DOI: https://doi.org/10.30525/978-9934-26-191-6-6

Nataliia Versal
Doctor of Economics, Associate Professor,
Senior Lecturer at the Department of Insurance,
Banking and Risk-management
Taras Shevchenko National University of Kyiv

Mariia Balytska
Ph.D, Assistant at the Department of Insurance,
Banking and Risk-management
Taras Shevchenko National University of Kyiv

Vasyl Erastov
Ph.D, Assistant at the Department of Insurance,
Banking and Risk-management
Taras Shevchenko National University of Kyiv

ASSET PRICE BUBBLES AND WASTED TIME: THE CASE OF JAPAN AND UKRAINE

Summary

Asset price bubbles are a unique combination of economic and psychological factors. They occur in different countries with different cultural and economic developments. The study of this issue remains relevant because even increased regulation does not solve the problem of asset price bubbles. In this brief review of two bubbles, it was shown that, using the examples of Japan and Ukraine, it is possible to identify both general and specific factors and characteristics of such price bubbles. It is necessary to distinguish the stages of price bubbles formation, because each stage has its own specifics. At the stage of the bubble formation, common factors for both countries were the lack of regulation and the absence of financial stress over a long period;

specific factors for Japan were financial liberalization and the absence of cases of bankruptcy of financial institutions over a long period; for Ukraine were characterized by the following factors, namely lack of financial regulation, lack of experience with financial bubbles, economic recovery after a long period of uncertainty, growth of household incomes and formation of over-positive expectations, increase in bank lending to households combined with its absence in the past. During the bubble inflation phase, the common factors were lack of disclosure, positive expectations, aggressive banking, lower lending standards, and rising profits specific factors for Japan are reducing the balance of payments surplus, providing incentives for the yen appreciation, easing monetary policy, changes in fiscal policy, the need to coordinate U.S., Japanese and European policies to maintain global economic stability, taxation and regulatory specifics, easing monetary policy; For Ukraine, such factors were the growth of the real estate market, the inflow of foreign investment, and access to international capital markets. At the peak of the bubble, the common factors were euphoria, virtually unlimited access to financial resources, and a boom in asset prices. At the stage of the bursting of the bubble, the common characteristics were a sharp fall in prices, a sharp fall in demand, the collapse of the securities market, the use of monetary policy instruments; specific to Japan – «The Lost Decade», particular to Ukraine – the end of real estate mortgage lending, the disappearance of the emerging market for mortgage-backed securities. In turn, understanding the factors and characteristics of asset price bubbles at each stage allows for better policy decisions.

Introduction

An asset price bubble is a phenomenon that occurs from time to time in different countries, regardless of their economic development. One of the first bubbles was the tulip mania, which appeared in 1636–1637 in Holland. At that time, due to the limited volume of tulip bulbs and their growing popularity, prices rose many times (about 20 times in 4 months), and market regulation only contributed to the formation of this bubble. The result was a market collapse and a sharp fall in the price of tulip bulbs in February 1637 [30].

Another historical example of a financial bubble was the rise in the share price of the South Seas Company in the early 18th century. Thus, in just a few years, thanks to high speculative demand and the use of the scheme of converting government debt into shares, the company's share price rose from 120 pounds in the beginning to 1000 pounds in 1720, and then fell by 80% and even more. Such an event led to a stock market crisis in England, and soon to an economic crisis [19].

As for the housing bubble in the U.S. in the early 2000s, its formation was due to rising stock prices (the so-called stock market bubble). Households began to invest a considerable amount of capital, sharply generated by rising stock prices, into housing, which led to an increase in real estate prices and rents. Moreover, the collapse of the stock market bubble also spurred additional demand for real estate as investors' frustration with the stock market turned them toward real estate investments. Ultimately, the lack of proper regulation and the oversupply caused by the construction boom led to a market crash in 2007.

These examples show that asset price bubbles can occur in different markets. They often form in financial markets, especially stock markets, and in new markets such as cryptoassets. Typically, bubbles form because of inadequate regulation. However, one should not conclude from this that regulation will be a panacea. On the contrary, bubbles result from the irrational behavior of people who simply follow herd instinct. Therefore, perhaps it should be emphasized that asset price bubbles need to be examined from the perspective of behavioral finance.

The consequences of bubbles will most often be a crisis. The depth of the crisis will depend on the size of the bubble created, its fictitiousness, and its impact on other sectors of the economy. As the following two examples will show, the creation of bubbles in asset markets led not only to a deep crisis, but in Japan to the «Lost Decade», and in Ukraine to the almost complete disappearance of the mortgage lending market and the complete disappearance of the emerging mortgage-backed securities market.

Most studies of asset price bubbles point out that these bubbles represent an unprecedented rise in asset prices (e.g., securities, real estate) that occurs over a relatively short time horizon and cannot be explained by fundamental factors. The most difficult part of this definition is the explanation of fundamental factors. Another term is often used to refer to financial assets: fictitious assets. To a certain extent this is actually true. Indeed, it is enough to compare the volume of securities in circulation in the world with the global GDP. Therefore, it is perhaps most difficult to distinguish between fundamental and non-fundamental factors in financial asset markets and to determine the «fair» price of such assets.

In the real estate market, it is a little easier to do this because there is an understanding of the cost of buildings and the margin that the real estate developer wants to get. So, there is already a «fair» price to start with. Then two other factors come into play: supply and demand, which can provoke a bubble. Thus, limited supply and inadequately growing demand is the surest way to a bubble. This demand can be triggered by inadequate credit growth. The key issue is to see the tipping point for an unreasonable rise in asset prices when herding factors prevail over fundamentals. It is also necessary to take into account that all this is happening in the economic system, which means that other factors can also have a significant impact. For example, the exchange rate was such a factor for Japan and Ukraine, but realized under different scenarios.

Since the global financial crisis, which was triggered by the housing bubble, new policies have emerged that, among other things, can prevent or slow down the emergence of bubbles. Macroprudential policies that can be used to smooth out the credit markets, in particular mortgage lending, are considered.

Thus, the purpose of this paper is to identify the main causes, characteristics, and consequences of asset price bubbles in Japan (mid–1980s to early 1990s) and Ukraine (2006–2008).

Part 1. Asset price bubbles creation and blowing

When considering the factors that contribute to the emergence and development of bubbles, it is always possible to distinguish between general and specific factors relevant to each country.

This study identifies four stages of bubble formation: bubble creation, bubble blowing, bubble peak, and bubble bursting. At each stage, the factors that contributed to the acceleration of events in Japan and Ukraine are highlighted (Figure 1).

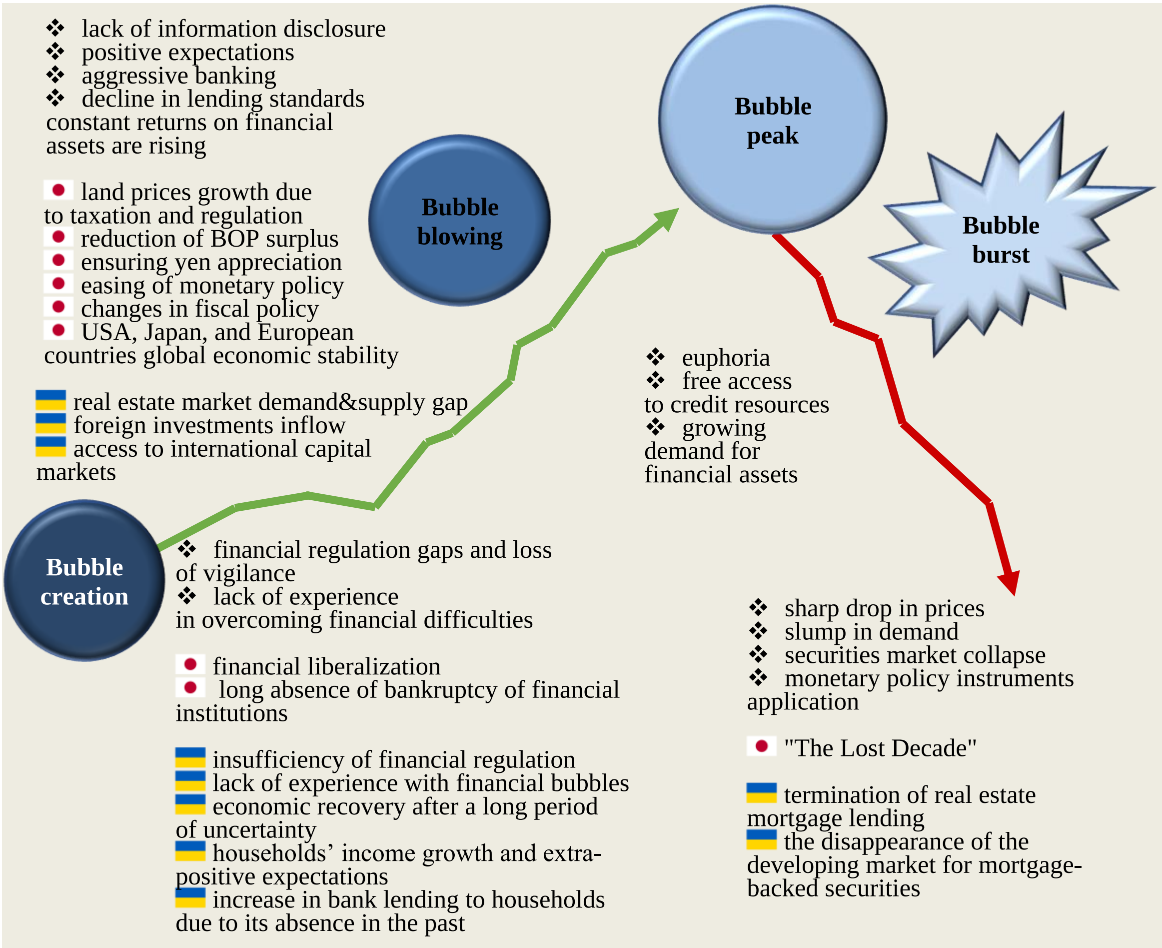

Figure 1. Stages of bubble formation

Source: authors' development based on [2; 17, p. 409; 21]

Lack of experience and inadequate financial regulation are very often common factors in the creation phase of a bubble.

To begin with, consider the lack of experience. First of all, it is about the fact that the country has not faced specific problems, or that this experience has been lost, or has not been there for a long period. For example, in Ukraine, since independence in 1991, there has been no experience of the formation of bubbles in financial assets. Therefore, when the boom in the mortgage lending market began (Figure 2, Figure 3), which provoked a rapid rise in prices in the residential real estate market, neither the regulator nor financial institutions paid due attention to it.

Figure 2 and Figure 3 presents data on mortgage lending in two currencies: national currency (UAH) and foreign currency (USD). Such an analysis is mandatory for Ukraine, as more than 80% of mortgages were issued in foreign currency. Accordingly, in the case of devaluation of the national currency data can be misinterpreted. The level of devaluation of the local currency in October 2008 was more than 30%, and if the data were presented in local currency, it would seem that nothing happened.

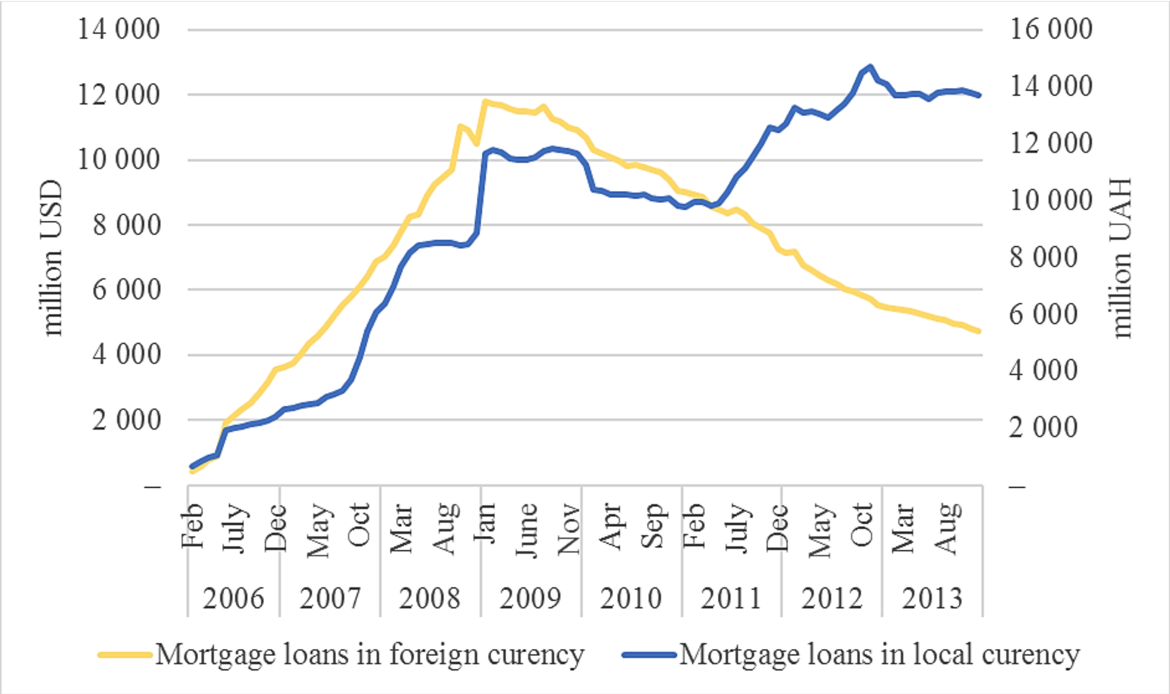

Figure 2. Dynamics of mortgage loans in national and foreign currency, 2006–2013, monthly data

Source: authors' elaboration using the NBU data [7]

In turn, another factor was realized in Japan: the loss of vigilance. For a long time, there were no significant bankruptcies of financial institutions in Japan, and there was a practice of keeping such events quiet [14, p. 364]. In this regard, it is simply necessary to recall H. Minsky's theory that argues «stability begets instability» [15; 12]

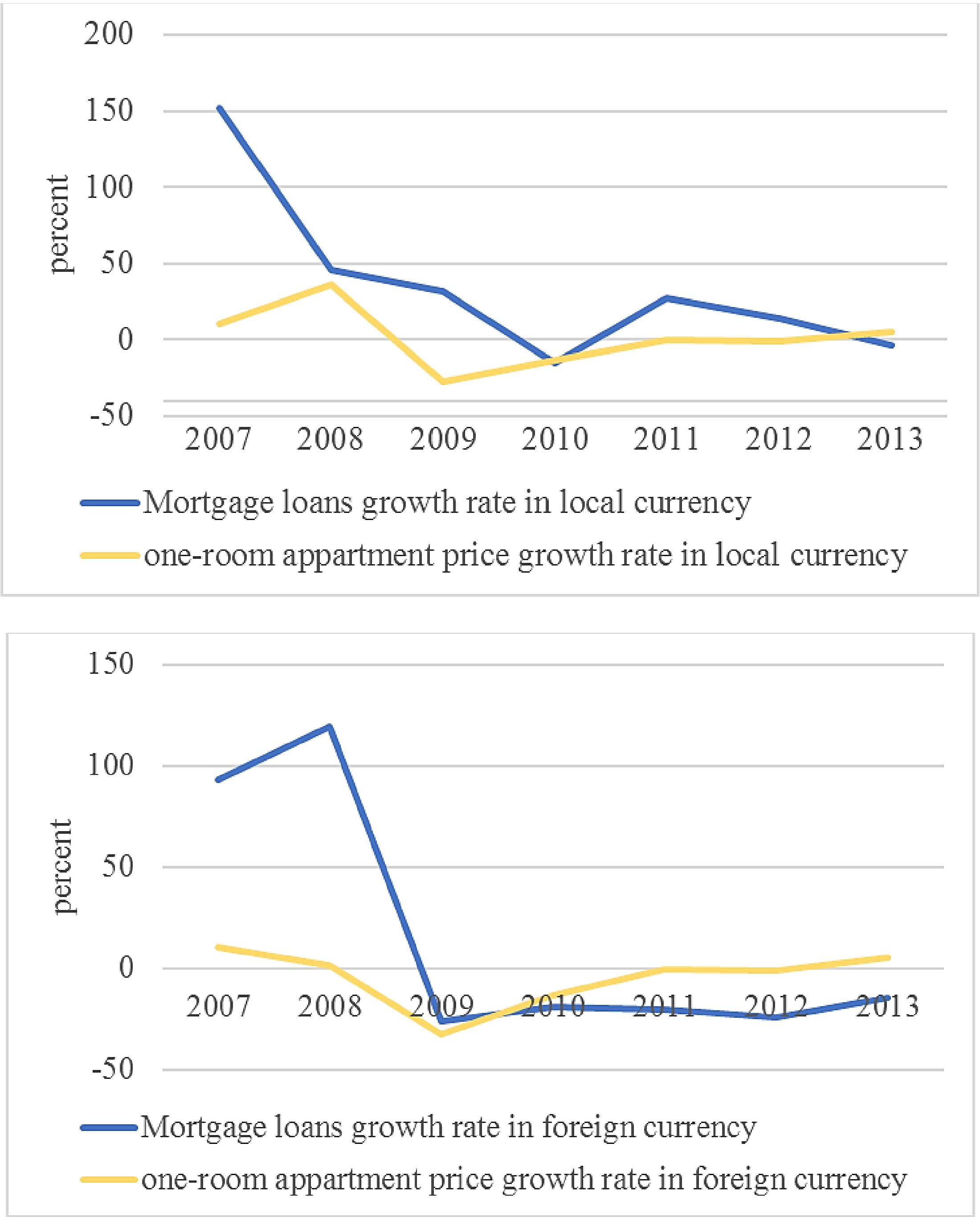

Figure 3. Changes in mortgage loans and prices in the real estate market (one-room apartment in Kyiv (the capital of Ukraine)) in the national (left graph) and foreign currency (right graph), 2007–2013, annual data

Source: [7; 13]

According to H. Minsky, financial intermediaries can have three models of behavior: hedge funds, speculators, and Ponzi schemes. He put forward two theorems about financial instability. The economy has financing regimes in which it is stable (hedge funds) and in which it is unstable (speculators and

Ponzi schemes). In the case of long-term prosperity of the economy there is an incentive to move from a stable regime to an unstable one, the worst variant of which are Ponzi schemes, which eventually leads to the collapse of asset prices [15]. That is why, for example, the collapse of the subprime market in August 2007 in the U.S. was called the «Minsky moment» [16].

Second, imperfect financial regulation. This can manifest itself in financial liberalization (Japan) and weak regulation (Ukraine).

Speaking about Ukraine, it should be noted that at that time there was practically no corporate governance in financial institutions, except for those founded by foreign banking groups. Banks were only implementing risk management as recommended by the central bank in 2004. The ownership structure of most banks was opaque, exacerbating risks. Strict exchange rate targeting created the illusion of stability and encouraged financial institutions to enter international capital markets without restrictions on borrowing (Figure 4). The more unexpected and unpredictable was the devaluation of the national currency in October 2008.

In turn, banks directed these foreign borrowings to mortgage lending and car loans in foreign currency. The lack of understanding, including experience of the possible negative consequences of such processes, led to the failure of financial regulators to ensure financial stability.

Financial liberalization in Japan has been multifaceted. Thus, at the international level, the following changes took place. Firstly, there was the liberalization of international banking. As a result, financing and lending in euro-yen was deregulated for residents and non-residents. This was primarily due to agreements between the U.S. and Japan on the appreciation of the yen [18, p. 10].

Secondly, the liberalization of international bond issuance – the relaxation of restrictions on the issuance of bonds in the international market. Restrictions on the issuance of yen-denominated bonds by non-residents in Japan have been significantly reduced. Thus, foreign issues of direct bonds increased almost threefold: from JPY 615 billion in 1984 to JPY 1,632 billion in 1986, and foreign issues of warrant bonds increased 4.5 times: from JPY 449 billion in 1984 to JPY 2,026 billion in 1986 (Figure 5) [18, p. 15].

Thirdly, the deregulation of operations in the foreign exchange market, when restrictions on open currency positions of banks were significantly weakened [18, p. 15–16].

Fourth, opening Japan's financial markets to non-residents. In particular, there was an agreement between the U.S. and Japan to allow foreign banks to engage in trust business and government securities transactions in Japan, as well as to allow them access to the Tokyo Stock Exchange. Since the 1950s in Japan, it should be emphasized that there is a distinction between banking and trust business, long-term and short-term banking, banking and investment business [8; 17; 18; 26].

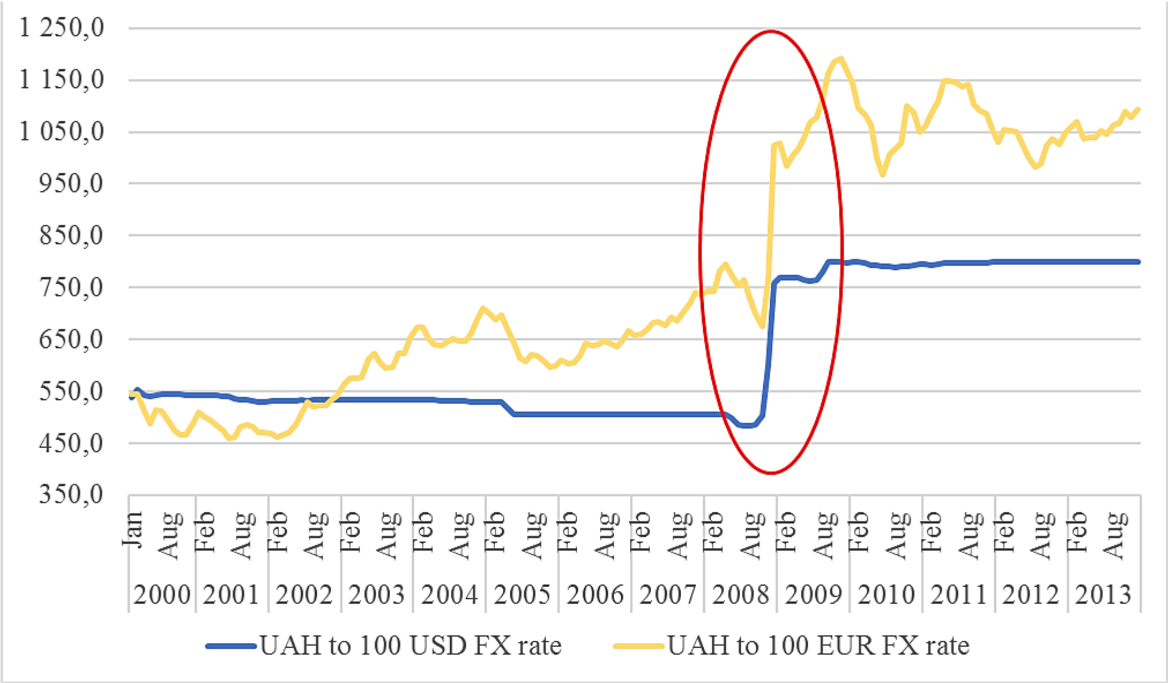

Figure 4. Trends in the UAH/EUR and UAH/USD exchange rates, 2000–2013, monthly data

Source: [7]

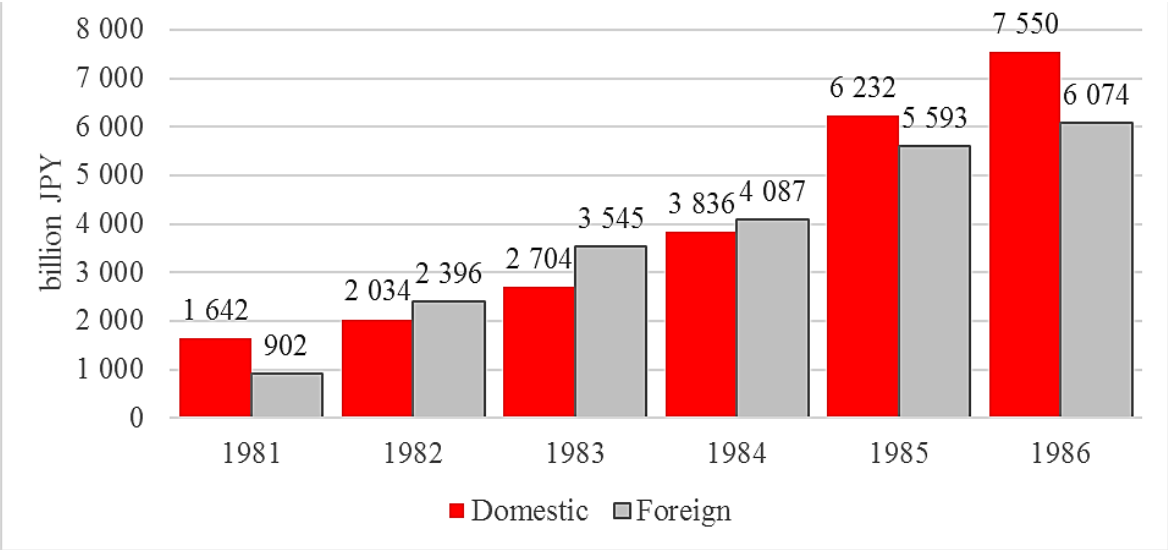

Figure 5. Total volume of corporate bond issues by Japanese residents, 1981–1986

Source: [18, p. 15]

Deregulation of the domestic money market concerned the following areas [18, p. 31, 35–39, 41–45]:

1) First, the liberalization of restrictions on the deposit market. For money market deposits and certificates of deposit there was an increase in the term of

deposits (from 1 – 6 months to 1 month – 2 years), an increase in the ratio of deposits to bank capital (from 75% to 300%), an increase in the minimum amount of deposits (for short-term deposits: from 50 million JPY to 10 million JPY, for certificates of deposit: 300 million JPY to 50 million JPY). On the market of large deposits there was a softening of the minimum deposit amount and an increase in the terms.

2) Second, the restructuring of interbank markets, open markets (changing the terms of the Bank of Japan's instruments) and the creation of new short-term money markets.

3) Third, the elimination of restrictions between the banking business and the securities business. Until the early 1980s, there was a separation of the two spheres in Japan. But in 1982 the Banking Law was passed, which allowed banks to operate in the securities market.

In the deflating phase of the bubble, the factors that played a significant role in both crises stand out. First, insufficient disclosure and lower lending standards. The first factor usually plays a significant role when investors and depositors, on the one hand, and borrowers, on the other, do not fully understand the risks accompanying certain transactions. For example, depositors in Ukraine had little understanding of the guarantee rules of the Deposit Guarantee Fund. Also, lenders and depositors did not understand that providing funds to banks in foreign currency did not mean minimizing all risks. In turn, in Ukraine banks significantly reduced the requirements for borrowers, as even unofficial employment was taken into account in assessing creditworthiness.

Second, positive expectations and ever-increasing returns in the financial asset markets. These were present in both Japan and Ukraine. These optimistic expectations were greatly enhanced by the extremely rapid growth of asset prices, which seemed endless. For example, in Ukraine the growth of real estate prices was so fast that it covered relatively high interest rates on mortgages.

Also, in Japan and Ukraine began to boom in mortgage lending and stock markets (Figure 6, Figure 7).

Third, aggressive banking activities. In Japan and Ukraine, banks actively promoted their banking products, particularly mortgages. At the same time, in Japan there was another reinforcing factor – the easing of monetary policy, which could lead to a rapid increase in asset prices [17, p. 415–416]:

1) a decrease in the cost of financial resources, thanks to which speculators in the stock markets received cheap sources to cover gaps when trading large amounts of financial assets, particularly securities. Of course, this situation contributed to the growth of speculative operations;

2) activation of the stock market and an increase in securities prices. All other things being equal, emitters' costs of issuing securities decreased and, as a result, securities issuers received significant amounts of funds for their activities [17, p. 415–416];

3) the Bank of Japan's interest rate cut: from 5% in 1985 to 2.5% in 1988. In turn, the artificial underestimation of interest rates contributed to the growth of borrowing in Japan [24]. Most scholars believe that it was only necessary to raise the central bank interest rate from 4% to 8% in 1988, and there was no economic bubble [17, p. 429]. But in reality the Bank of Japan only began to dynamically raise the rate in 1988. In fact, between May 1989 and August 1990 there were six rate hikes, from 2.5% to 6%, which led to the bursting of the bubble [24]. As a result, monetary easing became one of the triggers of the economic bubble in Japan [17, p. 429].

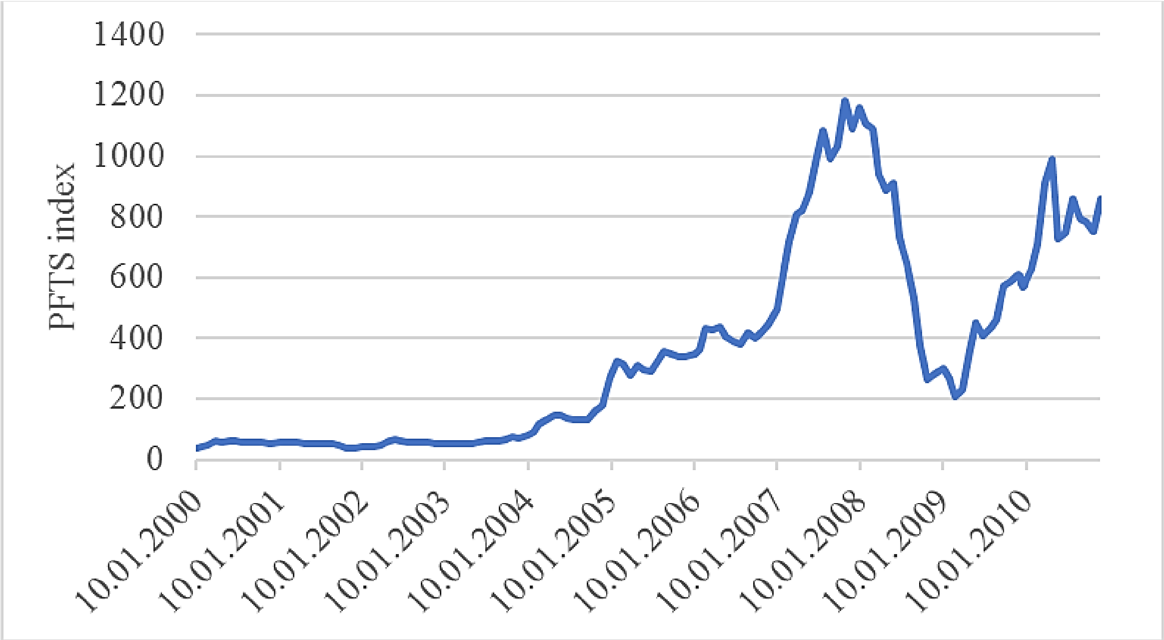

Figure 6. PFTS Index Trends, Ukraine, 10.01.2000–10.01.2013

Source: [20]

To justify monetary policy during the formation of the bubble, one should consider the Plaza Accord, signed in September 1985 by the finance ministers and heads of central banks of countries with the most developed economies (France, Germany, Japan, Great Britain and the United States). Implementation of the Accord was aimed at improving the economic efficiency of foreign exchange markets, restoring the trade balance between the United States and Germany and the United States with Japan, and weakening the U.S. dollar against the Japanese yen and the German mark to reduce the U.S. trade deficit. More specifically, the signatory countries committed the following: the United States to reduce the federal deficit; Japan and Germany to reduce taxes in order to increase domestic demand; France, Britain, Germany, and Japan to raise interest rates; and all countries to intervene directly in the functioning of foreign exchange markets and, if necessary, to adjust current account imbalances.

However, the revaluation of the yen led to recessionary pressures on the Japanese economy, which caused a serious short-term shock to its export industry. The result was a large-scale monetary and fiscal policy campaign aimed at supporting the Japanese economy [5]. Three main factors characterized monetary policy at the time: compliance with international agreements, preventing the strengthening of the yen, and reducing the balance of payments surplus [17, p. 419–421].

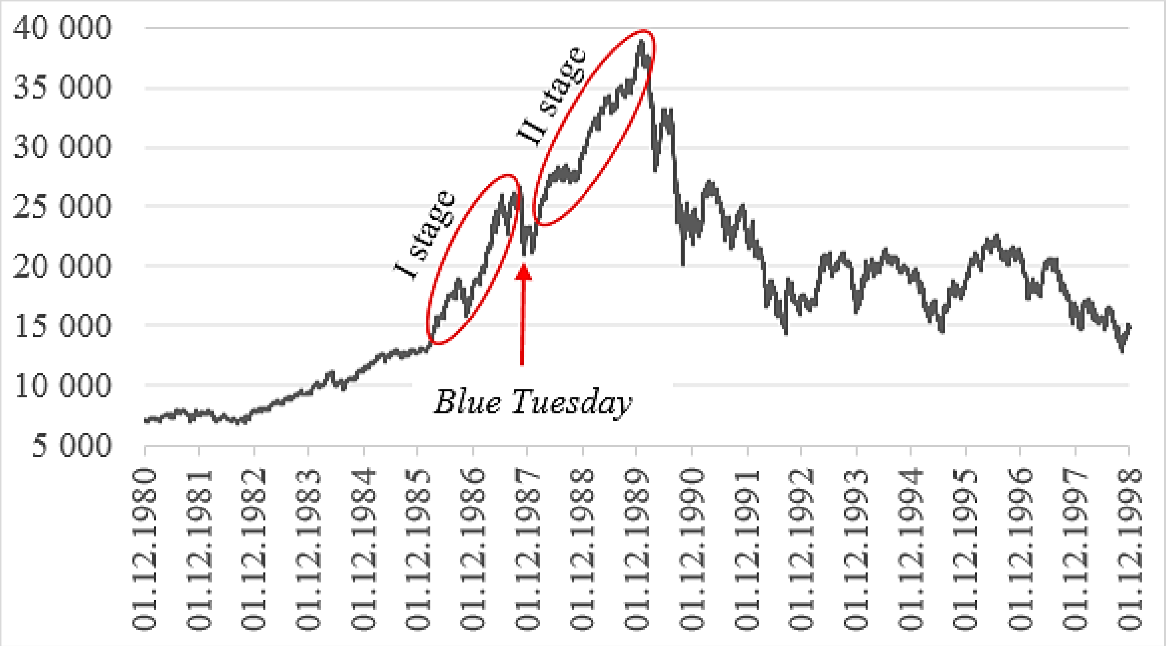

Figure 7. Trends in Nikkey 225, Japan, 01.12.1980–01.12.1998

Source: [11]

The growth of the population's wealth has shown banks an incredibly profitable niche for the placement of funds. It should be noted that banks in Ukraine have not paid proper attention to consumer lending for a long time. At the same time, the years 2006–2008 demonstrated how profitable this market segment could be.

When considering the case of Ukraine, the inflow of foreign investment and the volume of the real estate market, corresponding to the rapidly growing consumer demand, were reinforcing factors. The unprecedented growth of the stock market attracted foreign investors with very high yields, which could be 300–400%, as did the growth of the real estate market. Thus, Figure 8 shows the change in price for a one-room apartment in Kyiv from 2000 to 2013.

In general, the factors contributing to the creation and inflation of asset price bubbles will not, in their isolated manifestations, have such consequences. But it is likely that many of them will be found in other countries as well. The main problem in studying this phenomenon is that only a combination of factors feeding into each other can lead to the creation of an «economic bubble» or a «financial system bubble», and identifying such combinations is quite difficult.

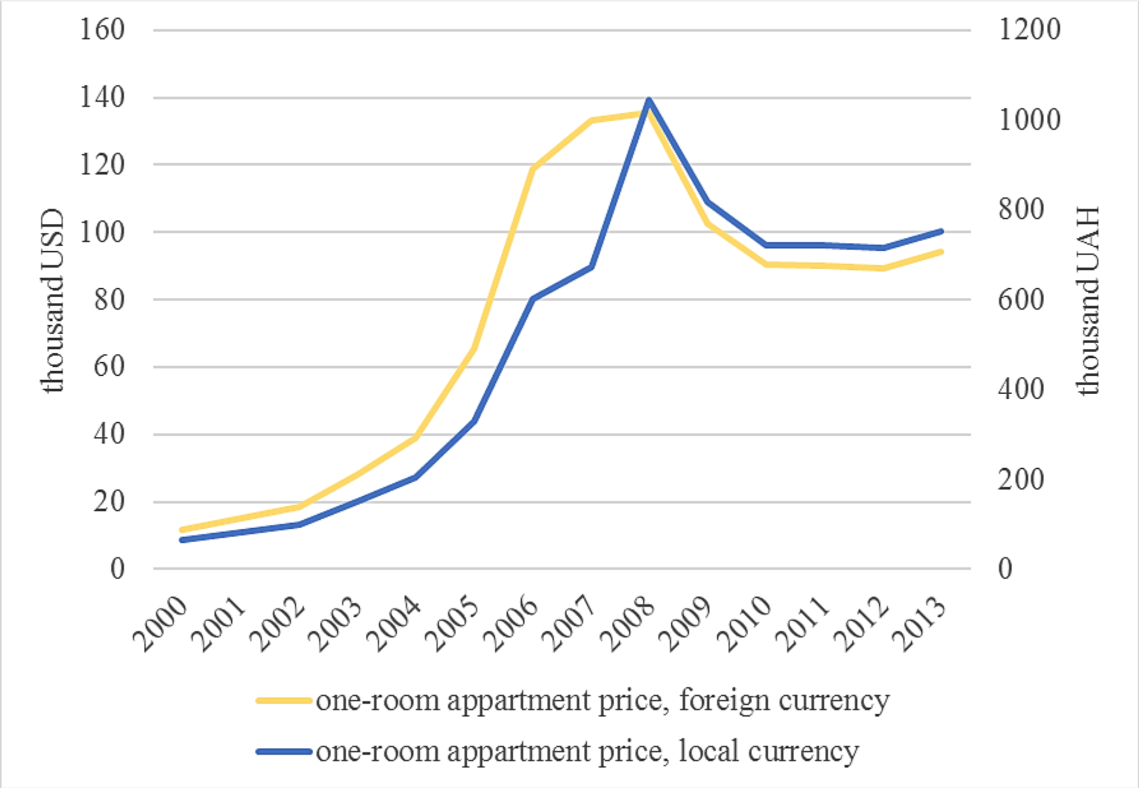

Figure 8. Dynamics of prices for studio apartments in Kyiv (the capital of Ukraine) in local and foreign currency, 2000–2013, the data for the year

Source: [13]

Part 2. Asset price bubbles peak and burst

Determining the peak of a bubble is quite difficult. For example, in Japan in 1987 one could assume that it was already a fully formed bubble, but as a result the market corrected and continued to grow. In fact, the 1987 crisis began in the United States on October 19, when the Dow Jones Industrial Average lost 508 points, falling 22.8%, the largest single-day drop in history. Global stock exchanges reacted as well, with Tokyo down 14.9% the next day, London losing 22%, and Frankfurt falling 12% between October 16-23. Losses in dollar terms were estimated at a total of $1.7 trillion, of which New York accounted for about $500 billion and Tokyo for $421 billion. Monday, October 19, 1987, went down in history as Black Monday, while in Japan it all started the next day – Blue Tuesday. But on the same day, the Ministry of Finance of Japan took steps to stabilize the market. As a result, the bubble did not burst, although the preconditions were already in place [25].

In general, Japan’s return to pre-crisis values was much faster than in the United States and Europe: it took Tokyo 5 months and New York, London and Frankfurt more than a year to recover [25].

Ultimately, it can be said that the peak of the bubble in Japan was delayed and, in fact, realized later (Figure 7, Figure 9). As can be seen, the asset price bubble formed in both the stock and credit markets. The consequences of this can also be seen in Figure 9, when lending volumes dropped significantly after the bubble burst.

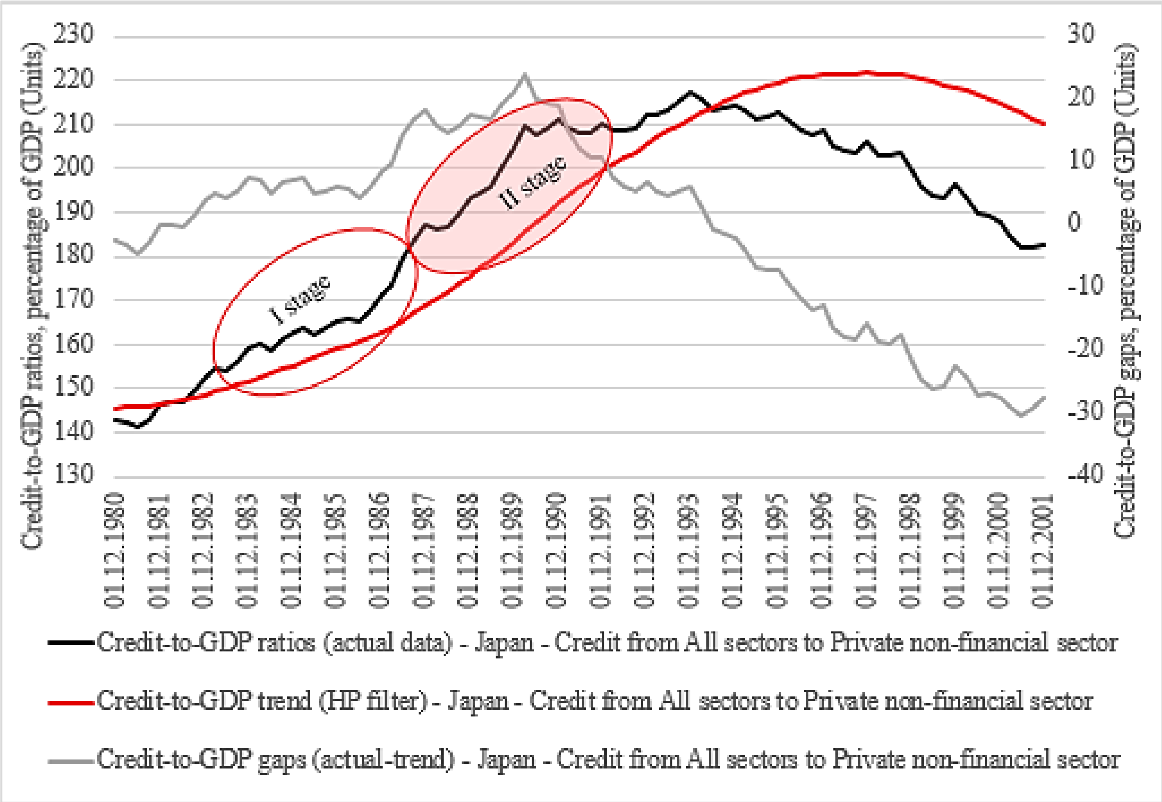

Figure 9. Credit-to-GDP ratio, 1980–2001, annually data

Source: [6]

As for Ukraine, there was no such warning sign. Nor was there any understanding of how a mortgage crisis in the U.S. or even a crisis in the mortgage-backed securities market could lead to a crisis in Ukraine. As a result, it turned out that there are different channels of crisis spreading: crises in one sector can spread to other sectors. Thus, the global financial crisis in Ukraine was transmitted through the channel of international trade, which led to a crisis first in the foreign exchange market, and then to the crisis of the financial system as a whole.

In both countries at this stage all three factors were realized: euphoria, free access to credit resources, and a rush demand for financial assets. In Japan, several factors contributed to the confidence and euphoria. First of all, the global stock market crash of 1987 showed that Japan was one of the countries that recovered quickly from it and continued economic growth.

The second factor was that Japan played a leading role in international financial markets. For example, Japan's external claims increased significantly with the growth of its current account surplus. As a result, the foreign activities of Japanese financial institutions expanded significantly, and their share in international bank lending in the fourth quarter of 1989 was 41%. There were also many acquisitions involving Japanese capital [17, p. 417–418].

The third factor is that Japan, represented by its high-tech firms, was «crediting» all other countries with its technology and achievements, especially in the field of semiconductors, and this gave the impression that economic growth would continue.

Well, and the last factor increasing confidence and expectations was the presence in Tokyo of international, especially American financial institutions, which turned the city into a global financial center, revived the already unreasonable land prices and further raised the credit of confidence in Japan [17, p. 417–418].

As far as Ukraine is concerned, the following factors should be emphasized. First of all, in 2007 Ukraine was one of the top countries with the stock market growth. Thus, from 01.09.2007 to 01.08.2008 the PFTS index grew by 133.2%. At first glance, there are some explanations for this growth, because the stock market against the background of the economic potential of Ukraine did have grounds for growth, and the value of the capitalization to GDP ratio (Figure 10) even at its peak was lower than in most developed countries, for example, in the world in 2007 this indicator was 114%.

Second, significant GDP growth. At the end of 2007, real GDP growth was 7.6% due to increased investment and consumer demand. Real wages grew by 12.5% over the year (18% in 2006), and wages of hired workers increased from 268.6 billion UAH to 355.1 billion UAH. One of the negative moments was a high level of inflation: the consumer price index was 116.6%. At the same time, the unemployment rate decreased by 15.4% [23].

Third, as shown above, growth in real estate prices has been increasingly pushed forward on two fronts: housing and land. This growth was accelerated by active mortgage lending and rising household wealth. Moreover, any reasoning that such price growth is inadequate has no rational evaluation. The above is illustrated (Figure 8) by the growth of prices for a one-room apartment in Kyiv: from 2000 to 2007 the growth of prices in dollar terms was 1028%. At the same time in other European countries there was the following increase in property prices from 1997 to 2007: Ireland – 251%, UK – 211%, Spain – 189%, Australia – 149%, France – 139%, Sweden – 138% [4].

Fourth, both single-tier and two-tier mortgage markets have been established in Ukraine. In 2007 and 2008, two Ukrainian banks issued 120 million UAH mortgage-backed bonds for the first time. The state mortgage institution also began refinancing the mortgage loans of Ukrainian banks by issuing mortgage-backed securities for this purpose.

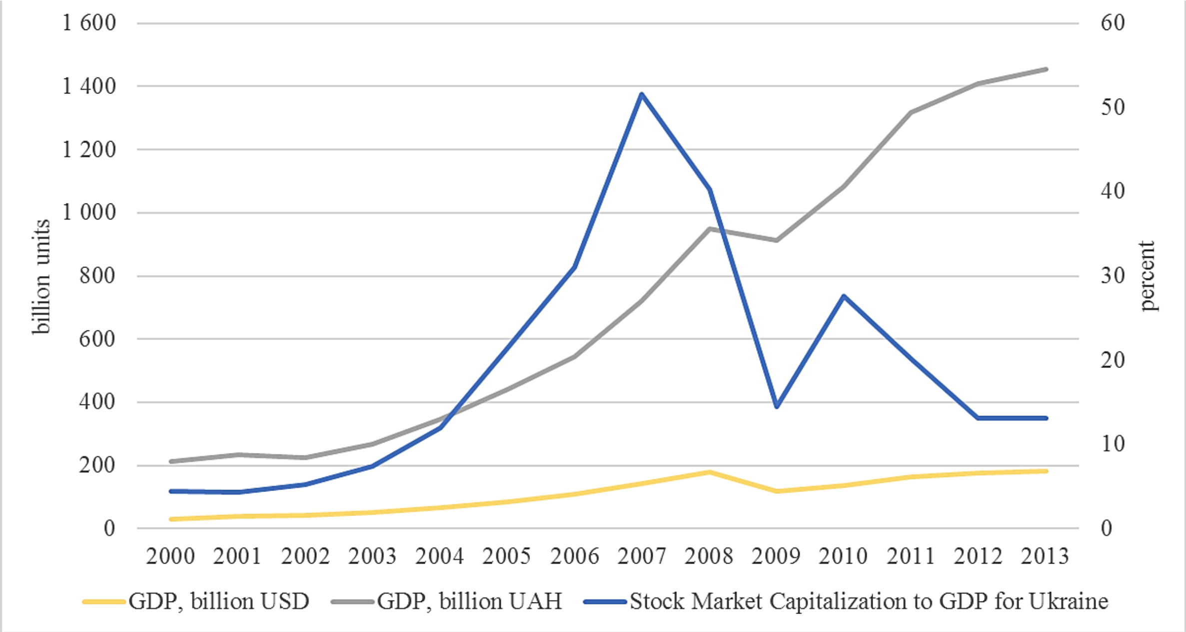

Figure 10. Trends of GDP and stock market capitalization to GDP in Ukraine, 2000–2013, annually data

Source: [10; 29]

In 2007, the volume of refinancing by this institution increased 11.1 times: from 100.08 million UAH as of January 1, 2007 to 110.22 million UAH as of January 1, 2008. In 2008, more than 70 banks became partners of this institution, and the state supported its functioning by providing guarantees for 1 billion UAH [28].

In the end, both bubbles in Japan and Ukraine burst, and the consequences were negative. In Japan, this led to a «Lost Decade»: the economic recession, which was accompanied by a reduction in lending, the fall of the stock market, the decline in real estate prices, etc. In Ukraine there was a banking crisis and economic downturn, and the mortgage lending segment was practically frozen. In addition, the fledgling mortgage bond market ceased to exist.

Conclusions

So, the paper showed that there are types of assets, the price of which can significantly deviate from their fair price under the influence of supply and demand. First of all, such assets are securities, currencies, cryptoassets. At the same time, real estate can become such an asset mainly when financial institutions contribute to the growth of household demand, in particular, through bank lending.

In general, despite increased regulation in this direction, price bubbles will continue to occur in the future, so it is necessary to understand the prerequisites for their emergence and consequences. The study focused on two bubbles separated in time and economic development of countries – the Japanese and Ukrainian asset price bubbles in the real estate and stock markets. The general factors and characteristics of asset price bubbles were also shown, as well as specific ones.

Four stages of asset price bubbles were identified: bubble creation, bubble inflating, bubble peak and bubble bursting, at each of which common and specific factors and characteristics were identified for Japan and Ukraine. At the stage of bubble creation, the general factors were the lack of regulation and the absence of financial stress for a long time; specific factors were financial liberalization, the absence of bankruptcies of financial institutions for a long period (Japan) and the lack of financial regulation, the lack of experience of financial bubbles, the recovery of the economy after a long period of uncertainty, the growth of personal income and the formation of super-positive expectations, the rapid growth of bank lending to the population (Ukraine).

Accelerating factors such as lack of disclosure, positive expectations, aggressive banking, lower lending standards, and rising profits were identified as common factors in the deflating stage of the bubble. Specific factors in Japan were reduction of balance of payments surplus, providing incentive for yen appreciation, easing of monetary policy, necessity of coordination of US, Japanese and European countries policies to maintain global economic stability, specifics of taxation and regulation, which accelerated growth of land prices. In Ukraine, such factors as the growth of the real estate market, the inflow of foreign investment, and access to international capital markets were highlighted.

At the peak of the bubble, the main factors were euphoria, virtually unlimited access to financial resources, and, of course, the rapid growth of asset prices. As a rule, at the stage of the bursting of the bubble, crisis phenomena arise, which primarily arise in markets where previously there was rapid growth: stock indexes fall, credit contraction (financial and banking crises), real estate prices fall (real estate market crisis), which can lead to an economic or financial crisis.

References:

1. Bank of Japan. Available at: https://www.boj.or.jp/en/index.htm

2. Baranovskyi O. (2009) Ekonomika «mylnykh bulbashok» [Economy of «soap bubbles»]. *Ekonomika i prohnozuvannia [Economy and forecasting]*, 1, 7–23 [in Ukrainian]

3. Bazylevych V.D., Prykaziuk N.V., Lobova O.M., Ihnatiuk A.I., Sholoiko A.S., Pikus R.V., Tretiak D.D. (2019) Rynok finansovykh posluh: pohliad u maibutnie [Financial services market: a look into the future]. Monograph. Kyiv: FOP Yamchynskyi O.V., 416 p. [in Ukrainian]

4. Change in home prices in selected countries between 1997 and 2007. Available at: https://www.statista.com/statistics/269427/residential-real-estate-prices-in-selected-countries-since-1997

5. Chen J. Plaza Accord. Available at: https://www.investopedia.com/terms/p/plaza-accord.asp
6. Credit-to-GDP gap and underlying input data. Available at: https://www.bis.org/statistics/c_gaps.htm
7. Financial sector statistics (2021). Available at: https://bank.gov.ua/ua/statistic/sector-financial/data-sector-financial#2fs
8. Fries S.M., & Folkerts-Landau D. (1993). Japanese Banks and the Asset Price «Bubble» *IMF Working Papers*, 085. Available at: https://www.elibrary.imf.org/view/journals/001/1993/085/article-A001-en.xml
9. Fujii M., Kawai M. (2010) Lessons from Japan's Banking Crisis, 1991–2005. ADBI Working Paper Series. Available at: https://www.adb.org/sites/default/files/publication/156077/adbi-wp222.pdf
10. GDP in Ukraine (2021). Available at: https://index.minfin.com.ua/ economy/gdp/
11. Historical Data (Nikkei 225). Available at: https://indexes.nikkei.co.jp/en/nkave/archives/data
12. Holloway M., Eloranta J. (2014) «Stability breeds instability?» A Minskian analysis of the crisis of the Asian Tigers in the 1990s. Investigaciones de Historia Económica – Economic History Research (IHE-EHR). *Journal of the Spanish Economic History Association.* Asociación Española de Historia Económica, 10(02), 115–126
13. How did Kyiv's housing cost change during the economic crisis. Available at: https://www.slovoidilo.ua/2020/03/13/infografika/ekonomika/yak-zminyuvalasya-vartist-zhytla-kyyevi-ekonomichnyx-kryz
14. Lincoln E.J. (1998) Japan's Financial Problems. *Brookings Papers on Economic Activity*. Available at: https://www.brookings.edu/wp-content/uploads/2016/07/1998bbpea_lincoln_friedman.pdf
15. Minsky H.P. (1992) The financial instability hypothesis. *Working Paper*. № 74. 10 p. Available at: http://www.levyinstitute.org/pubs/wp74.pdf
16. Minsky H.P. (2008) Stabilizing an unstable economy. *Yale University Press.* Available at: https://altexploit.files.wordpress.com/2017/08/hyman-minsky-stabilizing-an-unstable-economy-2008.pdf
17. Okina K., Shirakawa M., Shiratsuka S. (2001) The Asset Price Bubble and Monetary Policy: Japan's Experience in the Late 1980s and the Lessons. *Monetary and economic studies (special edition).* Available at: https://www.imes.boj.or.jp/research/papers/english/me19-s1-14.pdf
18. Osugi K. (1990) Japan`s experience of financial deregulation since 1984 in an international perspective. *BIS Economic Papers*. Available at: https://www.bis.org/publ/econ26.pdf
19. Paul H. (2013) The South Sea Bubble: An Economic History of its Origins and Consequences. [ebook]. Taylor and Francis. Available at: https://www.perlego.com/book/1474091/the-south-sea-bubble-an-economic-history-of-its-origins-and-consequences-pdf
20. PFTS Stock Exchange. Available at: https://pfts.ua/trade-info/indexes/shares-indexes
21. Plastun O. (2013) Tsinovi bulbashky ta antybulbashky: tekhnolohiia vyiavlennia i pravyla torhivli pomylkovo otsinenymy aktyvamy [Price bubbles and anti-bubbles: technology for identifying and trading rules for misvalued assets]. *Visnyk Natsionalnoho banku Ukrainy* [Visnyk of the National Bank of Ukraine]. 8, 44–52 [in Ukrainian].
22. Posen A. Did Monetary Laxity in Japan Cause the Bubble? Available at: https://www.cesifo.org/DocDL/forum4-03-focus4.pdf
23. Report of The National Bank of Ukraine. Available at: https://bank.gov.ua/adminuploads/article/A_report_2007.pdf?v=4

24. Ross S. (2019) The Diminishing Effects of Japan's Quantitative Easing. Available at: https://www.investopedia.com/articles/markets/052516/japans-case-study-dimini-shed-effects-qe.asp

25. Schaede U. (1991) Black Monday in New York, Blue Tuesday in Tokyo: The October 1987 Crash in Japan. *California Management Review*, 33(2). Available at: https://www.researchgate.net/publication/24139397_Black_Monday in_New_York_Blue_Tuesday_in_Tokyo_The_October_1987_Crash_in_Japan

26. Shiratsuka S. (2005) The asset price bubble in Japan in the 1980s: lessons for financial and macroeconomic stability. *BIS Papers*, 21. Available at: https://www.bis.org/publ/bppdf/bispap21e.pdf

27. Siebert H. (1999) Some lessons from the Japanese bubble. *Kiel Working Paper*, 919. Available at: https://www.econstor.eu/dspace/bitstream/10419/2247/ 1/268909717.pdf

28. State mortgage institution. Retrieved from https://ipoteka.gov.ua

29. Stock Market Capitalization to GDP for Ukraine. Available at: https://fred.stlouisfed.org/series/DDDM01UAA156NWDB

30. Thompson, E. A. (2007) The Tulipmania: Fact or Artifact? *Public Choice*, 130(1/2), 99–114.

31. Versal N., Stavytskyy A. (2005) Financial Dollarization: Trojan Horse for Ukraine? *Ekonomika*, 94 (3), 21–45.