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MACROECONOMIC APPROACH TO THE REAL ESTATE MARKET

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Abstract

The article is devoted to the study of the macroeconomic approach to the real estate market. The real estate market is an important component of national wealth, and its functioning has a significant impact on the formation of the country's gross domestic product. This necessitates the development of existing research, since in a period of economic changes and instability it is important to understand how macroeconomic factors affect the real estate market and with the help of which tools it is possible to achieve the effective functioning of this market. The purpose of the study is to generalize the influence of macroeconomic factors on the real estate market and to identify the main problems that must be solved in order to achieve stable and balanced operation of this market. The research is based on statistical data analysis, comparative approach, generalization of theoretical approaches and research. An overview of the main studies on the problems of applying the macroeconomic approach to the real estate market is presented. The summary of the main results includes a review of the factors affecting the real estate market and a visualization of their impact using statistical data. The last part provides a generalized assessment of the impact of macroeconomic factors on the real estate market and indicates the need for effective state regulation and policy coordination in this area. The study has potential benefits for economists, real estate professionals and stakeholders interested in market dynamics and factors affecting the real estate market at a macroeconomic level.

Keywords

macroeconomic approach, real estate market, macroeconomic factors, state regulation, mortgage, real estate.

Formulation of the problem

Macroeconomic theory, its knowledge and understanding play a large role in the study of behavior and determinants that affect the economy of the country as a whole. Macroeconomics is primarily about the study of how the economy works on a large scale. Typical subjects of study of macroeconomic theory are growth rates, economics, monetary policy, and the study of markets. Macroeconomics aims to study all the factors affecting the country's economy in their inextricable connection with each other. The economy of any country is a combination of a large number of different markets, which in turn are a system of relations between buyers and sellers. The real estate market is a significant segment of the economy, which plays an important role in achieving the goals of the stability of the national economy and its economic development. The real estate market is an important component of national wealth, and its functioning has a significant impact on the formation of the country's gross domestic product (GDP). The country's GDP, in turn, is one of the most important indicators of the state's economic well-being and gives an understanding of the volume of production of goods and services in the country for a certain period of time. There is also an inverse relationship - GDP has an impact on real estate markets, and therefore the higher the indicators of economic growth, the more the real estate fund grows. It is important to note that the investment attractiveness of the state is also determined by the conditions for conducting business in the real estate sector, and direct foreign investment is an important component of economic growth, first of all, for developing countries, which includes Ukraine.

Relevance of the chosen topic

Like other markets, the real estate market has its own macroeconomic cycle, which corresponds to the standard market phases of rise, boom, recession and recession, its formation and functioning are influenced by many factors, including the manifestation of unforeseen circumstances, such as a pandemic. In a period of economic change and instability, it is important to understand how macroeconomic factors affect the real estate market and what tools can be used to achieve the effective functioning of this market. It is precisely because of the dynamism of this market that the problem of researching approaches to determining the manifestation of factors in the development of the real estate market, as well as statistical indicators that make it possible to investigate the influence of factors through specific data, is relevant. Because of the above, scientists set themselves the task of developing a theoretical base and practical studies of the problems of the impact of macroeconomic factors on the real estate market.

Analysis of recent research and publications

Today, a large number of points of view and approaches to the study of the influence of the main macroeconomic variables on the trends of the real estate market are presented. Thus, Marfatia et al. (2020) examine the determinants of real estate prices, primarily the role of different types of uncertainty. Panagiotidis and Printzis (2015) conduct an analysis of the interdependence of real estate price indices and macroeconomic determinants of the Greek market. Grum and Govekar (2016) examine the relationship between macroeconomic factors and real estate prices in different cultural environments. Allen et al. (2016) show that real estate prices can be interpreted as a function of macroeconomic variables such as the growth rate of real GDP, the current account balance, the imbalance between investment and savings, and public debt. Pessoa et al. (2021) conclude that only a rapid economic recovery in the short term, especially GDP, can provide the stimulus that the residential real estate sector has resumed its growth trajectory. Tham et al. (2022) focus on understanding the short- and long-term implications of macroeconomic variables for distressed property loans. Wilhelmsson (2020) single out changes in the interest rate as the main factor affecting the real estate market and model its potential (direct and indirect) impact.

Purpose and task

The purpose of the study is to understand the impact of macroeconomic factors on the real estate market and to determine the main tasks that need to be solved in order to achieve a stable and balanced operation of this market. In order to achieve the goal, the work sets out the task of researching and summarizing the factors affecting the real estate market; examine statistics demonstrating the impact of force majeure circumstances causing changes in the economy, such as the COVID-19 pandemic; to investigate the state of the real estate market of Ukraine; determine the impact of real estate market cycles on the country's economy.

Presentation of the main research material

Macroeconomic theory, its knowledge and understanding play a large role in the study of behavior and determinants that affect the economy of the country as a whole. Macroeconomics is primarily about the study of how the economy works on a large scale. Typical subjects of study of macroeconomic theory are growth rates, economics, monetary policy, and the study of markets. Macroeconomics aims to study all the factors affecting the country's economy in their inextricable connection with each other. The economy of any country is a combination of a large number of different markets, which in turn are a system of relations between buyers and sellers. An example of functioning markets can be the labor market, the money market, the market for IT services, the market for means of production, etc. The real estate market, the functioning of which will be discussed later, is no exception to the rules.

Highlighting the main components that are inherent in the macroeconomic approach to the study of the real estate market, the following elements can be noted: prices for real estate objects, volume of supply, volume of demand among consumers, equilibrium price, price elasticity, determinants of the real estate market, etc. National statistics are used to study trends in the real estate market and assess the economic impact of price changes. In addition, a macroeconomic approach to the real estate market can help determine the determinants that influence changes in the main economic indicators of the real estate market. Such determinants can be inflation, the level of employment of the population, the interest rate, incomes and the level of unemployment, the amount of supply and demand in the market, the number of counterparties, the level of investments in the industry, etc. So, the real estate market is a place where people buy and sell buildings, structures, and land plots. It, like any other market, works on the basis of the law of supply and demand, which is the basis of its functioning. The price of real estate depends on how many people buy and sell it, and in what quantity. There are many different parties involved in the real estate market, including sellers, buyers, brokers, agents and other intermediaries involved in the conclusion of contracts. When a seller decides to list his building or land for sale, he hopes to sell it for the highest possible price in order to increase his own profit. At the same time, buyers are interested in finding a property that fits their budget and needs. If the price of the house coincides with the one that the buyers are ready to pay, then the agreement is concluded and the sale is carried out - the interests of the seller and the buyer are reconciled. Graphically, the law of supply and demand in the real estate market can be displayed in Figure 1.

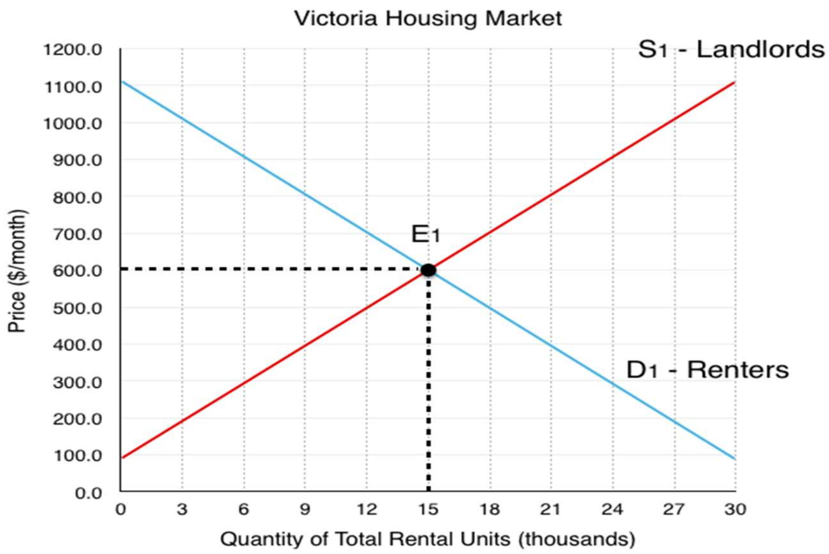

Figure 1: Demand and supply in the real estate market

Source: materials used (Hutchinson, 2018)

The graph represents the interaction between two variables: the price (Price) and the volume of real estate objects (Quantity of total Rental Units). The supply graph (Landlords, sellers) is shown in red the demand graph (Renters, buyers) is shown in blue. Point E1 is the equilibrium point at which the equilibrium (market) price and equilibrium volume are established. The equilibrium point in the real estate market is established as a result of the reconciliation of the interests of both the buyer and the seller. That is, the law of supply and demand works here, when the equilibrium price is the point of intersection of the demand curve on the part of real estate buyers and the supply curve on the part of counterparties who offer to put the real estate object up for sale. The real estate market has many factors that influence consumers, including real estate prices, availability of financing, location, and quality of real estate (Hutchinson, 2018).

The modern real estate market is characterized by the fact that developers change the direction of their activities in order to meet the needs of consumers. In the public sector, this means a decrease in the total area, which increases demand in the primary housing market. The cost of such housing fell into the price range of the secondary market. For buyers with high purchasing power, adding a comfortable living environment is a priority when choosing a home. Therefore, developers targeting this sector immediately plan housing with such infrastructure as security, parking and landscaping. Technological innovations for energy saving have also had a positive impact on the real estate market. Today, it is important not only to buy a home, but also to pay the costs of electricity, heating and energy supply. Consumers positively evaluate the presence of private heating in new buildings, the initial installation of two-tariff electricity meters and well-thought-out autonomous control systems (Petryshchenko et al., 2018).

In the modern market situation, the state plays an important role as one of the regulators of the real estate market. For example, the state can set an upper limit on the rental price. In this case, the lessor cannot charge rent for use higher than the established fixed rent. In addition, the state itself can act as a market entity, offering, as an example, the construction of social housing. State administration bodies are actively involved in carrying out reforms in the field of the real estate market. This issue is also relevant for Ukraine, especially in the context of the development of the land reform, which ended with the beginning of the full operation of the land market from July 1, 2021 (Ministry of Agrarian Policy and Food of Ukraine, 2021). If we talk about the role of the state in the real estate market in Ukraine, many authors focus their attention on the fact that the state should stimulate this market in our country, using various tools. For example, there is an opinion (Shatkivska, Burkina, 2020) that for the further development of the real estate market, active intervention of the state is necessary in the following steps: improvement of the investment climate, control over the solution of housing issues, improvement of market analytics, increase in the purchasing power of business. The state should have an institutional approach to regulating, organizing and controlling the activities of real estate market participants (Samoilova, 2019).

An important element affecting the real estate market is the level of interest rates. When interest rates are high, it can become more expensive to borrow money to buy a home, which can reduce the demand for homes from buyers. Sellers, in turn, when the interest rate increases, have to increase the price of rent, which leads to an increase in the market price of real estate, and as a result - to a decrease in market demand. Here we can note the impact of inflation on the real interest rate, because the higher the inflation rate, the lower the real interest rate. Interesting in this regard is the study of experts of the International Monetary Fund (Ahir et al., 2023) which demonstrated that now house prices continue to fall as the cost of borrowing increases. As an example, the Federal Reserve System of the United States was given, which raised the rate to 4.5-4.75%. In turn, this led to an increase in the mortgage rate, which reduced the market value of housing and real estate in general.

Graphically, the relationship between the level of interest rates and the value of real estate can be displayed on the example of trends in the real estate market in Australia over the past 30 years, which is shown in Figure 2.

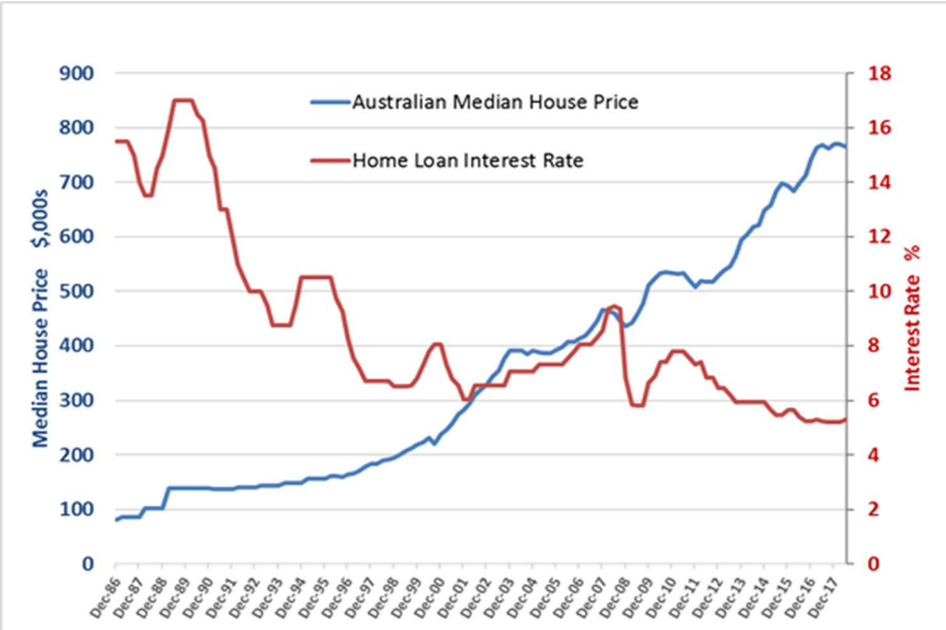

Figure 2: The interrelation between the interest rate and the change in the value of real estate in Australia for the period 1986-2017

Source: materials used (Buckingham, 2018)

Mathematically, the relationship between the interest rate and the real estate value can be expressed by the following formula (Buckingham, 2018):

$$P = \frac{R}{r} \times 100\%, \tag{1}$$

where P is the real estate value, R is the rent, and r is the interest rate. The mathematical model proves the thesis that with an increase in the interest rate at a constant rent, the value of real estate decreases.

The financial sector is the most important intermediary between depositors and borrowers, providing access to financial instruments for business and investment. In the real estate market, financial instruments such as loans and mortgages are key to the acquisition and development of real estate. On the one hand, the financial sector can create excessive demand for real estate through excessive lending and mortgages, leading to rising real estate prices and the formation of bubbles. On the other hand, credit resources can be a source of financing for investors who intend to develop and modernize real estate, creating new jobs and contributing to the development of other sectors of the economy. The real estate market has a direct impact on consumers, since the purchase of real estate is one of the most important and expensive purchases in a person's life. Therefore, consumers are usually very careful and careful when choosing real estate and planning their financial resources. In order to confirm the thesis about the importance of the financial sector in the real estate market, one should consider such a lending instrument as a mortgage. In European countries, the volume of mortgages can reach up to 50% of the country's GDP. As of 2020, this figure in Ukraine was only 0.7% of the gross domestic product. The existing ratio for other countries can be seen in Figure 3.

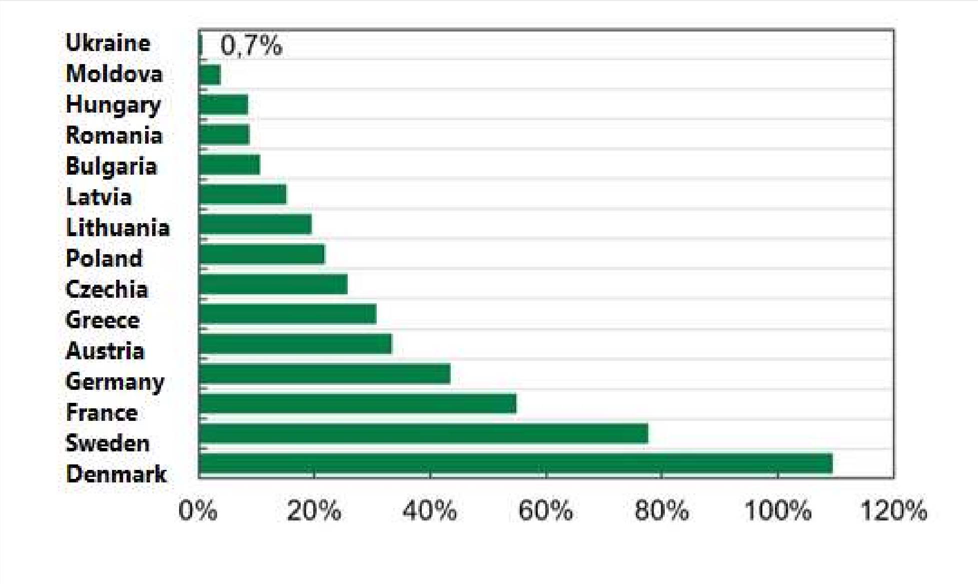

Figure 3: Ratio of mortgage to GDP in 2020 by country
Source: materials used (Shmyhel, 2021)

In addition, the availability of financing can also affect the real estate market and consumers. The availability of mortgage loans and other forms of financing can increase the demand for real estate and allow a wider range of consumers to purchase real estate. However, funding constraints and higher interest rates may lead to reduced demand and lower property prices, as discussed above.

The real estate market has a significant impact on the country's gross domestic product (GDP), which is one of the most important indicators of the state's economic well-being. It reflects the volume of production of goods and services in a country over a certain period of time, and the real estate market is an important component of this process. GDP reflects the country's level of development and has an impact on real estate markets. The higher the indicators of economic growth, the higher the real estate fund (Shkurupii, Bilobrova, 2012).

First, the real estate market plays an important role in stimulating one of the most important sectors of the economy - the construction industry. The construction industry provides employment and contributes to GDP growth through the construction of new buildings and infrastructure. The real estate market also stimulates the development of other industries, such as the furniture industry, the production of building materials and electronics. Second, the real estate market affects consumer activity, which is the main source of GDP. Investments in real estate increase the welfare of the population and increase consumer confidence, which, in turn, increases spending on a range of goods and services, positively affecting GDP. Thirdly, the real estate market affects investment activity, which is also an important component of GDP. Investment in real estate can attract investors who can finance different sectors of the economy, which in turn can contribute to GDP growth.

Investing in the real estate market can be highly profitable, but also associated with significant risks. Investors usually invest in real estate with the goal of generating income from the rental or sale of the property. The advantage of real estate investment is that it can provide a more stable source of income compared to other investments such as stocks or bonds. However, the risks are also significant. For example, real estate prices can fluctuate, and selling real estate during falling prices can result in a loss. The multiplier effect of investments provides an increase in additional demand not only from the service sector, but also due to an increase in demand for related services, such as the construction of communal and engineering infrastructure, which in turn leads to an increase in the economic activity of the population due to the creation of new jobs (Duhinets, Aliiev, 2020).

One of the key criteria for successful investment in real estate is the location of the object. For example, properties located in more developed areas with high rental demand can give a potential investor a higher return on their investment. In addition to the cost and potential profitability of the property, it is also important to consider the costs associated with the management and maintenance of the property. Establishing and maintaining communications between buyers and sellers is equally important. In such conditions, there is fierce competition in the real estate market, which forces real estate owners to create complex commercial models. An example of such a model can be called PropTech. This model combines functionality that is necessary for real estate market entities to improve their own services. For example, it can be the optimization of decisions regarding digital projects in the real estate market (smart buildings, smart villages, smart cities, etc.) (Balabash, 2018).

In the context of the influence of external factors on the real estate market, it will be interesting to consider the cases of the influence of the circumstances of a continuous force, causing changes in the economy. One such factor that shook the whole world was the COVID-19 pandemic. Despite the general economic downturn, which was caused by the lockdowns, the dynamics of the real estate market, in general, was positive. A similar trend can be observed on the example of one of the companies that implements its services on the real estate market. It is presented in Table 1.

Table 1: Changes in the cost and capitalization of different types of apartments by year

Period (year)	**Studio apartment**		**Apartment with 1 bedroom**		**Apartment with 3 bedrooms**	
	Price on January 1	**Capitalization for the past year**	**Price on January 1**	**Capitalization for the past year**	**Price on January 1**	**Capitalization for the past year**
2014	Від £22400	-	Від £33400	-	Від £84000	-
2015	Від £24000	7,1%	Від £39900	19,5%	Від £89900	7,0%
2016	Від £26500	10,4%	Від £40500	1,5%	Від £92900	3,3%
2017	Від £30000	13,2%	Від £44900	10,9%	Від £98900	6,5%
2018	Від £33500	11,7%	Від £48900	8,9%	Від £119900	21,2%
2019	Від £37700	12,5%	Від £55700	13,9%	Від £146000	21,8%
2020	Від £43900	16,4%	Від £60900	9,3%	Від £159900	9,5%
2021	Від £46900	6,8%	Від £62900	3,3%	Від £169900	6,3%
Growth in 7 years	£22500	109,0%	£29500	188,0%	£85900	102,0%
Average per year	£3500	15,6%	£4214	26,9%	£12271	14,6%

Source: materials used (Heritage Investments, 2022)

So, while the lowest apartment price growth over the past seven years was 14.6% p.a., the most popular currently are affordable studios with an average price increase of 15.6% p.a., and the record holder is 1+1 apartments with an average price growth by 26.9% per year.

It is worth noting that the average housing supply in Ukraine is much lower than in many European countries, and in 2019 the total housing area per capita was only 24.2 square meters. m. The share of construction in the structure of Ukraine's GDP in 2012-2019 averaged 2.29%, which is a low indicator compared to the indicators of European countries. The dynamics of the volume and share of investments at the expense of state funds in the structure of capital investments in housing construction in Ukraine in 2012-2019 indicate a rather low level of state investment opportunities in the field of housing construction and the need for financial and credit development. In 2016-2019, the share of state-funded investments in housing construction decreased from 7.6% to 0.9%, respectively. In absolute terms, such investments decreased from UAH 3.4 billion in 2016 to UAH 511.9 million in 2019. It should be noted that only part of the total volume of capital investments is related to the creation of new assets, that is, a new housing stock. In particular, in 2019, these investments in new housing amounted to UAH 52,263.0 million, which is 5.4% or UAH 2,698.0 million more than in 2018. In contrast to the structure of gross capital investments, a large number of new assets is characteristic, which may indicate insufficient funds for repair, reconstruction and renewal of the old housing stock and, as a result, a possible future deterioration in the quality of residential real estate sold on the secondary market. In 2018-2019, new assets accounted for an average of 69% of capital investments in Ukraine, while modernization, reconstruction, and technical re-equipment accounted for about 17%, and major repairs accounted for about 10% (Shteinhauz, 2021).

Real estate, like many other sectors of the economy, is prone to cyclical activity. Macroeconomic cycles in real estate are related to the state of the economy as a whole. For example, during periods of economic growth, demand for real estate increases, leading to higher real estate prices. On the other hand, during periods of economic downturn, demand for real estate may decrease and real estate prices may fall. In addition, cyclical changes can occur in the residential real estate market, for example, depending on the demand for apartments in different areas of the city.

In general, the real estate market cycle includes such phases as rise, boom, decline, recession. The boom phase is characterized by an increase in demand for real estate. During the boom phase, real estate prices remain elevated, demand exceeds supply, and the real estate market is actively traded. During the recession phase, real estate prices begin to decline, demand decreases, and the real estate market experiences less activity. In the recession phase, a crisis occurs in the real estate market: the number of counterparties decreases, prices fall, and the volume of supply decreases. In this context, the interaction of the real sector of the economy, the real estate market and the money market is interesting, the impact of which was analyzed earlier. Figure 3 shows the relationship between the real sector of the economy and the monetary sector and their impact on the real estate market.

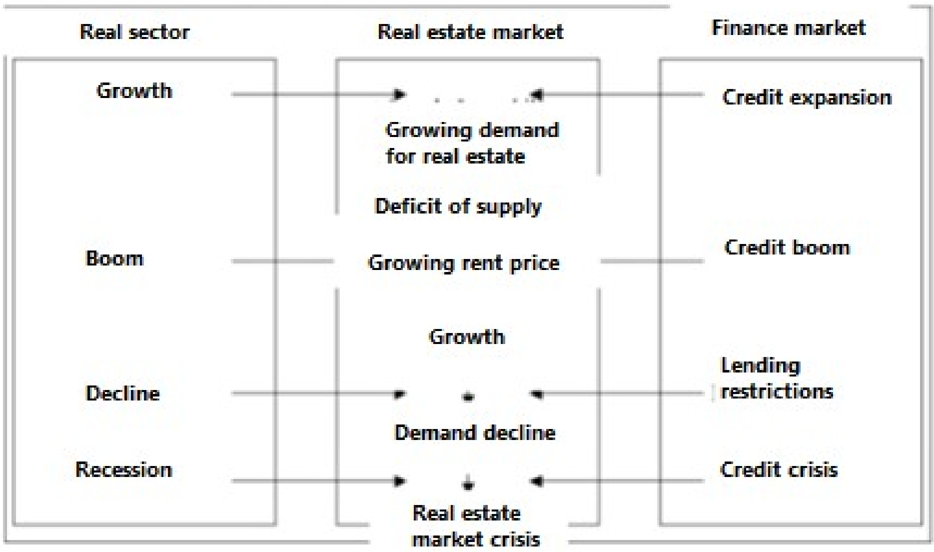

Figure 4: The interrelation between the real sector of the economy, the real estate market and the monetary sector
Source: materials used (Halenko, Rizva, 2018)

Real estate market cycles can have a significant impact on the economy as a whole. For example, during the boom phase of the real estate market, the amount of construction increases, which can stimulate employment growth and promote the development of related industries. However, during the recession phase, real estate prices can fall so much that they can lead to a crisis in the real estate market and threaten the stability of the banking system. It is important for investors to understand that these cycles can affect their real estate investments and make appropriate decisions about buying and selling real estate based on market conditions. The real estate seller should take into account all the factors and trends that exist in the real estate market in order to implement the agreement on the sale of the property on the most favorable terms (Halenko, Rizva, 2018).

Conclusions

A macroeconomic approach to the real estate market is a comprehensive approach to understanding the mechanisms of interaction in the market between buyers and sellers. This interaction is based on the law of supply and demand. As a result of the interaction of many buyers and sellers in the market, there is a relationship between the offer of real estate and the market price for it. Thus, the final market price of real estate is set in such a way as to satisfy the interests of both sellers who seek to sell real estate at a certain price and buyers who seek to purchase real estate at the best price. A seller in the real estate market should pay attention to monetary factors that play an important role in further investment in real estate. The higher the interest rate, the lower the real estate price on the market; it will be unprofitable for sellers to invest in this industry, so the supply in the real estate market will fall. Like other markets, the real estate market has its own macroeconomic cycle that follows the standard market phases of boom, bust, bust, and recession. It should be noted that the real estate market has always been an important component of national wealth and gross domestic product. The investment attractiveness of the state is also determined by the conditions for conducting business in the real estate sector. Research can be focused further on the impact of globalization on real estate markets. Special attention could be paid to the relationship of real estate markets in different countries with the increase in international investments and changes in migration trends. To get a complete picture of the real estate market, it would be helpful to research both commercial and residential properties. Analyzing the impact of macroeconomic factors on sectors such as office, retail and industrial real estate is important for economic development and investment. A more complete understanding of the macroeconomic approach to the real estate market can be achieved through comparative analysis with different countries and regions. This can help detail the impact of macroeconomic factors on the real estate market in different contexts and identify possible approaches to optimizing market regulation.

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