulatory authorities to stimulate more public information on direct investment of investors in bonds and treasury bonds in auctions carried out by the Central Bank, caution of investors in investing in mutual funds mainly in short-term periods as the risk is higher and the development of alternatives new ones which would enable the diversification of the investment portfolio of investors in Albania.

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**References**

Agnew, Julie, & Szykman, L. R. (2005). Asset allocation and information overload: The influence of information display, asset choice, and investor experience. *Journal of Behavioral Finance* , 57-70.  
 Authority, F. S. (2021). Annual Report .

- Benartzi, Shlomo, & Thaler, R. H. (2001). Naïve diversification strategies in retirement savings plans. *American Economic Review* , 79-98.
- Bhaskaran, N., & Andavan, S. (2012). Investors Behaviour in Various Investment Avenues a Study. *International Journal of Marketing and Technology* , 2 (7).
- Bishnoi, S. (2014). Relation Between Investment Objectives and Demographic Variables. *Journal of General Management Research* , 1(1), 91–107.
- (June 2022). Financial Stability Report. Bank of Albania.
- Hemalatha, S. (2019). Factors influencing investment decision of the individual related to selected individual investors in Chennai city. *International Journal of Innovative Technology and Exploring Engineering*, (Special Issue 4), 457–461.
- Huberman, Gur, Iyenga, S., & Jiang, W. (2007). Defined contribution pension plans: determinants of participation and contribution rates. *Journal of Financial Services Research* .
- Interest rate statistics. (n.d.). Retrieved from Bank of Albania: <https://www.bankofalbania.org>
- Karlsson, A., Massa, M., & Simonov, A. (2006). Pension Portfolio Choice and Menu Exposure. *Wharton Pension Research Council Working Papers* , p. 371.
- Kaur, I., & Kaushik, K. (2016). Determinants of investment behaviour of investors towards mutual funds. *Journal of Indian Business Research* , 9(1), 19–42.
- Mamun, A., Syeed, A., & Yasmeen, F. (2015). Are investors rational , irrational or normal? *Journal of Economic & Financial Studies* , 03(04), 1–15.
- (February 2023). Raiffeisen Prestige Monthly Report .
- (2022). Stability Report of Bank of Albania .
- (2022). Statistical Report of Albanian Financial Supervisory Authority. Albanian Financial Supervisory Authority



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*Aims & Scope (Economics)*

*Article*

## HOW THE REAL ESTATE MARKET PRICE IN ALBANIA WAS AFFECTED FROM COVID-19 PANDEMIC AND UKRAINE WAR?

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**Abstract.** Since the early times, there has been an important relationship that exists between the performance of the real estate market and the economic condition of the financial system. Studies and analyzes on this connection in most cases have highlighted the progress of financial economic cycles, the stability of the respective indicators and the possibility of their improvement. This analysis of the consequences that the performance of these markets brings on economic and financial operators.

The real estate market presents a number of regional and local markets that differ from each other regarding the level of prices and risk, also related to the efficiency of real estate investments, as well as its trends in different periods. Data on the real estate market in a given period are a critical indicator of the progress of a country's economy.

The real estate market is an open market, easily accessible by anyone with sufficient liquidity to become a real estate owner. It turns out to have been very profitable for a large number of smart buyers who, by learning how to exploit market fluctuations, have gotten the best possible return on their investments. This study aims to analyze and compare the effects of the real estate market in the post-pandemic period and during the Ukrainian war.

**Keywords:** Real-Estate market price, Alternative Investment, pandemic-Ukraine war effects.

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### Introduction

Investing in real estate is the investment that has aroused great interest among investors, which in the financial world is known as an alternative investment and has experienced growth during the last decades. Investing in real estate is an investment with lower volatility compared to other traditional investments and is used by investors for portfolio diversification. We know that when inflation is low, it is difficult to predict what kind of effect this will have on real estate assets in the future. With low interest rates, the investor can invest even more in real estate. Low interest rates make it possible for investors to borrow more at a lower cost and thus invest more. The opposite happens when due to extreme price increases in popular metropolitan areas, investors are overwhelmed and may think twice before deciding where and when to invest their money. Uncertainties in the market bring questions for investors, who think how this will affect the markets in the future, or how the trend of real estate prices will be if this extreme situation continues in the future.

### Literature Review

The overall reason for investors to include real estate in their investment portfolio is, according to (Andonov, 2013) mainly for three reasons. The first reason is that they contribute with diversification and thereby also a reduction of the overall risk of the portfolio due to the low correlation towards stocks and other securities. Secondly, real estate has the positive feature that

they provide a hedge against inflation and the final reason is that real estate delivers a stable income to the portfolio through their cash flows (Andonov, 2013).

Real estate prices as well as stock and bond prices are all affected from the interest rates and by the economic activity level on the market which Quan and Titman (1996) argued about in their report. In their study it is argued that the expected level of economic activity also has a positive impact on these markets (Quan & Titman, 1996).

At the same time the further away an economy is from a crisis, the more positive is the economic factors on this market. This can be explained by the more positive future expectations that exist when the current situation on the market is positive (Fredriksson and Winkler, 2015)

Nordlund & Lundström (2011) discusses in their research that the economic growth is by itself the most important variable that has an influence on rents, real estate prices and the development activity. They argue that the economic growth can explain variations in real estate returns and price changes by 70 % in some cases.

Real estate is a good investment complement and is today considered to be one of the best investment alternatives to stocks and bonds by many institutional investors (MSCI, 2014). There are several upsides that real estate investments will bring with them to investors. During periods with inflation, real estate tends to outperform stocks and due to the hedge against inflation, real estate is suggested to be a good long-term investment (Greer & Kolbe, 2003). Previous studies argues that commercial real estate offers a number of advantages compared to common stocks when looking closer on the expected returns and the growth of the cash flows paid (Plazzi, Torous, Valkonov, 2010). However, direct real estate is known to be very illiquid and comes with rather high transaction costs.

Nowadays investors can access the real estate market in two ways, through either direct or indirect investments in real estate. While both of these types of available assets classes have the same underlying asset base they differ in the performance and in characteristics. The ownership of direct real estate is through directly owning the property and the values are mainly based on valuations through future cash-flow analysis, potentials and market expectations. (Holland, 2006).

## **Methods**

The objective of this paper is to compare the factors and indicators that have influenced the period (6 months) from the second 6 months of 2021 and 2022 of the real estate markets. The selection and data of these factors, as shown in the paper, was made using survey among the operators of this market as well as comparative statistics of the data analysis periods collected in some of the companies and agencies that trade real estate in the city of Tirana.

The objective of this study consists of a survey that collects regular information (every six months) about 230 construction companies and agencies that trade real estate. The field interview and the selection of subjects are carried out by the Institute of Statistics according to the relevant methods. The information collected is both qualitative and quantitative, and the questions cover past, current and expected performance in the country's real estate market.

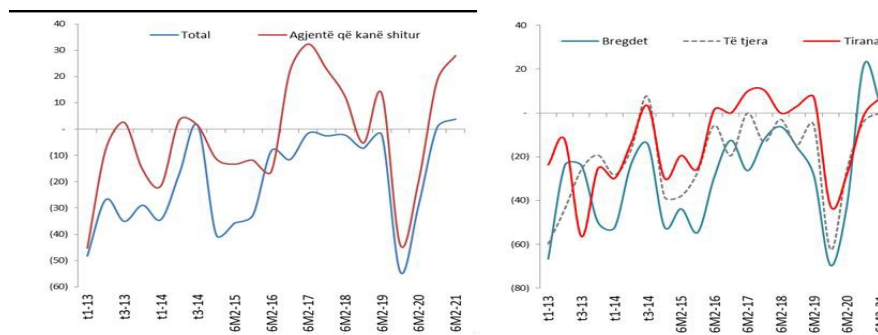
Based on the information gathered from this survey, the Housing Price Index is drawn up, which contains information that is currently not provided in an aggregated manner by official data. The information collected through the survey aims to respond to the public's interest in the progress of the real estate market and the implications of the developments of this market in their activity.

## **Results**

### ***Year 2021***

According to the interviewees, the general situation in the real estate market has improved slightly compared to the last six months.

The net balance of responses (+4) shows that the assessment of agents for the situation during the second half of 2021, was more optimistic than that of the period of previous when the balance marked +0.5%, and significantly above the long-term average net balance of -21%. The response indicators for the area of Tirana and the coast recorded positive values, while the agents have given a neutral assessment for the performance of the market in "Other Areas".



**Figure 1. Net balance on the overall situation of the real estate market during 2021**

Source: (Financial Stability Department, 2021)

The same indicator evaluated only for subjects that reported sales during the period, presents a much more positive assessment; the net balance of responses on the general situation from the subjects that have reported sales is +28%. The same indicator evaluated only for subjects that reported sales during the period, presents a much more positive assessment; the net balance of responses on the general situation from the subjects that have reported sales is +28%. This development shows that the agents' assessment is significantly more optimistic than the very pessimistic assessment of 2020 and the general assessment of 2017-2019.

**Sales**

The number of entities that made sales (75 entities) was lower than last six months (93 entities), and the total number of properties sold fell slightly to 685 from 709. Ratio of the number of entities that made sales to the total number of valid responses decreased to 40% from 50%. This ratio has marked a gradual decrease from a maximum of about 70% estimated in the first half of 2017. The average number of properties sold by each subject during the second half of 2021 was about 4, not changing with the previous period. The ratio of properties sold with mortgage to the total number of properties sold is reported at 50%.

About 68% of the sales realized during the second half of the year in the entire territory are represented by properties located in the most preferred areas within the city, from 50% during the previous period; 22% of properties sold were properties built on the outskirts, within the city (up from 26% in the previous period), and around 10% of properties were properties built outside the city, up from 24% the previous six months.

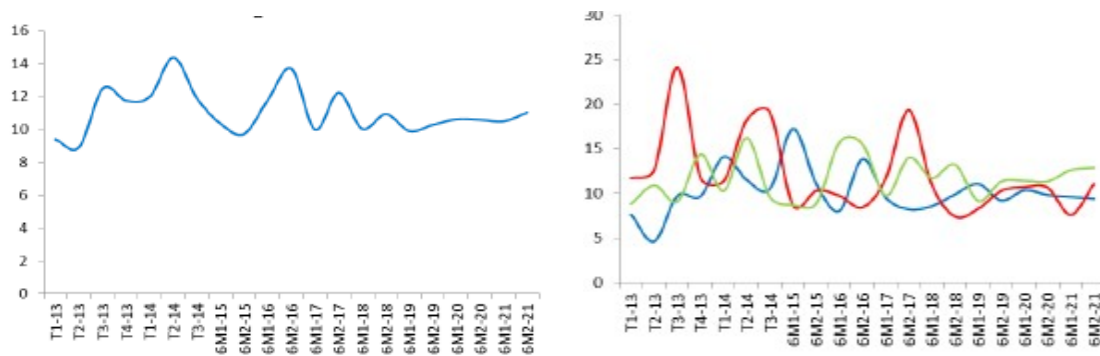


**Figure 2. Data on the number of agents according to their sales' situation (agents reporting sales and agents with no sales reported)**

Source: (Financial Stability Department, 2021)

The average time of sale of apartments in the country is reported to be an average of 11 months, increasing slightly compared to the previous six months. For Tirana, the subjects interviewed reported an average sales time of 9.4 months, or almost the same as that reported in the previous six months. For the coastal area, the average time to sell was 11 months, significantly higher than the 7.6 time reported for the first half of 2021, but close to the long-term average of

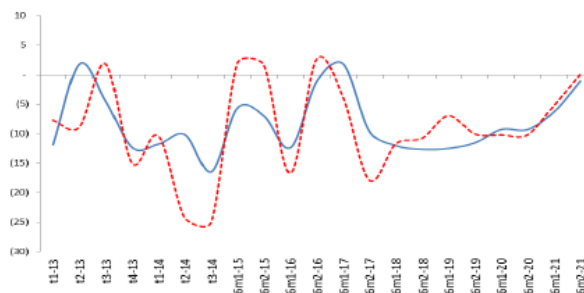
12.1 months. For "Other Areas", the sales time increased slightly to 12.9 months. For all three areas, the majority of sales are reported to have been made within a period between 1 and 12 months.



**Figure 3. Sales duration across the country and by region (by months)**

Source: (Financial Stability Department, 2021)

Agents report an unchanged balance of the number of dwellings recorded on their books; the net balance between those who report an increase in the number of registered dwellings and those who report a decrease in their number, was almost neutral (-1%) and higher than the value (-6%) of the previous period. For commercial properties, the net balance was also neutral. It is worth emphasizing the fact that 75% of the answers were neutral, while those of the form "more/less" made up a small part of them. The number of unsold properties, both for apartments and commercial buildings, has decreased. The net balance for the number of unsold properties has continued to register a positive value, and this phenomenon has started to be observed since the beginning of 2016. This trend shows that the number of unsold properties has recorded a continuous decrease in each of the six months of this period.



**Figure 4. Net balance of recently registered properties**

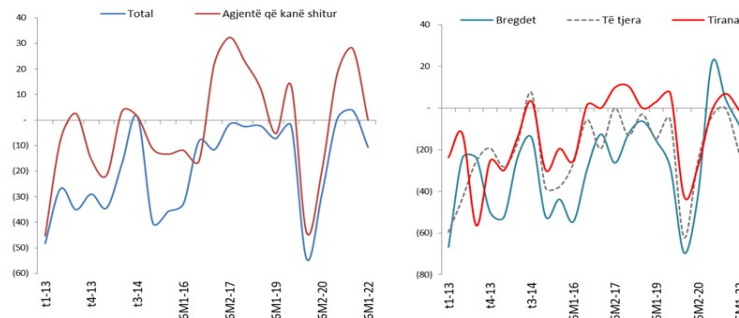
Source: (Financial Stability Department, 2021)

Over 50% of agents have sold at the same price or up to 5% less than the asking price. About 39% of agents have reported sales at the same asking prices; 13% of them sold at a price up to 5% lower compared to the asking price; and 42% reported selling at a price between 5% and 20% lower than the original asking price. In comparison to the previous period, it is observed that the distribution of responses is more concentrated towards price ranges close to the initial asking price, which reflects increased demand for real estate purchases. According to the agents, about 30% of the residential and commercial properties sold by them were bought with bank loans. Half of these properties are purchased with loans covering up to 60% of the value.

**Year 2022**

According to the interviewees, the general situation in the real estate market has slightly worsened compared to the last six months.

The net balance of responses [-11%] shows that the agents' assessment of the situation during the first half of 2022 was more pessimistic than that of the previous period when the balance marked +4%, but still higher compared to the long-term period for which the indicator average is [-20%]. About 2/3 of the answers of the subjects interviewed were neutral "without change".



**Figure 5. Net balance overall situation of the real estate market during 2022**

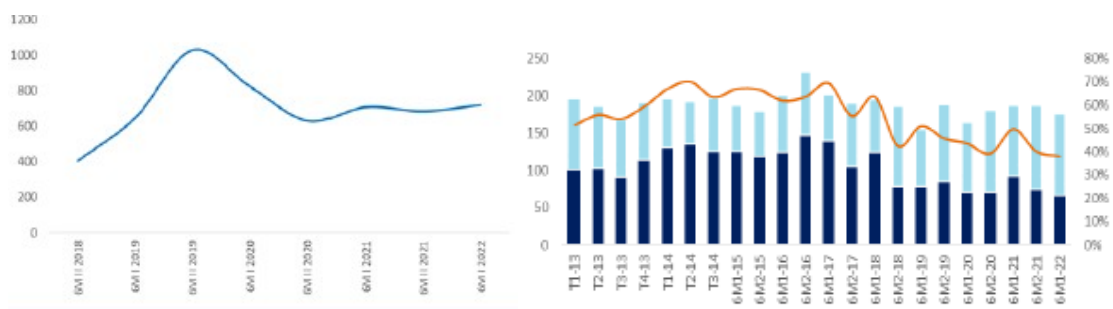
Source: (Financial Stability Department, 2022)

The net balance of responses [-11%] shows that the agents' assessment of the situation during the first half of 2022 was more pessimistic than that of the previous period when the balance marked +4%, but still higher compared to the long-term period for which the indicator average is [-20%]. About 2/3 of the answers of the subjects interviewed were neutral "without change". It is also worth noting that pessimistic responses are concentrated in other areas, while the situation for the capital area is assessed as unchanged compared to the previous six months. The same indicator evaluated only for entities that reported sales during the period has a neutral net balance.

**Sales**

The number of entities that have made sales (67 entities) was lower than that of the previous six months (75 entities), but the total number of properties sold increased to 721 from 685. The ratio of the number of entities that have made sales to the total number of valid responses remained almost unchanged, at 40%. This ratio has marked a gradual decline from a maximum of about 70% estimated in the first half of 2017. The average number of properties sold by each subject during the first half of 2022 was about 4, not marking changes from the average of reported during the second half of 2021. The ratio of properties sold with mortgage to the total number of properties sold, as in the previous period, was equal to 50%.

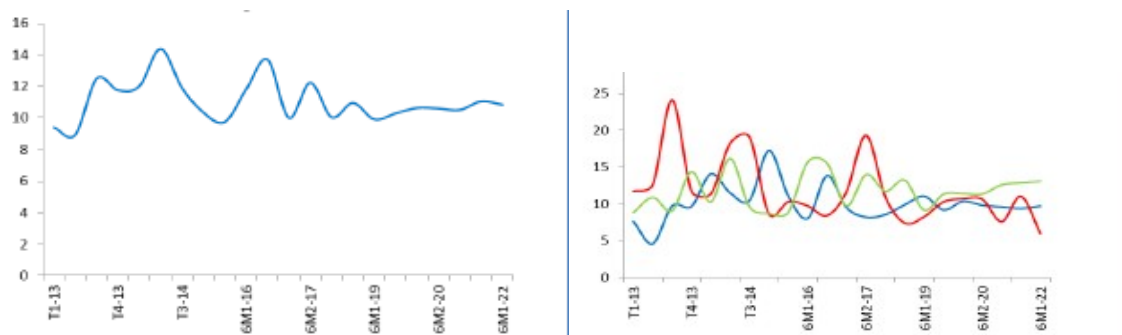
About 54% of sales realized during the first half of the year, throughout the territory, are represented by properties located in the most preferred areas within the city, from 68% during the previous period; about 23% of properties sold were properties built on the outskirts, within the city (up from 22% in the previous period), and about 23% of properties were properties built outside the city, up from 10% last six months.



**Figure 6. Data on the number of agents according to their sales' situation (agents reporting sales and agents with no sales reported)**

Source: (Financial Stability Department, 2022)

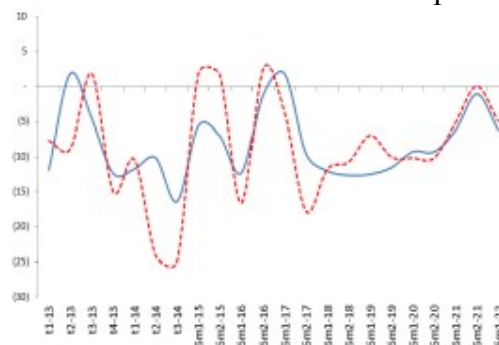
The average time of selling apartments in the country is reported to be an average of 10.8 months, and has slightly decreased compared to the previous six months. For Tirana, the subjects interviewed reported an average sales time of 9.7 months, from the value of 9.4 reported in the previous six months. For the coastal zone, the average sales time was about 6 months, and this value has decreased significantly compared to the 11 months reported for the second half of 2021. For "Other Areas", the sales time is increased slightly to 13.1 months. For all three areas, the majority of sales are reported to have been made within a period between 1 and 12 months.



**Figure 7. Sales duration across the country and by region (in months)**

Source: (Financial Stability Department, 2022)

Agents report lower number of first-time listings on their books; the net balance, or the difference between those reporting an increase in the number of registered dwellings and those reporting a decrease in their number, was about [-6%], and this value has fallen slightly from the near-neutral balance of the previous period. For commercial properties, the net balance was also negative [-5%]. It is worth emphasizing the fact that 75% of the answers were neutral, while those of the form "more/less" made up a part their little one. The number of unsold properties, both for apartments and commercial buildings, has decreased. The net balance for the number of unsold properties has continued to register a positive value, and this phenomenon has started to be observed since the beginning of 2016. This trend shows that the number of unsold properties has recorded a continuous decrease in each of the six months of this period.



**Figure 8. Net balance of recently registered properties**

Source: (Financial Stability Department, 2022)

About 2/3 of the agents have made sales at the same price or up to 5% less than the asking price. About 43% of agents have reported sales at the same asking prices; 23% of them sold at a price up to 5% lower compared to the asking price; and 27% reported selling at a price between 5% and 20% lower than the original asking price. Compared to the previous period, it is noticed that the distribution of responses is still more concentrated towards the intervals with

price close to the initial asking price, which reflects increased demand for real estate purchases. According to the agents, about half of the residential and commercial properties sold by them were bought with bank loans. About 86% are purchased with loans covering up to 60% of the value.

This approach: it is not exhaustive, on the contrary, it is considered temporary until a more complete system is built in which public entities and private entities regularly exchange information on all the elements that affect demand and supply in the real estate market; the exchange of information in the necessary time and form will enable the production of real estate market statistics according to the methodological standards followed in the European Union; as such, it does not contain and does not enable conclusions to be drawn as to whether the movement of prices in the real estate market (their increase or decrease) is normal or excessive.



## Conclusion

The results of the study, which derive from the questionnaires of different periods every 6 months, show us that the post-pandemic effects in the period of the second 6 months of 2021 are visible, where through the data we see the contraction of investors in real estate investments due to the uncertainty of the future, there are few sales. According to my opinion, in the period of 2022, we see that the war in Ukraine has caused an increase in raw materials (Commodities) in the construction sector, and this has brought a direct effect on the increase in inflation and, consequently, a decrease as a chain effect in the real estate sector due to the increase in prices. But it should be noted that the investors of this sector are more reluctant to use their savings and liquidity in real estate investments. Even though we have such a situation where the terms of inflation keep increasing, we understand that real estate prices also increase. Most important for a skilled investor is knowing when to enter on the market and when to exit on it. Any investor who decides to choose to invest in real estate must learn not to be euphoric in his decision-making, but also not to fall prey to panic based on market trends, which can lead to hasty and wrong decision-making.

Buying a property requires a more detailed and careful analysis to make an important financial investment decision.

For an investor to be successful in the real estate market, he must be clear about what his financial goals are in order to maximize his profits as well as what makes a potential deal worth achieving those goals. It is always necessary to carry out a through study of what is happening in the specific area where it is intended to invest and how to make an offer suitable to the situation in which the real estate market is at that moment, in order to minimize losses financial from such an offer. All these are factors that must be carefully evaluated in order to make a profitable investment in the real estate market.

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## References

- Andonov, A. (2013). A Global Perspective on Pension Fund Investments in Real Estate . The Journal of Portfolio Management, 32-42.
- (2021). Financial Stability Department. Bank of Albania.
- (2022). Financial Stability Department. Bank of Albania.
- Greer, G., & Kolbe, P. (2003). Investment Analysis for Real Estate Decisions (Vol. 1). Dearborn Real Estate Education.
- Holland , N. (2006). Indirect Property Investing-An Alternative to Direct Ownership.
- MSCI. (2014). IPD indexes and benchmark methodology guide.
- Nordlund, B., & Lundström , S. (2011). Kommersiella fastigheter och finansiell stabilitet.
- Plazzi, A., Torous , W., & Valkonov , R. (2010). Expected returns and expected growth in rents of commercial real estate.
- Quan, D., & Titman, S. (1996). Commercial real estate prices and stock market returns: an international analysis. Financial Analysts Journal Volume 53, 53( 3).



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*Aims & Scope (Economics)*

*Article*

## CRYPTOCURRENCY AND BLOCKCHAIN WITHIN DIGITAL TECHNOLOGY

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**Abstract.** In the conditions of a steady surplus of up-to-date information, institutional and value-based tools for reducing the uncertainty of economic activity fade into the background, the paternity that progresses as a result of a combination of the short-term temporal paradigm, historically and institutionally inherent in the Western business traditions and becomes an important structural element, with the fundamental innovation of the information-network economy, the actual manifestation of which is the production of excess information and the creation of conditions for reproduction of uncertainty at the higher level. Cryptocurrencies emphasize the crisis of the banking institutions of financial intermediation as a result of the trust destruction as a natural result of the dominance of the financial component in the system of complementary interaction between financial intermediaries and subjects of the real economy sector, which in turn led to the crisis of financial intermediation and led to the desire of financial services consumers for operating activity without any mediation. Nowadays, the first cases of blockchain technology influence on the processes of reformatting the basic principles of human society development - information asymmetry and trust, which can testify to the depth of the modern transformation transition, are observed. An indirect development effect regarding information-network economy is the intensification of households' credit activity and the development of financial-oriented patterns of behavior, which indicate a prevailing focus on short-term prospects in economic and social activity, an increase in the value of self-interest over the interests of family and immediate surroundings, and a reduction in the impact of long-term hierarchical responsibility (in the generations context) on financial decision-making processes. A striking result of these patterns is an increase in household debt, which leads to a narrowing of economic freedom. Financial culture is gradually losing its role as a basic factor in the development of financial patterns of behavior, that in turn influences financial decision-making process, meanwhile the factors of economic and social conditions, banking marketing tools using client databases are updated.

**Keywords:** cryptocurrency, blockchain, information and network economy, financial intermediation, mining.

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### Introduction

The last ten years in the world economic, financial and social spheres are undergoing systemic transformation processes. The financial and economic crisis has opened up to the world

those contradictions that have long been unnoticed and emerged only after the dramatic changes that took place in 2007-2008. Nowadays, it seems that political conflicts have reached a critical point, and unresolved social problems, moved to the global level, are showing more and more manifestations of ethnic, religious, and cultural character. The notions of instability and reality have become synonyms. Imbalances in the system of financial intermediation institutions have played the role of a catalyst for large-scale destabilization processes.

A historical retrospective proves that large-scale bifurcation trends are observed in times of global change. The era of instability showed its first manifestations in the late 1960s, when the post-war synergy effect of the reconstruction process began to disappear and a new basic factor of economic growth should emerge. As a result, globalization began to show its first signs. In the 1970s restructuring of the largest economies of the Western world began, resulting in the emergence of a new dominant economic unit - a global corporation, which influenced the approaches to the organization of production and social development. At the same time, an active innovation process began to produce revolutionary technologies that radically changed the international economic environment, turning it into a coherent whole unit.

As a result of these processes, the global economy has become global not only in terms of organization of production, consumption, liquidity circulation, resources and labor movement, it has become global from the point of view of subjects - not limited by borders, rules, institutions.

The purpose of this work is to reveal the socio-economic content and to develop the theoretical and methodological foundations and mechanisms for the transformation of financial intermediation institutions in the conditions of information-network economy formation.

### **Literature Review**

Cryptocurrencies are electronic means of payment that are emitted through a special computer algorithm (Caporale, G. M., Gil-Alana, L., & Plastun, A., 2018). The mining process can be performed by any person by installing the appropriate software on their computer. In certain cases emissions are limited, the occurrence frequency of a new cryptocurrency unit is defined mathematically, no one can accelerate or slow it down.

Normal electronic money, which existed before cryptocurrencies, is a simple physical money deposited into an account (cash deposited through the bank's cash desk or payment terminal; or money deposited on payment cards) (Howell, S. T., Niessner, M., & Yermack, D., 2018). Cryptocurrency is a network currency that has no physical form that stimulates its appearance in the electronic payment system. The state or banking institution does not ensure its circulation and emission.

The money that has existed to these days is the product of an agreement between economic entities seeking cooperation and exchange, certified by the state and secured by financial institutions (ElBahrawy, A., Alessandretti, L., Kandler, A., Pastor-Satorras, R., & Baronchelli, A., 2017).

The active development of information technologies has led to changes in the conditions of exchange, it has become a network, ecosystem, and the structure providing it is too bulky, hierarchical (state + financial institutions = financial system), thus, it needs significant reformatting (Eyal, I., 2017). The emergence of cryptocurrencies has become an example of the creation of a new exchange security system that partially represents the current trends in economic development.

In a certain interpretation, the creation of cryptocurrency is a stage of evolution of monetary forms that corresponds to modern economic processes of "spreading networking" (Hayes, A. S., 2017). At the same time, the possibility of the emergence and provision of cryptocurrency circulation testifies to the profound transformations that have arisen with the advent of information and network technologies not only in economic activity but also in human life. Bitcoin was the first cryptocurrency.

According to the definition of the European Central Bank, bitcoin is unregulated digital money, which is a kind of virtual currency, but with certain particular features (Borri, N., (2019). This position is actively used by the World Bank's analysts (Liu, Y., & Tsyvinski, A., 2018). The main difference between bitcoin and other electronic money is that even before it is launched into

electronic circulation, it already takes the form of a legal, government-backed or supranational body (as in the case of the ECB) of a payment method. The ECB differentiates bitcoin from other virtual currencies that used to exist (Linden Dollar from Second Life or Digital Liberty Reserve) (Hileman, Garrick, and Michel Rauchs, 2017), because these virtual currencies have already had a centralized organization that audited transactions and controlled them.

The bitcoin system is the first decentralized payment system that is not controlled by the state or any other body, and even for some time was considered to be the most secure because of the overly complex algorithm underlying it. (Bouri, E., Shahzad, S. J. H., & Roubaud, D., 2019).

Research shows (Chuen, DLK, Guo, L., & Wang, Y., 2017) that cryptocurrencies are the result of the active development of e-commerce that required a payment method that would most easily connect sellers and buyers, moreover, which would be functionally equivalent to cash in the regular payment system (Yi, S., Xu, Z., & Wang, G. J., 2018) - to exclude a third party from the seller-buyer interaction that provided the calculation process (financial intermediary). This opportunity was realized in 2009.

Thus, Bitcoin developers have considered that having an intermediary in an e-commerce system is not only economically impractical because of significant transaction costs, but even unnecessary, because the problem of fraud can not be solved this way. Because of this, it was concluded that we need an electronic payment system based not on the trust, but on the cryptographic evidence. (Li, X., & Wang, C. A., 2017).

The solution to the double-spending problem was made possible by creating a peer-to-peer network in which all transactions are noted, therefore, information about them can no longer be changed and is also visible to all the system members (Cocco, L., Concas, G., & Marchesi, M., 2017). As soon as the first transaction signal is executed, the rest is rejected, so the same bitcoins cannot be used for two transactions - this solves the problem of dual-usage and creates a mechanism for the fraud prevention. Miners, or more specifically, software on the miner's computers, checks and prevents repeat transactions, which in turn, on the basis of complex mathematical calculations, forms the system of fixation of all previous transactions. This system is called blockchain, and it constantly records more and more bitcoin-related transactions. Miners are rewarded for their activities directly from the system in the form of bitcoins.

## **Methods**

The study used general scientific and specific methods according to the formulation of the topic. Logical and historical approach to the analysis and conceptual reproduction of the evolution processes regarding the economic system of society have become methodological basis for the theoretical study of the transformation processes of financial intermediation institutions, which in turn made it possible to obtain a comprehensive theoretical description of the current stage of financial intermediation development.

## **Results**

Digital technologies in the process of financial intermediation create ecosystems based on the distant entities identification. Such ecosystems include online stores, financial institutions, logistics structures; they also allow making any purchase via the Internet remotely and provide the necessary financial resources through lending, so it is a very convenient and promising direction for the development of financial services. The existence of such systems means the full integration of financial institutions into the personal lives of clients, that is, when information about economic, social and consumer behavior enables a financial institution to determine the right direction for the customers. Digital financial services are one of the main mechanisms for monopolizing information, and as a consequence of the manipulative potential of anonymous subjects in the digital financial system.

In the context of the new economy, the production of new information has become the basic pattern in the system of economic and social interaction. This phenomenon with the characteristic dominant innovation of the information and network economy, becomes the basis for institutional bifurcation as a particular transition state in the process of new economy development. The gradual

leveling of the capitalism institutions is also accompanied by the loss of their social context. The comparative ratio of institute and the pattern is presented in Table. 1.

**Table 1. Comparative ratio of institute and pattern**

Indicator	Institution	Pattern
Tense conditions	Long-term phenomenon	Short-term
Spatial conditions	Institutionalized (national, supranational) space	Space of a defined network (may be global, national, and locally restricted (school, professional network))
Base	Values	Regulation, network protocol
Reaction on innovation	Bifurcation	Creation of new information
Purpose	The mechanism for hierarchy and network harmonization	The dominance mechanism of the network over the institute

*Source:* author's own development

Nowadays, we observe conflicting forms of hierarchical-network phenomena interconnection with the advantage of hierarchy, as well as dominant-network phenomena. They are manifested during the interaction of government and transnational corporations, the real sector and financial markets, as well as develop during the implementon process of the state regulatory measures. The ability to instantly change the deployment of political and economic forces in the global arena is a major risk resulting from the information mobility of the modern world. At this stage, society is threatened by the permanence of uncertainty.

The emergence of cryptocurrencies has become an illustrative example of the network principles development of economic activity in the financial markets.

Information surplus and monopolization of information have become the main features of modern society. The result of these processes has become cryptocurrencies. They support the transactions` anonymity and independence from any state and non-state financial institutions. Cryptocurrencies are an example of an open network that operates by its own rules, accepting any number of potential participants, aiming to move beyond the institutionalized space provided by the state and traditional financial institutions, as well as to participate in the creation of their own operational space.

The principles of operating activity offered by the cryptocurrency payment system transform, in a certain way, the basic principles of operation of modern financial and institutional systems.

For instance, the motivation for launching a payment instrument such as cryptocurrency is direct, anonymous trading, where the parties have all opportunities to settle all the basic components of the transaction through the Internet in the shortest period. Thus, theoretically, cryptocurrency calculations have considerable liquidity, but, unfortunately, the reality differs from this statement.

Money is the most liquid of all assets in a market economy; their content is realized through the circulation function. In order to simplify and speed up the process of monetary exchange as much as possible, it is necessary to conclude a public exchange agreement, and also to determine a responsible issuer that certifies and guarantees the exchange process (state, bank) in open exchange systems.

The cryptocurrency payment system has features of open-access mining and payments structure, however, it is internally closed to institutionalized payment space (it is not regulated, taxed, has no consumer protection mechanism, etc.). At some point, the investment demand for cryptocurrencies has made them a rather aggressive innovation that has begun to move beyond its parent system and spread over the global payment space.

Protecting own operational space of global and national payment systems demonstrates the limited liquidity of cryptocurrencies in the global financial space, which in turn demonstrates its

network-based, contradictory nature in terms of interaction with existing financial and institutional systems and proves the institutional character of its liquidity. In a market economy, it emerges and is implemented in an institutionalized space where there is some certain responsibility. Non-established means of payment are ephemeral in nature compared to established monetary systems.

Responsibility is a phenomenon of subjectivity that arises and develops through the process of interaction. Moreover, responsibility, evolving in the process of socio-economic development, forms complex structures, and in order to achieve the maximum effect of interaction the mediation of institutions is necessary.

One of the functions of a financial intermediary is to maintain the required level, or even to increase the liquidity level of its clients, that is, their ability to fulfill their monetary obligations in a timely manner, which takes the physical form of liquid resources.

In all historical times, the financial intermediary had to organize the optimal liquidity of the transaction, both by facilitating the contact of counterparties, providing payment facilities, and assisting in the emergence of their new forms, based on credit relations. However, with the development of capitalism, financial intermediation is reaching a new level - the level of assisting economic development. At the same time, the original functions of financial intermediation are maintained and are the basic principles of its purpose to ensure creative destruction. In an active credit and investment process, financial intermediaries are involved into the creation process of new liquidity: an increase in money supply, which is reflected by a money multiplier. Financial innovation has played a major role in the process of creating and providing liquidity. Revenue growth in the process of liquidity growth is the basic motivation for financial innovation. The attention and activities of intermediaries are focused on the processes of artificial liquidity creation. In the process of gaining liquidity, financial intermediaries have detached themselves from their market fundamentals - the real sector, there was a process of financialisation that demonstrated the economic and institutional inefficiency of financial intermediation. That is why the idea of creating liquidity in a non-institutionalized space arose, in which liquidity is created by the direct interaction of the entities.

Thus, we can prove that cryptocurrencies are a natural step in the financialization tendencies that emerge and develop in the global financial space as a result of the activities of financial intermediaries aimed at ensuring maximum liquidity of their transactions. This activity has the historical contradiction nature that develops from providing liquidity to trading operations in pre-capitalist societies through creating liquidity in a market economy to the financialisation tendencies in the process of becoming an information-network economy, in which the provision and creation processes of artificial liquidity becomes the main goal of a financial intermediary, creates the conditions for its crisis and the basis for its leveling in the new coordinates of network finance.

It is accepted that the information recorded in the blockchain is accurate. It cannot be controverted, it cannot be changed. Theoretically, this fact can solve many problems: from preventing raiding and misappropriation of property to fixing intellectual property rights. Blockchain can help with organizing new registry forms, assigning ownership, and arranging transactions in the sphere of real estate. The recorded blocks in the blockchain system will certify the process of ownership change, as well as confirm the money transfers, contracts and data of the owner. But from a practical point of view, it should be noted that any technology in the modern world can be damaged by viruses and attacked by hackers.

The blockchain system in the financial markets creates many benefits, greatly expanding opportunities for many participants in financial transactions: exchanges, brokers, banks. First of all, it significantly accelerates and settles all calculations, reducing transaction costs, guaranteeing a transaction, excluding fraud cases. Secondly, it enables consolidation of information across large financial institutions, simplifying reporting process. Thirdly, blockchain generates a history of movement of financial assets and property. Fourthly, blockchain technology is the basis for standardizing accounting globally, not just in the financial markets, but in any system that requires consolidated information.

The advent of blockchain technology demonstrates important processes that testify about the creation of an effective system of fixing and securing information that will greatly influence the

future global economic development in the modern information world. Moreover, there is a precedent in the world economy, which can be interpreted as the formation of a fundamentally new society, which is significantly different from the previous stages of economic and social human development. Blockchain demonstrates a precedent for relationships in which the basic social institute of trust tries to refute.

We support these arguments, but the problem is much deeper, it is not just about the loss of confidence in a formal institute - the central bank, theoretically, the need for an informal institute of trust can be eliminated, through a technological progress, which in turn, not only distorts public space, it can also radically change the basic foundations of human evolutionary capacity.

Blockchain technology, through which turnover of cryptocurrencies is realized, allows to conduct all transactions exclusively between the parties, even without the involvement of intermediaries, which guarantee the accuracy of transaction information. Blockchain theorists affirm that while using this technology, the standard interaction condition that makes it necessary to verify the information about the parties and the basic terms of the agreement becomes obsolete, because the need for intermediaries is eliminated. This is achieved by the special form of storing transaction information directly on each system computer - in distributed registers or databases.

In other words, the entity entering the bitcoin payment system perceives the information in that system as authentic. Moreover, all members of this system have the same authentic information stored in the archive - in the blockchain system.

The exclusion of information asymmetry from the system of factors influencing decision-making processes is extended in connection with the introduction of digital technologies into the system of financial institutions. Transport telematics enables insurance companies to obtain complete information about the behavior of vehicle drivers - thus forming comprehensive perceptions of possible risks, this gives insurers the opportunity to form their business models more accurately. In other words, in the context of transparency and minimization of information asymmetry, risks can be avoided.

At the same time, it should be noted that information asymmetry is a key factor in the evolution of social forms of human being. All human life is connected with the process of overcoming information asymmetry through cognition. However, this cognition is indirect - through the medium of information. Information mediators (parents, teachers, professionals) provide accurate information which is basic for further development. Human evolutionary capacity is a function of having accurate information about the outside world. Cognition through the trust is the process of eliminating the contradictions regarding information asymmetry in the social space, information acquirement and expanding the knowledge.

**Table 2. Bitcoin cryptocurrency changes**

Month	Indicators, USD	Absolute deviation	Growth rate
January	982,43		
February	1222,66	240,23	124,453
March	1086,12	-136,54	88,8325
April	1415,81	329,69	130,355
May	2492,6	1076,79	176,055
June	2520,61	28,01	101,124
July	2703,38	182,77	107,251
August	4866,51	2163,13	180,016
September	4371,54	-494,97	89,8291
October	6372,4	2000,86	145,77
November	6891,34	518,94	108,144
December	10911,04	4020,08	158,335

Source: author's calculations

The process of cognition is an appeal to a trusted professional mediator who also possesses more information than the subject of cognition.

This intermediary, having exceptional information, provides and guarantees the accuracy of information. The guarantee – is a process of decreasing information asymmetry.

We propose to consider changes in the dynamics of the cryptocurrency. First, it should be noted that all cryptocurrencies depend on the source code of bitcoin. That is why Bitcoin is leading the wave of events in the cryptocurrency market.

The Table 2 shows the dynamics of changes in Bitcoin exchange rate in 2021.

From the analysis of the Table 2 it can be determined that the highest growth rates of cryptocurrency for 2021 were in August and December, the growth rate compared to previous months was 73% and 50% respectively. The most unprofitable was September, during which the value of cryptocurrency decreased by \$ 494.97.

One of the common methods of forecasting the market indicators dynamics is trend models that allow to find out "what will happen, if what has already been comes back".

The Microsoft Excel automates the process of building trend models and analyzing them. There are different types of models, such as linear, degree, exponential, logarithmic and polynomial. The determination coefficient can be used to estimate the adequacy of the model (is indicated as  $R^2$ ) - statistical indicator, which indicates how well the received observations confirm the model.

**Table 3. Determination coefficients of trend models**

Model`s name	Equation	$R^2$
polynomial of the third degree	$y = 43,636x^3 - 628,02x^2 + 2881,9x - 2085,4$	0,9572
exponential	$y = 610,38e^{0,2503x}$	0,9425
polynomial of the second degree	$y = 222,88x^2 - 1721,x + 3870,9$	0,8834
degree	$y = 518,96x^{1,0744}$	0,7628
linear	$y = 1175,8x - 2889,8$	0,6615
logarithmic	$y = 4517,1 \text{Ln}(x) - 2770,8$	0,4241

Source: author's calculations

The Table 3 shows that the best observations correspond to the third-degree polynomial model and the exponential model. The determination coefficient for both of them is close to the confidence interval limits (0.95), which in statistics is considered to be an indicator of a good accordance between the actual and the calculated data.

Thus, from the conducted research it is possible to conclude that in spite of the fact that recently cryptocurrencies show impressive dynamics of growth, however, this is a consequence of the growing interest in cryptocurrencies, which is stimulating demand on the market, while limiting supply. Probably the peak of demand has already been reached or will be reached in the nearest future. We should expect a significant decline in demand in the future.

However, cryptocurrency and its core blockchain technology have already become a significant player in today's financial market and the target of investing for many market subjects that have some means to support it. Therefore, after the inevitable decline, the development of cryptocurrencies will continue, however, their volatility may decline.

Historically, economic and social interaction is the result of the activities of intermediaries which declare their relationship. Parents guarantee its authenticity as the first intermediaries between the known and the unknown world. Passport services confirm the person, acting as the main mediator in the implementation of any human activity during his or her life (without a passport it is impossible to enter a university or get a job, etc.). Notaries institutions confirm the



implementation of civil relations. Banks and payment systems are the guarantors of money transfers.

The argumentation mentioned above gives us reason to state that modern technologies have led out the evolution of human society to a new level, in which the subjects of social and market interaction without adequate institutional protection of the classic elements that structure society and the economy are at risk of losing adaptive capacity to the interaction environment. The mediator was a leader in the world of information asymmetry. A blockchain-oriented society is a society where the impact of information asymmetry and trust can be de-actualized.

Blockchain-oriented systems are directed against formal institutions and don't need any informal trust institution. In the context of information surplus, trust is leveled and a society of patterns is built - a society outside of institutions.

### **Conclusion**

Blockchain technologies and digital financial assets based on them are a logical but pivotal step in the development of information technology, the evolution of value and exchange. By forming an uninstitutionalized space of operational activity, new financial entities are aggressive innovators who, at the present stage, disorganize the activity of formal payment systems. In response, attempts have been made to legally institutionalize the unregulated cryptocurrency trading space, as well as the spontaneous market institutionalization by excluding cryptocurrencies from standard payment systems can be observed.

Meanwhile, the active usage of blockchain technological innovations in formal institutionalized financial spaces is developing. Over time, as blockchain technology becomes widespread, it will become commonplace for direct operators, market operators, and the state, the current uncertainty will be structured and take the form of risks for the relevant entities. The institutionalization of these risks will take some time, and as a result, society will move to a new system of socio-economic structuring and new ways of interaction that will meet new technological possibilities.

The growth cryptocurrencies potential in comparison to world currencies allows it to be a highly profitable investment object, which increases the interest of new miners. However, like other investment objects, cryptocurrency has certain risks, including legislative, insider, fraud, which cannot be detected in advance due to cryptocurrency anonymity. The processes of centralization are becoming more noticeable in the pricing process of cryptocurrencies, through which cryptocurrency exchanges are more actively influencing the exchange rate, as well as production centers controlled by a limited number of individuals.

The main factors influencing the exchange rate of such currency are the activities of cryptocurrencies and speculative transactions; the cost of mining; exchange value of cryptocurrencies; interest of users; degree of trust to the currency; political factors. Today there are over 1300 cryptocurrencies with a market capitalization of \$ 1 million to \$ 100 million. The emergence of many small cryptocurrency markets means that price manipulation still exists in reality.

The trends of cryptocurrency development were analyzed using mathematical statistics methods. It has been determined that nowadays this trend is described by exponential equations. At the same time, an analysis of economic history shows that no exponential trend lasted long, and most often it ended with a crisis. The only factor supporting this growth is the particular demand in the limited supply market. We should expect a significant drop in the cryptocurrency market after users' interest will reach its peak.

Despite its revolutionary feature, cryptocurrency payment system is a logical result of the evolution of financial intermediation, which, in the process of developing its functional focus regarding providing liquidity to operations, created the basis for negative financialization trends in the context of globalization, demonstrated the inefficiency of financial intermediation and, moreover, formed the basis for the emergence of spaces without any mediation.

However, the development of such spaces indicates that the economic system has reached a new stage, which may be fundamentally different from all previous ones without adequate institutional support. Previously, the interaction of subjects developed on the basis of information

asymmetry and trust, with the mediator being a mediating link in the world of information asymmetry. Blockchain technology has become a case of interconnection without information asymmetry and trust. Therefore, the endogenous uncertainty of blockchain will become a decisive factor, demonstrating the limited social reserve of human and society variability. Further development towards full exploitation of new technological capabilities, including artificial intelligence capabilities, can lead humanity to a post-social model based on transhumanism, that do not exclude attempts to preserve traditional value-institutional and technological focuses.

Thus, virtual currency is a huge amount of computing power and digital assets. The cryptocurrency is gaining a stable positions in the international market at this stage of humanity's technological development. The rapid development stimulates further capacity growth and interest, but it can eventually lead to failure. However, it can be used in international transactions, not just for speculative profit, if the price stability of the cryptocurrency is achieved. However, this question will be related to the legalization process of a new currency and recognizing it as a means of exchange, or of keeping the value of money.

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## References

- Borri, N. (2019). Conditional tail-risk in cryptocurrency markets. *Journal of Empirical Finance*, 50, 1-19. <https://www.sciencedirect.com/science/article/abs/pii/S0927539818300781>
- Bouri, E., Shahzad, S. J. H., & Roubaud, D. (2019). Co-explosivity in the cryptocurrency market. *Finance Research Letters*, 29, 178-183. <https://www.sciencedirect.com/science/article/abs/pii/S1544612318302976>
- Caporale, G. M., Gil-Alana, L., & Plastun, A. (2018). Persistence in the cryptocurrency market. *Research in International Business and Finance*, 46, 141-148. <https://www.sciencedirect.com/science/article/pii/S0275531917309200>
- Chuen, D. L. K., Guo, L., & Wang, Y. (2017). Cryptocurrency: A new investment opportunity? *The Journal of Alternative Investments*, 20(3), 16-40. <https://jai.pm-research.com/content/20/3/16.short>
- Cocco, L., Concas, G., & Marchesi, M. (2017). Using an artificial financial market for studying a cryptocurrency market. *Journal of Economic Interaction and Coordination*, 12(2), 345-365. <https://link.springer.com/article/10.1007/s11403-015-0168-2>
- ElBahrawy, A., Alessandretti, L., Kandler, A., Pastor-Satorras, R., & Baronchelli, A. (2017). Evolutionary dynamics of the cryptocurrency market. *Royal Society open science*, 4(11), 170623. <https://royalsocietypublishing.org/doi/full/10.1098/rsos.170623>
- Eyal, I. (2017). Blockchain technology: Transforming libertarian cryptocurrency dreams to finance and banking realities. *Computer*, 50(9), 38-49. <https://ieeexplore.ieee.org/abstract/document/8048646>
- Hayes, A. S. (2017). Cryptocurrency value formation: An empirical study leading to a cost of production model for valuing bitcoin. *Telematics and Informatics*, 34(7), 1308-1321. <https://www.sciencedirect.com/science/article/abs/pii/S0736585315301118>
- Hileman, Garrick, and Michel Rauchs. "Global cryptocurrency benchmarking study." Cambridge Centre for Alternative Finance 33 (2017). <https://www.crowdfundinsider.com/wp-content/uploads/2017/04/Global-Cryptocurrency-Benchmarking-Study.pdf>
- Howell, S. T., Niessner, M., & Yermack, D. (2018). Initial coin offerings: Financing growth with cryptocurrency token sales (No. w24774). National Bureau of Economic Research. <https://www.nber.org/papers/w24774>
- Li, X., & Wang, C. A. (2017). The technology and economic determinants of cryptocurrency exchange rates: The case of Bitcoin. *Decision Support Systems*, 95, 49-60. <https://www.sciencedirect.com/science/article/pii/S0167923616302111>
- Liu, Y., & Tsyvinski, A. (2018). Risks and returns of cryptocurrency (No. w24877). National Bureau of Economic Research. <https://www.nber.org/papers/w24877>
- Yi, S., Xu, Z., & Wang, G. J. (2018). Volatility connectedness in the cryptocurrency market: Is Bitcoin a dominant cryptocurrency? *International Review of Financial Analysis*, 60, 98-114. <https://www.sciencedirect.com/science/article/abs/pii/S1057521918304095>.



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