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У випуску висвітлюються різноманітні аспекти соціального підприємництва та інновацій в економіці України та Норвегії. Даний збірник підготовлений в рамках співпраці економічного факультету Чернівецького національного університету імені Юрія Федьковича та Інституту доктора Яна-Урбана Сандала, зокрема наукового обміну молодих науковців до норвезького інституту. Результати досліджень представлені на 60 Саміті «Розмови про нові проблеми соціального підприємництва. Відзначення 10 річниці проведення 2008-2018» в рамках проведення IV Міжнародної Шумпетерівської конференції «Наукова спадщина Йозефа Алліза Шумпетера та сучасність: погляд із минулого в майбутнє» (03-04 жовтня 2018 року, Чернівці).

Для науковців, фахівців-практиків, викладачів навчальних закладів, аспірантів, студентів - усіх, кого цікавлять теоретичні та прикладні аспекти економічних досліджень.

The issue covers various aspects of social entrepreneurship and innovation in the economy of Ukraine and Norway. This collection was prepared within the framework of the cooperation of the Faculty of Economics of Yuriy Fedkovych Chernivtsi National University and the Fil. Dr. Jan-Urban Sandal Institute, particularly scientific exchange of young scientists to the Norwegian Institute. The results of the research are presented at the 60th SUMMIT Conversations on Emerging Issues in Social Entrepreneurship Ten Years Anniversary 2008 - 2018 within the framework of the IV International Schumpeterian Conference "Joseph Alois Schumpeter's Scientific Heritage and Modernity: A View from the Past into the Future" (October 03-04, 2018, Chernivtsi).

It can be used by scientific employees, practitioners, teachers of institutions of higher and secondary specialized education, students. This issue is intended for all who are interested in theoretical and applied aspects of economic research.

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ENTREPRENEURSHIP AS THE KEY INSTRUMENT TO OVERCOME THE GLOBAL FINANCIAL CRISIS AND ITS IMPACT ON THE ECONOMY OF UKRAINE

Entrepreneurship and innovation have always been essential in the economic life of society. They are the driving force that moves it forward into the future.

One of the largest economic shocks of today is the Global financial and economic crisis, which began in the United States in 2007 and affected the economies of all countries around the world. The crisis has caused significant damage to the economy of Ukraine and caused significant economic and political problems in the future.

The aim of this article is to highlight the whole complex of causes and consequences of the Global financial and economic crisis, the image of the process of growth and transformation of the national bubble in the US real estate market, to an economic catastrophe on an international scale, name and describe its devastating consequences for resource-based economy of Ukraine, and also search for answers on how to prevent similar crises in the future perspectives of the views of Schumpeter.

The article presents the key ideas of J. A. Schumpeter on freedom of entrepreneurship and market liberalization and the necessity of innovation for economic prosperity. Named principles, the observance of which will improve the economic situation of Ukraine will make the national economy more robust and stable with respect to external and internal crises.

Keywords: *Entrepreneurship, innovation, Global economic and financial crisis, Joseph Alois Schumpeter, the economy of Ukraine, the ways out of the crisis*

Introduction

The global financial crisis began in the United States in 2007 and affected in different ways all economies around the world. The crisis caused big damage to the Ukrainian economy and caused significant economic and political problems in the future. The emergence of the financial and economic crisis in Ukraine became obvious in autumn 2008, after the deterioration of several economic indicators and financial problem reports of a number of leading commercial banks of the country. The most affected were the export-oriented industrial sector, especially the metallurgical and mechanical engineering complex that were unable to recover after the crisis. The role of these industries in the economy fell rapidly.

In such times, Schumpeter's thought becomes even more crucial to understand by economists. It helps to see not just the struggles, but also the new opportunities. It does not have the easiest or fastest solutions, but the solutions that really work and can lead the society to a better and prosperous future based on respect and personal freedom.

Presentation of the basic material

The financial crisis started in the US mortgage crisis back in 2006. The main reason was the growth of problem loans to unreliable borrowers. Due to saturation of the market of real estate, speculative bubble burst and property prices collapsed. For this, the market value of the houses collateral for the

loans could not cover the nominal value of the loan. This put many banks on the brink of bankruptcy. To get rid of doubtful loans banks have converted them into securities and, often, in collusion with the rating agencies put them on the stock exchange. It was the tipping point that turned mostly local mortgage crisis in global financial, because these securities, the true value of which was extremely doubtful, scattered in portfolios of investors around the world.

The crisis became noticeable in the spring of 2007 and started to grow to international dimension. The largest mortgage company in the U.S. - New Century Financial Corporation, had to resign from the New York stock exchange, because of the ban imposed on trading of its shares. Over the next time, dozens of companies and banks losses a lot of their value, due to fall in their stock prices, high amount of not returned debt, or even become bankrupt, like, Lehman Brothers. That's why fear and distrust among banks and investors grew around the world. The stock market collapsed and the interbank cooperation decreased significantly.

Extremely dense and intertwined interconnectedness of financial institutions in the market led to the fact that the crisis, which should only apply to credit institutions operating on the market for long-term and high-risk mortgage loans, affected first on American financial system, and then worldwide. According to experts of Investment Bank Goldman Sachs, financial institutions around the

world for two years of the crisis caused 1.2 trillion US dollars damage. At the same time, only American institution lost to \$ 460 billion US dollars [1]. These substantial losses led to the collapse of the stock markets of the world. During 2007, securities in the global stock market fell by \$ 5 trillion US dollars. As a result, investors turned their attention from the stock market to the markets of gold and oil, which led to a price increase for oil and gold. This, in turn, provoked the intensification of global inflation and the slowdown of the world economy [1].

The crisis, which started in the USA, spread rapidly throughout the world. In addition, because many German financiers, both from private institutions and State banks actively bought these dubious securities, the crisis quickly moved to Germany and, because of the importance of German Economy to the entire European continent. Many

other European countries did the same. It led to many economic problems in the EU. Markets of EU are very important for Ukraine, so economic problems in EU led to export troubles in Ukraine. The decline in business activity on the stock exchanges of the world and the decline in world production affected Ukraine a lot because Ukrainian economy is export-oriented [3]. As we can see from the graph (Fig. 1), at the time of the onset of the global financial crisis, Ukraine's economy was on the rise. From 2000 until the third quarter of 2008, the economy grew on average by 7.5 % per year. The global financial crisis, which quickly spread around the world in the fall of 2008, interrupted the growth cycle of Ukraine and many other countries with developing economies. Ukraine suffered one of the deepest economic downturns and one of the largest currency devaluations in its history during this crisis.

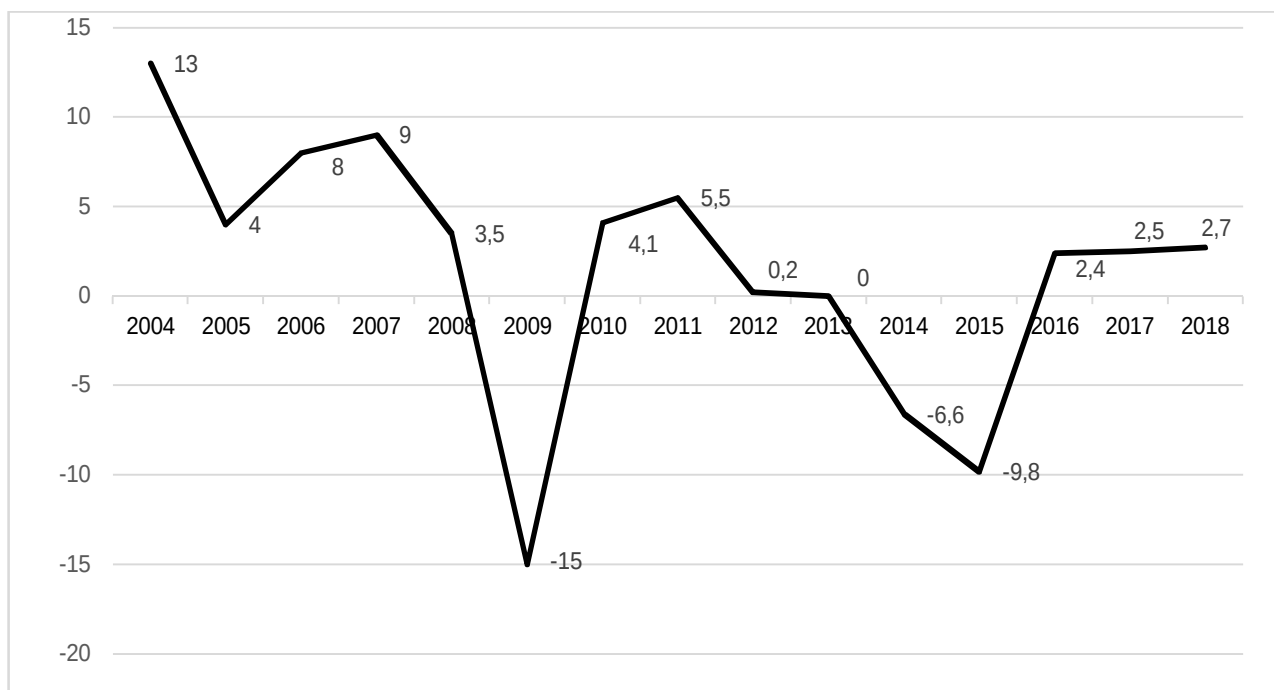


Fig. 1. Dynamics of GDP (in % to the previous year) in Ukraine 2004-2018 yy [4])

It should be noted, that in common with external negative factors, which contributed to the crisis, there were also many internal factors. The main ones were the growth of external debt, the growth of consumer credit, the outflow of speculative capital from Ukraine, which resulted in a sharp devaluation of the national currency –Hryvnia. More than 50% of the credits in the Ukrainian economy was issued

in foreign currency, mainly in US dollars; this increased the amount of debt and the cost of its maintenance for borrowers [2].

Due to the crisis significantly reduced the demand for traditional products of Ukrainian exports, primarily products of metallurgy and chemical industry (Fig. 2).

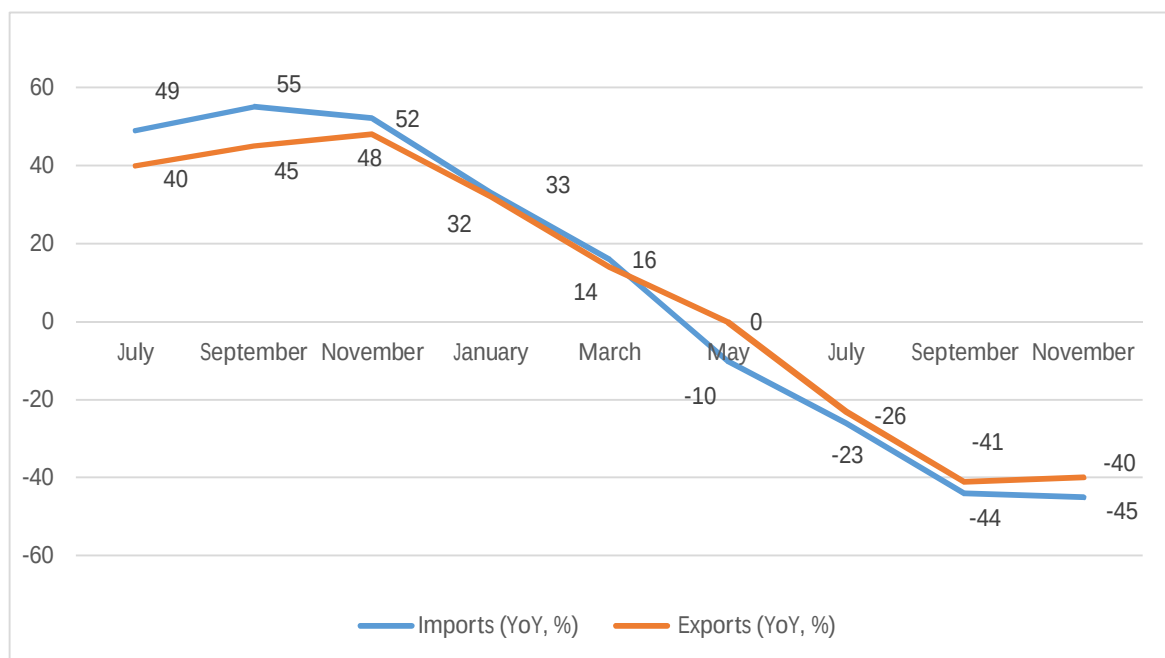


Fig. 2. Export and import growth rates 2008-2009

This situation occurred in foreign markets, was unexpected for Ukrainian exporters. As a result, at the end of 2009, the Ukrainian enterprises of mining and metallurgical complex reduced the production of iron, steel and decreased by 34-39 %. It was a very strong blow for the whole sector of the economy. It would not completely recover. Ukraine lost a significant portion of the heavy industry, it failed to revive after the crisis and its remnants continued stagnation in 2014.

Also in 2008, significant challenges faced the banking system. Despite a significant decline in 2009, production rates, rising unemployment and an increase in bad and doubtful debts on loans to both individuals and legal entities, the situation on the financial market was extremely complicated. There was an outflow of deposits and the growth of problem loans and large payments on foreign loans of banks. Due to the global financial crisis, banks have lost the possibility to attract syndicated loans, and the ability to refinance old debts remained limited. As a result, banks significantly reduced lending to both legal entities and individuals, which before the crisis was one of the most important sources for investment and consumption. Accordingly, it decreased the demand for cars, housing and a number of consumer products.

At the end of 2008 and in 2009, the inflow of funds in the financial account declined, while payments increased, which resulted in the deficit of the financial account and capital account. Due to the decrease in the supply of foreign currency in the interbank market amid heightened demand for

foreign currency from both corporate sector and households. In the face of uncertainty, the Hryvni a lost almost half its value. To support the national currency, the National Bank–NBU forced to spend the mean of its reserves and used the IMF assistance.

A significant decline in the economy prompted many employers to cut costs, particularly labour costs. This resulted in increased unemployment, which reached 9.5% of the economically active population aged 16-70 years in 2009. However, at the end of 2008 and in January 2009 in the number of sectors was reduced the level of compensation. Therefore, incomes from wages decreased in real terms. The economic slowdown led to a drop in State budget revenues compared to 2008, which also reflected in the reduction of income from social transfers in real terms. Accordingly, in 2009, household consumption declined by 11.6%. This affected the decline in industrial production in 2008-2009: the real output of all industries decreased by 34.1% over the previous year.

After the crisis in Ukraine in 2010, total external debt amounted to 116.2 billion US dollars and it was 88.2% of GDP [4]. Under these conditions, a prudent monetary policy is quite difficult. Minor, but unexpected changes in such factors as the increase in foreign interest rates, the economic crisis in trading partners, changes in conditions in international financial markets could easily devalue the national currency that automatically would be pouring public dollar debt. Therefore, during the crisis, the National Bank has chosen the tactics of administrative containment rate. It cost Ukraine all its gold

reserves, and when they ended in the year 2014, it spawned a new crisis.

Factors of weakness of the Ukrainian economy

The rapid decline of the Ukrainian economy showed its unwillingness to confront the challenges of the crisis at least due to several reasons. First, the crisis again showed low diversification of exports, with a high level of dependence of the economy on external demand. In 2008, more than 40% of exports were metals and their products, mainly iron and steel. Moreover, about 80% of domestic production metallurgy was for export. The level of modernization in the sector remained low equipment factories often were from the Soviet era, which resulted in relatively high production costs. Another problem was the low quality of products of Ukrainian metallurgy, which on world markets were not traded under long-term contracts, which meant more risks for exporters. Although many metallurgical companies started investment projects aimed at improving energy efficiency and reducing the costs of production, and improved quality, but not all projects were completed before the start of the crisis. The fall in world metal prices and an increase in gas prices were the adverse circumstances that forced businesses to cut production. A similar situation was also in the chemical industry. In general, the lack of strategic thinking by the Ukrainian entrepreneurs who counted on the further favourable external environment reflected in the unavailability of the major industries before the crisis.

During the pre-crisis years, final consumption of the households was the driving force behind real GDP growth. In the first quarter of 2008, real final consumption of households grew by 22.5%, while real GDP grew by 6.3%, which was an indicator for overheating of the economy. A significant part of consumption, especially the demand for industrial goods was met by imports, which also grew much faster than exports. Consumption growth was not only due to a rapid increase in revenues, which was stimulated by the increase in the minimum wage and pensions but also by the large volume of granted bank loans. The main source for these loans were foreign loans taken by Ukrainian banks. In a crisis, situation banks were faced with the problem of payment of foreign loans, since a deterioration of the domestic economic situation affected the quality of loans, while the possibility of external refinancing virtually disappeared.

However, the populism of Ukrainian authorities led to an imbalance in the structure of household income and budget. Thus, in particular, almost the same share in the structure of household income occupied by the wage and social transfers, which

clearly reduces the incentives to search for work. In addition, a rapid growth in social expenditures of the budget took place, which deprived the government of the opportunity to manoeuvre during the crisis. It also dislocated funds from much-needed infrastructure investment projects. The government was forced to take IMF loans on the financing of the budget deficit: 6.0% of GDP in 2009.

In 2009, the building housing companies, faced with a shortage of money even to continue ongoing projects. Many years later, across the country, it was common to observe entire landscapes of unfinished houses. The crisis affected Ukraine much stronger than other countries, due to the lack of large-scale structural reforms. In particular, the pension system reform was started but not completed. It was not conducted a tax reform, the reform of intergovernmental fiscal relations as well as administrative-territorial reform. The government also failed to introduce a reform of social assistance that would promote the real protection of the poor people during the crisis. The law on public procurement, which introduced transparent procurement procedures was not adopted during the crisis, it contributed to corruption, of which the level was high. The licensing system was not simplified, it hindered the development of the small and medium size businesses, which count for the vast majority of enterprises and to secure and stabilize the economy. As a result, during the economic crisis, the government faced significant challenges regarding the implementation of economic policy measures aimed at supporting the economy and social protection, in conditions of insufficiently reformed economy and a very limited budget.

Private business innovations as the security against economic breakdown

In theory, the economy is always about input and output. By the same efficiency, you can never make greater output without increasing the input. A very best way to increase input is to enhance innovations. To innovate is a part of human nature, all the mankind history is shaped by big challenges, like the agrar or the industrial revolution, exploration of new lands invention of train or internet. We are living in a complex and dynamic world in which innovation and entrepreneurship are occupying a decisive role for economic development. According to Joseph Alois Schumpeter, innovations is the only function, carry in gout the new combinations, which is fundamental in history. Schumpeter's words that entrepreneurship is innovation have never seemed as appropriate as the nowadays when modern capitalism experienced a serious crisis and lost his strength during last subprime and euro-debt crises. Until today, the world economy is still in stagnation.

Joseph Alois Schumpeter is regarded as one of the greatest economists of the first half of the twentieth century. At that time, he took part in the most important economic debates. The concepts of innovation and entrepreneurship are probably Schumpeter's most distinctive contributions to economics [5]. One of the most common themes in Schumpeter's writings was the role of innovation – “new combinations” and entrepreneurship in economic growth.

In Schumpeter's theory, the possibility and activity of the entrepreneurs, drawing upon the discoveries of scientists and inventors, create completely new opportunities for investment, growth, and employment. It is not the power of ideas but the power that gets things done. Schumpeter says that “creative destruction” is “the essence of capitalism” [6]. A stationary economy, reactive, repetitive and routine, is a circular flow that admits of no surprises or shocks, “an unchanging economic process which flows on at constant rates in time and merely reproduces itself” [7].

The increasing complication of modern economies causes the necessity of a higher rate of economic interaction. Today's knowledge-based economies are dependent by a dynamic technological progress. The generation of innovation no longer depends on individual personalities but involves the cooperation of many different actors. This requires cognitive capabilities that increase the diffusion and thus the understanding of innovation leading to entrepreneurship.

Modern economy struggles should be seen not just as problems, but also as opportunities to create a new better, more sustainable financial tomorrow for the countries and for the world as the whole.

Conclusions

Because of national characteristics of Ukraine's economy such as lack of export diversification, concentration in resource exports, the obsolescence of the production equipment, lack of capital, constant budget deficits, heavy dependence on

energy imports, weak currency, and the distrust in her, imperfect legislation and the continuous political conflict inside the country, Ukraine was vulnerable to the global financial crisis. It caused very significant economic and political damage and changed the economic landscape of the country. Ukraine needed several years to recover the most parts of the economy, but some industries still are stagnating. The Ukrainian GDP until today, 2018, never reached pre-crisis level.

One of the hidden problems behind the world financial crisis was a lack of private innovations. That is why demand for capital was low, but the supply, due to FED and other Central banks monetary policies was wary high. This forced banks to give loans in the subprime sector. Market fluctuations and highly speculative bonds destabilizing the market always and may become the next starting point for the next crises like that, when every local speculative bubble can become the next crisis trigger.

To the benefit of economic stability and constant growth, it would be always important, that the main part of economic activity in society stay in the real sector. Only private entrepreneurship can create enough innovations to secure the further development of the economy. Private business creates jobs, pays taxes and brings wealth to society. It is very efficient because only efficient private enterprises can sustain on the market, otherwise, like by the action of Smith's invisible hand the will disappear.

If a country like Ukraine wants to be as successful, prosperous and democratic country it should create the best conditions for private enterprises, encourage investment, avoid unnecessary bureaucracy and liberalize the market enough to let him function properly. It would be the best security against economic breakdown and even when global crises appear, the economy will have enough power from inside for fast recovery.

References

1. Baranovsky A. anti-Crisis measures of governments and Central banks of foreign countries / A. Baranovsky // Bulletin of the National Bank of Ukraine. – 2009. – P. 8-19.
2. Geyets N. The catalyst of the financial crisis in Ukraine was the global crisis, but significant time-Tina prerequisites has an internal origin // Bulletin of the National Bank of Ukraine. – 2009. – No. 2. – P. 16-18.
3. Doroshenko I. V. Global financial crisis and its impact on economic development of Ukraine / I. V. Doroshenko. [Electronic resource]. – Available on http://www.nbuv.gov.ua/e-journals/PSPE/2008-3/Doroshenko_308.htm.
4. State statistical committee of Ukraine. [Electronic resource]. – Available on <http://www.ukrstat.gov.ua>.
5. Hanuush, H. and Pyka, A., 2007. Elgar Companion to Neo-Schumpeterian Economics, Edward Elgar//Cheltenham, p. 857
6. Schumpeter, J.A. Capitalism, Socialism and Democracy // 3rd edition, London -1942.
7. Schumpeter, J.A. Business Cycles: A Theoretical, Historical and Statistical //1939,

ПІДПРИЄМНИЦТВО ЯК КЛЮЧОВИЙ ІНСТРУМЕНТ ДЛЯ ПОДОЛАННЯ ГЛОБАЛЬНОЇ ФІНАНСОВОЇ КРИЗИ ТА ЙОГО ВПЛИВУ НА ЕКОНОМІКУ УКРАЇНИ

Підприємництво та інновації завжди мали важливе значення в економічному житті суспільства. Вони є рушійною силою, яка рухає її вперед у майбутнє.

Однією з найбільших економічних потрясінь сьогодні є глобальна фінансова та економічна криза, що почалася в Сполучених Штатах у 2007 році і позначилася на економіці всіх країн світу. Криза завдала значного збитку економіці України і спричинила значні економічні та політичні проблеми в майбутньому.

Метою даної статті є висвітлення всього комплексу причин і наслідків глобальної фінансово-економічної кризи, іміджу процесу зростання та трансформації національного міхура на ринку нерухомості США, економічної катастрофи на міжнародному рівні. масштабувати, називати і описувати його руйнівні наслідки для економіки, що базується на ресурсах України, а також шукати відповіді про те, як запобігти подібним кризам у перспективі поглядів Шумпетера.

У статті представлені основні ідеї Дж. А. Шумпетера щодо свободи підприємництва та лібералізації ринку та необхідності інновацій для економічного процвітання. Названі принципи, дотримання яких покращить економічну ситуацію в Україні, зробить національну економіку більш стійкою і стійкою щодо зовнішніх і внутрішніх криз.

Ключові слова: підприємництво, інновації, глобальна економічна та фінансова криза, Джозеф Алоїс Шумпетер, економіка України, шляхи виходу з кризи

Аннотация

Александр Кийко

ПРЕДПРИНИМАТЕЛЬСТВО КАК КЛЮЧЕВОЙ ИНСТРУМЕНТ ДЛЯ ПРЕОДОЛЕНИЯ ГЛОБАЛЬНОГО ФИНАНСОВОГО КРИЗИСА И ЕГО ВЛИЯНИЯ НА ЭКОНОМИКУ УКРАИНЫ

Предпринимательство и инновации всегда были важны в экономической жизни общества. Они являются движущей силой, которая продвигает его вперед в будущее.

Одним из крупнейших экономических потрясений сегодняшнего дня является глобальный финансово-экономический кризис, который начался в Соединенных Штатах в 2007 году и затронул экономики всех стран мира. Кризис нанес значительный ущерб экономике Украины и вызвал значительные экономические и политические проблемы в будущем.

Цель данной статьи - осветить весь комплекс причин и последствий мирового финансово-экономического кризиса, имидж процесса роста и трансформации национального пузыря на рынке недвижимости США, в экономическую катастрофу на международной арене. Приведите масштаб, назовите и опишите его разрушительные последствия для ресурсной экономики Украины, а также найдите ответы о том, как предотвратить подобные кризисы в будущих точках зрения Шумпетера.

В статье представлены основные идеи Дж. А. Шумпетера о свободе предпринимательства и либерализации рынка и необходимости инноваций для экономического процветания. Названные принципы, соблюдение которых улучшит экономическое положение Украины, сделают национальную экономику более устойчивой и устойчивой по отношению к внешним и внутренним кризисам.

Ключевые слова: предпринимательство, инновации, глобальный экономический и финансовый кризис, Джозеф Алоис Шумпетер, экономика Украины, пути выхода из кризиса

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