

Non-Standard Monetary Policy Measures and Their Consequences

Aleksandra Nocoń (Szunke)

Abstract—The study is a review of the literature concerning the consequences of non-standard monetary policy, which are used by central banks during unconventional periods, threatening banking sector instability. In particular, the attention was paid to the effects of non-standard monetary policy tools for financial markets. However, the empirical evidence about their effects and real consequences for financial markets is still not final. The main aim of the study is to survey consequences of standard and non-standard monetary policy instruments, implemented during the global financial crisis in the United States, United Kingdom and euro area, with particular attention to the results for the stabilization of global financial markets. The study consists mainly of the empirical review, indicating the impact of the implementation of these tools for financial markets. The following research methods were used in the study: literature studies, including domestic and foreign literature, cause and effect analysis and statistical analysis.

Keywords—Asset purchase facility, consequences of monetary policy instruments, non-standard monetary policy, Quantitative Easing.

I. INTRODUCTION

STANDARD and non-standard monetary policy instruments of world's central banks during the global financial crisis are the subject of a large number of publications and studies, in particular from the point of view of their impact on the situation in the banking sector. Nevertheless, the empirical evidence about their consequences for the financial markets is still not final. Even before the escalation of instability, Bernanke, Reinhart and Sack analyzed the effectiveness of various unconventional monetary tools in lowering long-term interest rates in the United States and Japan. The obtained results largely confirmed the effectiveness of the zero interest-rate policy and Quantitative Easing (QE) in achieving the goal of reducing long-term interest rates [1].

The main objective of the study is the analysis of the consequences of standard as well as non-standard monetary policy instruments, implemented by central banks during the global financial crisis in the United States, United Kingdom and euro area, with particular attention to the results for the stabilization of global financial markets. The study consists mainly of the empirical part, indicating the impact of the implementation of these instruments for the financial markets. The following research methods were used in the study:

The project was financed by the National Science Centre, awarded based on the decision number DEC-2012/07/N/HS4/00268.

A. Nocoń (Szunke) is with the Department of Banking and Financial Markets, University of Economics in Katowice, Poland (+48322577419; e-mail: aleksandra.nocoon@ue.katowice.pl).

literature studies, including domestic and foreign literature, cause and effect analysis and statistical analysis.

II. THE CONSEQUENCES OF NON-STANDARD MONETARY POLICY FOR THE MODERN FINANCIAL MARKETS

Non-standard monetary policy instruments have exceptional and temporary character. Their extraordinariness results from the specifics of situation during which they are used, methods and scale of their implementation and the consequences that arise for the banking sector, as well as the whole economy. These instruments are referred to as non-standard, because if it was not a crisis situation, would not have been implemented [2]. The non-standard instruments go beyond the traditional (standard) set of instruments of central banks [3], from the point of view of extending the scope of their impact, scale of implementation, longer term of maturity or entities to whom they are addressed. Non-standard monetary policy instruments, which were created on the basis of standard instruments, allow central banks to flexible react to changes in the banking sector [4]. The decision on their implementation is taken, when the standard tools do not cause the effects desired by the monetary authorities. Therefore, they are not included ex ante in the strategies of monetary policy, because their use (often taken ad hoc) is based on the current conditions of the banking sector.

Non-standard and unconventional monetary policy instruments, implemented during the global financial crisis, have caused - besides changes in the size and structure of the balance sheets of central banks and a significant increase of their reserves, important implications for the global financial markets. The difficulty in providing a clear assessment of these consequences results from the fact that some of the effects are seen just now, and some of them will appear in the long term, over the next years.

The analysis of the results of non-standard instruments used by Bank of Japan in the early twenty-first century suggest that although the effect of these tools was too small to significantly change the situation of Japan, it caused particularly positive consequences for the banking sector in a short term [5]. The central bank, using Quantitative Easing, increased the liquidity of commercial banks in order to stimulate lending. Providing them a high level of capital reserve, did not allow for decrease of a level of liquidity in connection with provided loans. Research conducted by [6], on the consequences of QE policy in Japan, indicates the additional direct effect of this instrument on the medium-and long-term interest rates and the correlation between monetary expansion and changes in the structure of the balance sheet of Bank of Japan, and the

Quantitative Easing policy. The rapid pace of Quantitative Easing, which resulted in an increase in total assets from 5 trillion JPY to 33 trillion JPY in just two and a half years, has been maintained also for the further exit strategies (the total asset decreased to about 8 trillion JPY), completed in just a few months in 2006 [7]. So, violent withdrawal of central bank's money from the market was driven by concerns about a possible increase in the general price level. However, finally it transformed into a national deflation.

The assessment of Bank of Japan initiatives indicates that they were effective in terms of stabilizing market expectations, regarding the impact on the short-term interest rates and supporting of the Japanese economy, but only in a short term. In Japan, there were even opinions that the Quantitative Easing policy is one of the most effective instruments created to absorb shocks in the banking sector and in the economy, but only in a short period of time. So that, most of the studies emphasizes the ineffectiveness of Quantitative Easing in a long term.

When official interest rates are close to zero, central bank can still stimulate the economy by lowering long-term interest rates. Long-term interest rates are in fact the primary variable from an economic and financial point of view. They have a significant impact on the level of expenditure, especially investments goods. In the financial aspect, they are key determinants of real estate prices, derivatives and other long-term financial assets. Thus, the objective of non-standard monetary policy instruments during the global financial crisis was not stimulating short-term interest rates, but mainly was the impact on long-term interest rates. That is why Bank of England and the Federal Reserve System in the face of the worst collapse since the Great Depression, have decided on direct purchase of long-term Treasury bonds, aimed at reducing their long-term profitability. As a result of the implementation of non-standards instruments by central banks, interest rates on the interbank market decreased sharply at the end of 2008 (Fig. 1). This was a consequence of using tools supporting banking sector with liquidity.

In 2009, during the implementation of the Quantitative Easing instruments, there were observed more positive consequences for the financial variables, including [8]:

- decrease of interest rates on 10-year Treasury bonds - indicating a decrease in the uncertainty of market participants (Fig. 2),
- decrease of the rates of return on corporate bonds (Fig. 3),
- increase of the prices of securities on the capital markets, reflected in the growth of the major stock market indices (FTSE All-Share, S&P 500, Eurostoxx) – Fig. 4.

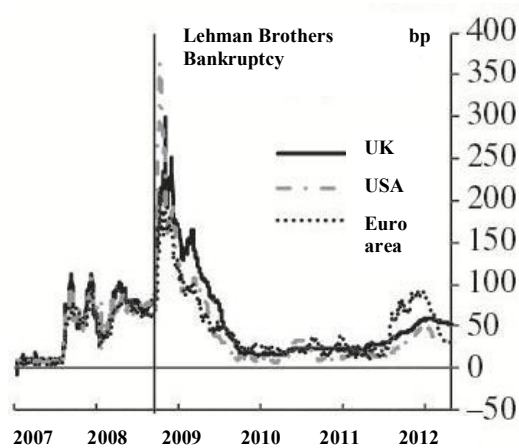


Fig. 1 3-months LIBOR-OIS spread

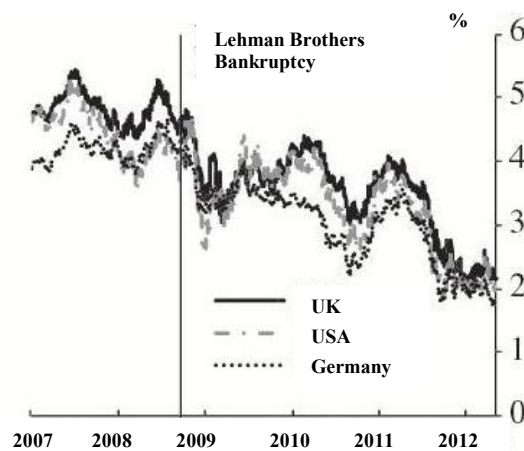


Fig. 2 Interest rates on 10-year Treasury bonds

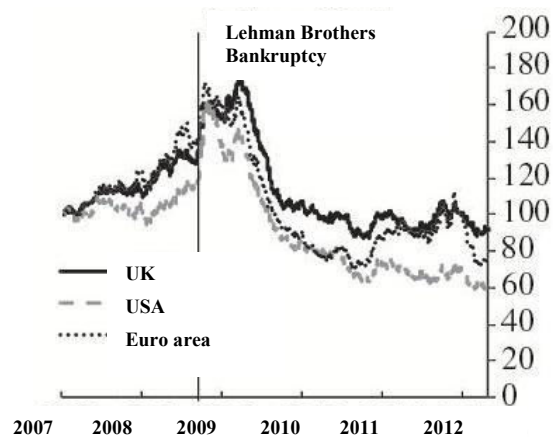


Fig. 3 Interest rates on corporate bonds

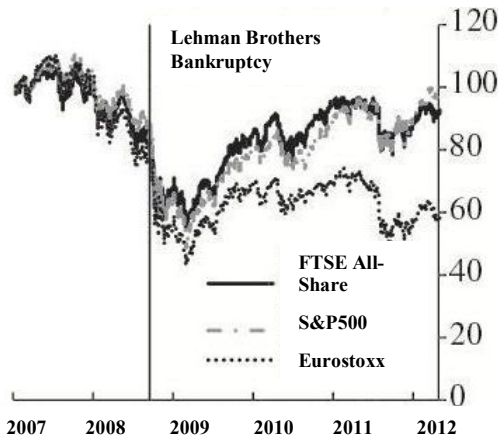


Fig. 4 Changes of main stock exchange indices in the world (January 2, 2007 = 100)

These conclusions confirm the research results, conducted by the economists around the world (Table I) [9]. D'Amico and King [10], Krishnamurthy and Vissing-Jorgensen [11],

and Hamilton and Wu [12] formulated conclusions that the Fed's initiatives led to a reduction in medium-and long-term interest rates. J. Gagnon et al. pointed out that the asset purchase programs resulted in a significant and long-lasting consequences for the long-term interest rates not only Treasury securities and corporate bonds, but also mortgage-backed securities (MBS) [13]. Swanson stated that *Operation Twist*, implemented in the United States in 1961, when the central bank also purchased treasury assets on a significant scale, caused similar effects to those of modern, from the point of view of changes in the rates of return of Treasury securities [14]. Neely showed that the asset purchase programs not only led to significant changes in long-term interest rates on international markets, but also the value (spot) of the American dollar [15]. However, it should be noted that [13] as well as [16] suggests that the only maintenance of the zero interest rate policy for a long period did not contribute to the decrease of long-term interest rates in the United States during the escalating instability between the years of 2007-2010.

TABLE I
THE CONSEQUENCES OF THE SELECTED MONETARY POLICY INSTRUMENTS IMPLEMENTED DURING THE GLOBAL BANKING SECTOR INSTABILITY IN THE XXI CENTURY

Authors	Subject of the Research	Conclusions
Beirne, Dalitz, Ejsing, Grothe, Manganeli, Monar, Sahel, Susec, Tapking, Vong 2011 [17]	The Covered Bond Purchase Programme (CBPP)	<ul style="list-style-type: none"> reduction in medium- and long-term interest rates on the money market; reduction in the credit requirements for companies and credit institutions; stimulating lending of credit institutions; increasing the liquidity of selected segments of debt private securities market;
Gagnon, Raskin, Remache, Sack 2011 [18]	Large-Scale Asset Purchase (LSAP), implemented by the FED in 2008-2009	<ul style="list-style-type: none"> reduction in the rate of return of the long-term securities, for the 10-year bonds, by the value of 30-100 basis points; decrease the rate of return of Mortgage-Backed Securities (MBS); improve the liquidity in the MBS market;
Krishnamurthy, Vissing-Jorgensen 2011 [11]	QE1 and QE2, implemented by the FED in 2008-2011	<ul style="list-style-type: none"> decrease of long-term interest rates of safe assets (Treasury bonds, agency bonds and corporate bonds with high rating); in the case of higher risk's assets, a reduction in nominal long-term interest rates was much smaller;
Meaning, Zhu 2011 [19]	Asset Purchase Facility, implemented by Bank of England (APF) and the FED (LSAP)	<ul style="list-style-type: none"> significant decrease of rate of return of long-term bonds, both in the United States and United Kingdom; this impact was stronger in the case of government bonds than more risky securities;
Wright 2012 [20]	Large-Scale Asset Purchase (LSAP), implemented by the FED	<ul style="list-style-type: none"> lowering long-term interest rates of government and corporate bonds;
Hamilton, Wu 2012 [12]	Credit Easing implemented by the FED	<ul style="list-style-type: none"> decrease of medium- and long-term interest rates; Credit Easing affects on the flattening of the yield curve (it should be expected a reduction by 25 basis points the difference between short- and long-term interest rates of the same securities);
Szczerbowicz 2011 [16]	Zero-Bound Interest Rate Policy	<ul style="list-style-type: none"> maintaining a Zero-Bound Interest Rate Policy in a long-term does not affect on the decrease of long-term interest rate
Meier 2009 [21]	Asset Purchase Facility in United Kingdom	<ul style="list-style-type: none"> decline in yields of Treasury securities by approximately 35-60 basis points;
Joyce, Tong, Woods 2011 [22]	Asset Purchase Facility in United Kingdom	<ul style="list-style-type: none"> decrease of medium- and long-term viability of Treasury securities by 100 basis points;

In the UK, Meier [21] and Joyce et al. [22] pointed out that the first round of the asset purchase of Bank of England had a significant economic impact on the profitability of treasury securities (gilt yields), according to Meier - it has been decreased by about 35-60 basis points, while Joyce et al. estimated that medium-and long-term viability of these instruments were reduced by 100 basis points, taking into account mainly first two days of the asset purchase program (introduced by Bank of England in 2009-2010, when the

market reactions were the strongest). They also stated that similar decreases have occurred in the corporate bonds market and the effects in terms of their impact on the exchange rate of the pound sterling [23]. Quantitative Easing policy had undoubtedly a significant impact on the profitability of bond market, especially Treasury securities and prices of certain assets. This resulted from the fact that the asset purchases reduced risk premia, by affecting on the structure of the balance sheet [10]. The results of the above presented research

also indicate that the decline in profitability was stronger in the case of Treasury bonds, which were purchased under the asset purchase programs, as well as for instruments with longer maturity. Moreover, there was a growth trend on the primary market of corporate bonds and securities, as a result of the implemented non-standard instruments. On the one hand, issuers, after stagnation of these markets, showed a willingness to issue securities (creating their supply). On the other hand, investors were interested in new investments in this type of financial instruments (creating demand for them).

In recent literature there is also a discourse about the impact of unconventional liquidity instruments of central banks on the LIBOR-OIS spread, which is considered as a barometer of the interbank market, which value significantly increased during the global financial crisis, causing stagnation on the interbank market. It appeared that during the collapse, monetary policy has lost its impact on the interbank credit conditions. Towards these problems, there was decided to implement further liquidity instruments of central banks [24]. In turn, Taylor and Williams argue that the liquidity facilities, such as TAF Program (Term Auction Facility) can not affect on LIBOR-OIS spread, because its growth is determined by excessive credit risk, not liquidity risk [25]. On the other hand, Wu states that changes of the *spread* was caused by an erroneous allocation of capital (liquidity) and that the financial tensions on the interbank market were reduced after the TAF program implementation in the United States [26]. Ait-Sahali et al. argue that all the positive announcements about the improvement of the financial markets functioning and macroeconomic data in the U.S., UK, Eurozone and Japan were associated just with the decrease of LIBOR-OIS spread [27].

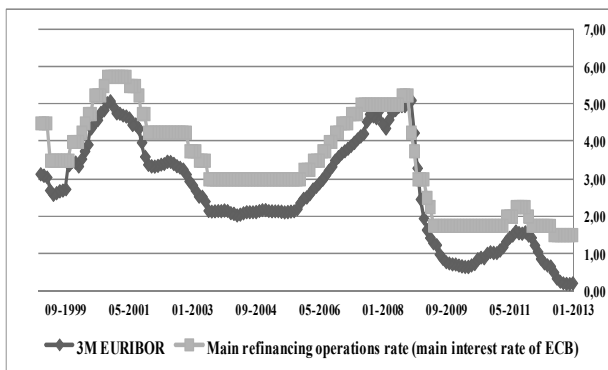


Fig. 5 3-months EURIBOR rate in relation to main refinancing operations rate of ECB in the years of 1999-2013 (in percent)

As a result of a reduction of European Central Bank interest rates, short- and long-term market rates also have changed. Their value, defining the cost of raising capital (IBOR) or sharing capital (IBID) on the interbank market, was determined by the central bank decisions. Fig. 5 illustrates 3-month lending rates in Eurozone – 3M EURIBOR. Taking into account the period since 1999 – since the euro currency introduction in the non-cash form, till the end of January 2013,

EURIBOR rate was changing similar to the level of the main refinancing operations rate of the central bank. The largest decrease was recorded in the period from October 2008 to April 2010 – about 447 basis points, till the level of 0.64%. The price of money, formed on the interbank market, also resulted in changes in the level of interest rates for bank settlements with their clients. Interest rate of bank loans shows a tendency to some viscosity in response to changes in monetary policy, despite the fact that these phenomena are considered in many cases as asymmetric, because the interest rates of bank loans usually better adapt to increases of main interest rate of central bank than to decreases [28]. So that ECB directed implemented non-standard instruments exclusively to the banking sector, struggling with liquidity problems, rather than expanding its activities to other institutions – including non-banking (as it followed in Anglo-Saxon countries).

III. CONCLUSION

Summarizing, non-standard and unconventional monetary policy instruments of central banks implemented during the global financial crisis contributed to the stabilization of the financial markets, lowering long-term interest rates, mitigating the pressure of bank funding and were a useful protection against possible liquidity problems of banks [29]. Despite this, some economists in the world believe that their effectiveness was low at that time. They point out that these tools were implemented too late, ad hoc, without clearly defined rules.

The survey, carried out in the study, about the consequences of standard and non-standard monetary policy instruments indicates that they played an important role in stabilizing the functioning of individual banking institutions, financial markets and national economies. These effects are visible in a short term. On the long-term consequences, financial markets and the global economy have to wait a little bit longer.

REFERENCES

- [1] B. S. Bernanke, V. R. Reinhart, B. P. Sack, "Monetary Policy Alternative at the Zero Bound: An Empirical Assessment," *Brookings Papers on Economic Activity* 2, 2004, pp. 1-78.
- [2] I. Pyka, "Unconventional instruments of central banks in regulating banking sector stability in the European Union," in: "Banking, and crisis on the financial crisis," Janc A. (ed.), Poznań University of Economics, Poznań 2010, p. 60.
- [3] P. Sotomska-Krzysztofik, O. Szczepańska, M. Pawliszyn, "Central banks during the crisis in banking system," *Materials and Studies*, issue No. 179, National Bank of Poland, Warsaw, November 2004, p. 9.
- [4] M. Cendal, "Instrumenty polityki pieniężnej," in: "Modern monetary policy," W. Przybylska-Kapuścińska, Difin, Warsaw 2008, p. 130.
- [5] E. Girardin, Z. Moussa, "Quantitative Easing Works: Lesson from the Unique Experience in Japan 2001-2006," *GREQUAM Document de Travail* 2010-02, p. 30.
- [6] H. Ugai, "Effects of the Quantitative Easing Policy: A Survey of the Empirical Evidence," *Bank of Japan Working Paper No. 06-E-10*, July 2006.
- [7] A. S. Blinder, "Quantitative Easing: Entrance and Exit Strategies," *Federal Reserve Bank of St. Louis Review*, November/December, 92(6), 2010, p. 475.
- [8] M. Joyce, D. Miles, A. Scott, S. Vayanos, "Quantitative Easing and unconventional monetary policy – an introduction," *The Economic Journal* 122 (November), F271-F288, Royal Economic Society, Oxford 2012, p. 11.

- [9] A. Szunke, "Non-standard monetary policy tools and their consequences. The review", "Journal of Management and Financial Sciences, Vol. VII, issue 16 (June 2014), Warsaw School of Economics, Warsaw 2014, p. 28.
- [10] S. D'Amico, T. B. King, "Flow and stock effects of large-scale treasury purchases," *Finance and Economics Discussion Series*, No. 2010-52, 2010.
- [11] A. Krishnamurthy, A. Vissing-Jorgensen, "The effects of quantitative easing on interest rates: channels and implications for policy," *Brookings Papers on Economic Activity*, Vol. 2, 2010, pp. 215-287.
- [12] J. D. Hamilton, J. C. Wu, "The effectiveness of alternative monetary policy tools in a zero lower bound environment," *Journal of Money, Credit and Banking*, Vol. 44, February 2012, pp. 3-46.
- [13] J. Gagnon, M. Raskin, J. Remache, B. Sack, "The financial market effects of the Federal Reserve's large-scale asset purchases," *International Journal of Central Banking*, Vol. 7 (10), March 2011, pp. 3-43.
- [14] E. T. Swanson, "Let's twist again: a high-frequency event-study analysis of Operation Twist and its implications for QE2," *Brookings Papers on Economic Activity*, Spring 2011, p. 151-207.
- [15] C. Neely, "The large-scale asset purchases had large international effects," Federal Reserve Bank of St. Louis Working Paper, No. 2010-018A, 2010.
- [16] U. Szczerbowicz, "Are unconventional monetary policies effective?" Working Papers CELEF No. 1107, Department of Economic and Business Sciences, LUISS Guido Carli, 2011.
- [17] J. Beirne, L. Dalitz, J. Ejsing, M. Grothe, S. Manganelli, F. Monar, B. Sahel, M. Susec, J. Tapking, T. Vong, "The impact of the Eurosystem's covered Bond purchase programme on the primary and secondary markets," ECB Occasional Paper Series, No. 122, 2011.
- [18] J. Gagnon, M. Raskin, J. Remache, B. Sack, "Large-scale asset purchases by the Federal Reserve: did they work?" Economic Policy Review, Federal Reserve Bank of New York, May 2011, p. 3-43.
- [19] J. Meaning, F. Zhu, "The Impact of Recent Central Bank Asset Purchase Programmes," Bank of International Settlements, Quarterly Review, December 2011, p. 73-83.
- [20] J. H. Wright, "What Does Monetary Policy Do to Long-Term Interest Rates at the Zero Lower Bound?" NBER Working Paper Series, No. 17154, Cambridge 2012.
- [21] A. Meier, "Panacea, curse, or nonevent: unconventional monetary policy in the United Kingdom," IMF Working Paper No. 09/163, 2009.
- [22] M. Joyce, M. Tong, R. Woods, "The United Kingdom's quantitative easing policy: design, operation and impact," Bank of England Quarterly Bulletin 2011 Q3, Vol. 51 (3).
- [23] M. Joyce, A. Lasasoa, I. Stevens, M. Tong, "The financial market impact of quantitative easing," *International Journal of Central Banking*, Vol. 7 (3), 2011.
- [24] U. Szczerbowicz, "Effectiveness of Unconventional Monetary Policies and their Impact on Long-Term Inflation Expectations," in: "Monetary Policy after the Crisis," E. Gnan, R. Kokoszcyński, T. Lzyiak, R/McCauley (ed.), Vienna: SUERF Studies 2011/3 – October 2011, pp. 10-11.
- [25] J. B. Taylor, J. C. Williams, "A Black Swan in the Money Market," *American Economic Journal: Macroeconomics*, American Economic Association, Vol. 1 (1), January 2009, pp. 58-83.
- [26] T. Wu, "On the effectiveness of the Federal Reserve's new liquidity facilities," Working Papers 0808, Federal Reserve Bank of Dallas, 2008.
- [27] Y. Ait-Sahalia, J. Andritzky, A. Jobst, S. Nowak, N. Tamirasa, "Market Response to Policy Initiatives during the Global Financial Crisis," NBER Working Papers 15809, National Bureau of Economic Research Inc., 2010.
- [28] European Central Bank, Annual Report 2009, p. 57.
- [29] B. Cœuré, "Unexpected events and the global safety net," IMF-SNB High-Level Conference on the International Monetary System, Zurich, May 8, 2012.

the global economy. Harasim J., Cichy J. (ed.), Scientist Issues of the University of Economics in Katowice, Katowice 2012, pp. 164-171; *A new paradigm of modern central banking*. In: "Journal of Governance & Regulation", International Scientific Journal, Vol. 2/2013, Kostyuk A. (ed.), Virtus Interpress, Sumy, Ukraine, pp. 75-78; *Selected consequences of transformation of modern monetary policy*. In: *Challenges, Research and Perspectives*. G. Hofbauer (ed.), Uni-edition GmbH, Berlin, Germany 2014, pp. 41-52. Her research interests are: banking, monetary policy, central banking, financial institutions, instruments and markets, financial supervision, public relations, social research.

A. Nocoń (Szunke) represents Department of Banking and Financial Markets at the University of Economics in Katowice, in Poland. She carries out research about "System of reacting of modern central banks for banking sector instability", financed by National Research Center in Poland. She published 28 articles in national (Polish) and international Printing House. The most important publications are: *Determinants of escalating financial instability in*