The role of monetary policy during the global financial crisis - the case of North Macedonia

UDC 338.23:336.74]:338.124.4:336.7}:303.72(497.7)

Filip Taskovski,[1] Vlatko Paceskoski[2],

[1]*Faculty of Economics, Goce Delcev University, Stip, North Macedonia,*
filip.30825@student.ugd.edu.mk

[2]*Faculty of Economics, Goce Delcev University, Stip, North Macedonia,*
vlatko.paceskoski@ugd.edu.mk

The global financial crisis that arose as a result of the fall in real estate prices in the United States, the enormous increase of borrowers who owned a mortgage loan that could not repay and the bankruptcy of the Lehman brothers as a symbol of the crisis caused a significant destabilization of the financial markets and a drastic decline of stock exchange activities both in the USA and in other economies in the world. In order to stabilize economies from the global transmission of the crisis, governments and central banks created a series of fiscal and monetary measures. Although a large number of economists from the Keynesian provenance indicate the importance of the role of fiscal policy in the stabilization of economies during the crisis, empirical research indicates the significance of monetary measures in the domain of increasing the liquidity of the financial sector and stabilizing macroeconomic flows.

The subject of the research paper is the role of the monetary policy and the measures of the National Bank of North Macedonia created during the global financial crisis in the direction of stabilizing the Macedonian economy.

The purpose of the research paper is to examine the effects of monetary measures and policies on the key economic indicators of North Macedonia.

The research paper is based on secondary methods and is composed of descriptive statistics, correlation analysis, trend analysis and regression analysis.

Based on the research, it can be concluded that North Macedonia, as a small and open economy, volatile to international economic trends, notes certain effects of the global crisis, while the National Bank of North Macedonia resorted to adapting the monetary policy in the direction of sterilization of the effects of the crisis and stabilization of the macroeconomic situation.

Key words
Global financial crisis, interest rate, macroeconomic stabilization, monetary policy, National bank of North Macedonia.

1. Introduction

The uncontrolled placement of housing loans by banks in the United States and the option of issuing bonds as collateral with relatively high interest rates, which continuously increased the banks' capacity to issue loans, influenced the growth of demand for real estate and the so-called skyrocketing increase in their price. The high demand for loans implied a reduction in banks' criteria for approving loans and the occurrence of frequent errors in mortgage value assessments, resulting in rapid loan approval without checking the creditworthiness of borrowers.

The difficulty in collecting annuities, problems in servicing obligations on issued bonds, and the loss of trust among customers led to a situation where banks faced a shortage of liquid assets, gradually losing their role as intermediaries between investors and borrowers. As a result of illiquidity, a large number of banks and financial institutions faced bankruptcy. The most significant financial institution that faced bankruptcy was the investment company Lehman Brothers, which had a significant negative impact on the financial market in the United States, but also globally, reducing the frequency of capital, investments and lending.

In order to deal with the crisis, that is, to maintain bank liquidity and prevent bankruptcy, a large number of Central Banks, primarily the US Federal Reserve, created a set of measures, the most exploited of which was the one for the purchase of non-performing loans and direct injection of fresh financial assets into banks. A large number of European countries, among other things, nationalized the most critical banks in order to send a signal to customers who have deposits with banks that their deposits are safe.

The research focuses on the role of monetary policy during the global financial crisis in the Republic of North Macedonia. The research is composed of descriptive statistics of the country's key macroeconomic variables, correlation analysis, and trend analysis.

2. Theoretical background

According to many analyses, the main cause of the global financial crisis cannot yet be accurately defined. In order to revive the American economy and creating housing opportunities mostly for young soldiers, the United States implemented the British system of crediting using mortgages. The emergence of such loans on the US market with a relatively low interest rate contributed to the growth of demand by the population and relatively uncontrolled supply by banks (Toarna & Cojanu, 2015). Before the onset of the global financial crisis in 2007-2008, the United States experienced a significant growth or expansion in the housing market. This period of expansion is known as the “Great Moderation” (Bernanke & Geithner, 2013). This phenomenon began in the mid 1980s after high inflation rates and macroeconomic instability, with key macroeconomic parameters in the United States such as economic growth, inflation, unemployment, and interest rates being relatively stable, and the economic growth rate recorded a significant increase, on the other hand, the other macroeconomic parameters recorded a decline (Giannone, Lenza, & Reichlin, 2008) (McKibbin & Stoeckel, 2009).

The beginning of the global financial crisis in 2007 and the bankruptcy of Lehman Brothers, which represents a kind of symbol of the crisis, the Federal Reserve, that is, the central banking system of the United States, created a series of measures and policies to resolve the crisis. Because the crisis had an international effect due to spillovers to the Eurozone and other countries in Europe, the Fed coordinated with other central banks (ECB, Bank of England, and Bank of Japan) in the creation and implementation of monetary policies (Kohn, 2010) (Bordo, 2021).

A large number of developing countries, especially the countries of Central and Eastern Europe, including the RNM, have experienced a series of consequences for economic flows since the beginning of the Global Financial Crisis, the significance of the consequences varying from country to country depending on the internal economic situation. According to research, economic growth immediately after the start of the crisis in developing countries fell from 13.8% in 2007 to 6.1% in 2008, the downward trend continued in 2009, with economic growth of 2.1% (Isabella, 2012) (Claessens, Dell'Ariccia, Igan, & Laeven, 2010).

As economic policymakers, governments and central banks were key factors in identifying the causes of the crisis and creating economic measures and stabilization policies, but many economists point to their poor responsiveness and coordination at the beginning of the crisis, allowing the crisis to spill over to a larger scale. The key fiscal measures taken by the Governments are those in the domain of growth in public spending, tax cuts, and growth in capital investments and subsidizing companies. The aim of fiscal stimulus was to stimulate economic growth, which was affected by the reduced inflow of foreign capital in the form of FDI and portfolio investments, the decline in stock market indices and the collapse of banking systems, as well as the relatively conservative approach of investors and the economy (Padoan, 2009). Andresen (2009) points out that the fiscal policy of countries played a key role in dealing with the crisis because only fiscal stimuli can stimulate the growth of aggregate demand, while also considering that the key problem of the crisis is reduced aggregate demand. It also points out that fiscal measures should impact unemployment towards a permanent reduction and long-term stabilization of the labor market.

According to many researchers, fiscal policy was key in resolving the crisis, at the expense of monetary policy, which, according to its characteristics and specifics, reacts more slowly due to time adjustments and cannot influence the overall economy, especially in terms of unemployment and aggregate demand. In the domain of crisis management and the recovery of national economies, a significant contribution was made, especially in maintaining the liquidity of banking systems and reducing inflation (da Silva & Vilela, 2017). What was characteristic of the monetary policy is that it differed from country to country due to the degree of impact of the crisis on the national economy and the effects, so some countries tightened monetary policy, and a large number of central banks in developing countries have reduced reference interest rates and reduced reserve requirements since the beginning of the crisis in order to improve the liquidity of commercial banks and stimulate economic activity (Berkmen, Gelos, Rennhack, & Walsh, 2012). Those countries that faced a rise in inflation, including the RNM, have created a series of measures characteristic of restrictive monetary policy, among which the most popular are those for increasing the reference interest rate and increasing the required reserve rate.

3. Research methodology

The subject of the research is the setting of the monetary policy during the 2008 Global Financial Crisis in the Republic of North Macedonia.

The aim of the research is to investigate the effects of the crisis on the Macedonian economy and the contribution of monetary policy for stabilization.

Research tasks:

- Identification of the causes of the crisis;
- Analysis of the monetary measures taken by the Central Banks of the leading economies;
- Determination of the transmission of the crisis upon the Macedonian economy;
- Analysis of the key macroeconomic variables of Macedonia;
- Analysis of the monetary measures of the NBRM during the Global Financial Crisis;

Basic hypothesis of the research

- H0 – The monetary policy during the Global Financial Crisis has made a significant contribution to the prevention and stabilization of the Macedonian economy.

Specific research hypotheses

- H1 – The increase in the interest rate on Denar deposits had a significant contribution to the stabilization of the Macedonian economy.
- H2 – The slowdown in the growth of the volume of credit placements had a significant contribution upon the stabilization of the Macedonian economy.
- H3 – The slowdown in the growth of the monetary aggregate M2 had a significant contribution upon the stabilization of the Macedonian economy.

Table 1 Research variables.

Description	Unit	Source
Inflation	INF	National bank of Macedonia
Interest rate on Denar deposits	IRT	National bank of Macedonia
Total loans from banks and savings banks	TCR	National bank of Macedonia
Current account of the balance of payments	CAC	National bank of Macedonia
Monetary aggregate M2	MA2	National bank of Macedonia
Foreign direct investments	FDI	State statistical office
Gross domestic product	GDP	Ministry of finance
Public debt	PDB	Ministry of finance
Unemployment	UNE	Ministry of finance

Research period: 2005-2014
Data frequency: Annual
The research is composed of: descriptive statistics, correlation analysis, trend analysis.

4. Research results

4.1. Descriptive statistics

From the descriptive statistics (Table 2) it is concluded that the average value of inflation for the calculation period is 2.48, the interest rate on loans is 5.39, the average deficit on the current account of the balance of payments is 254.82, the average GDP growth is 3.31, and the average public debt for the calculation period is 29.28. The highest standard deviation was observed in inflation at 2.58, in the current account of PB deficit at 263.87, in FDI, and in GDP at 2.35.

Table 2 Descriptive statistics.

	INF	IRT	TCR	CAC	MA2	FDI	GDP	PDB	UNE
Mean	2,48	5,387	174521,9	-254,82	185437,1	254,63	3,31	29,28	32,81
Standard Error	0,816061	0,345851767	19139,15187	83,44247759	13185,15757	44,20379803	0,742884767	1,948891423	0,946390805
Median	2,55	5,155	184506	-167,85	193781,5	228,67	3,5	29,15	32,75
Mode	#N/A	7,05	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Standard Deviation	2,580611469	1,093679315	60523,3124	263,8682828	41695,12923	139,784683	2,349207904	6,162935808	2,9927505

Sample Variance	6,659555556	1,196134444	3663071343	69626,47067	1738483802	19539,7576	5,518777778	37,98177778	8,956555556
Kurtosis	2,207979229	-0,558510575	-0,643409963	2,409694505	0,062370668	-0,789339828	-0,456762129	-1,604340546	-0,855509935
Skewness	1,120166078	0,340745854	-0,587117949	-1,457667432	-0,937216872	0,487697693	-0,600549914	0,069488714	-0,045790415
Range	9	3,35	185032	905,4	129201	428,76	7	17,4	9,1
Minimum	-0,7	3,7	70524	-862,2	104477	77,21	-0,5	20,6	28,2
Maximum	8,3	7,05	255556	43,2	233678	505,97	6,5	38	37,3
Sum	24,8	53,87	1745219	-2548,2	1854371	2546,3	33,1	292,8	328,1
Count	10	10	10	10	10	10	10	10	10
Confidence Level(95,0%)	1,846058236	0,782371051	43295,76949	188,7599984	29826,89864	99,99593833	1,680522098	4,408698692	2,140884738

Source: Authors' calculations (Excel).

4.2. Correlation analysis

According to the correlation analysis (Table 3), in the context of the research, it is concluded that the interest rate has a negative correlation with public debt, credit placements are positively correlated with M2, M2 has a strong negative correlation with unemployment, FDI has a positive correlation with GDP and GDP has a strong correlation with unemployment, which in principle is justified by the general economic theory.

Table 3 Correlation analysis.

	INF	**IRT**	**TCR**	**CAC**	**MA2**	**FDI**	**GDP**	**PDB**	**UNE**
INF	1								
IRT	0,03301	1							
TCR	-0,0079	-0,0923	1						
CAC	-0,6107	-0,4439	0,07805	1					
MS2	0,01596	-0,0445	0,98348	0,0624	1				
FDI	0,55569	-0,1841	-0,1374	-0,4043	-0,0395	1			
GDP	0,31015	-0,3267	-0,5142	-0,1143	-0,4979	0,63457	1		
PDB	-0,4328	-0,7041	0,12781	0,76731	0,03232	-0,5222	-0,1471	1	

UNE	0,12893	0,23886	-0,9725	-0,2028	-0,9359	0,17766	0,51029	-0,2895	1

Source: Authors' calculations (Excel).

4.2. Trend analysis

According to the analysis of the trend of key macroeconomic indicators, it is concluded that the Global Financial Crisis had a significant impact on inflation in Macedonia (Figure 1), reaching 8.3% in 2008, as a result of inflation and the pressure of reduced economic activity in key trading partners, GDP in 2009 recorded a significant decline, amounting to -0.40%, what is characteristic is that despite the growth in the following year, GDP for the entire accounting period recorded a downward trend. Also, during the crisis period, FDI recorded a significant decline, primarily as a result of reduced capital allocation and reduced investment activities on a global level.

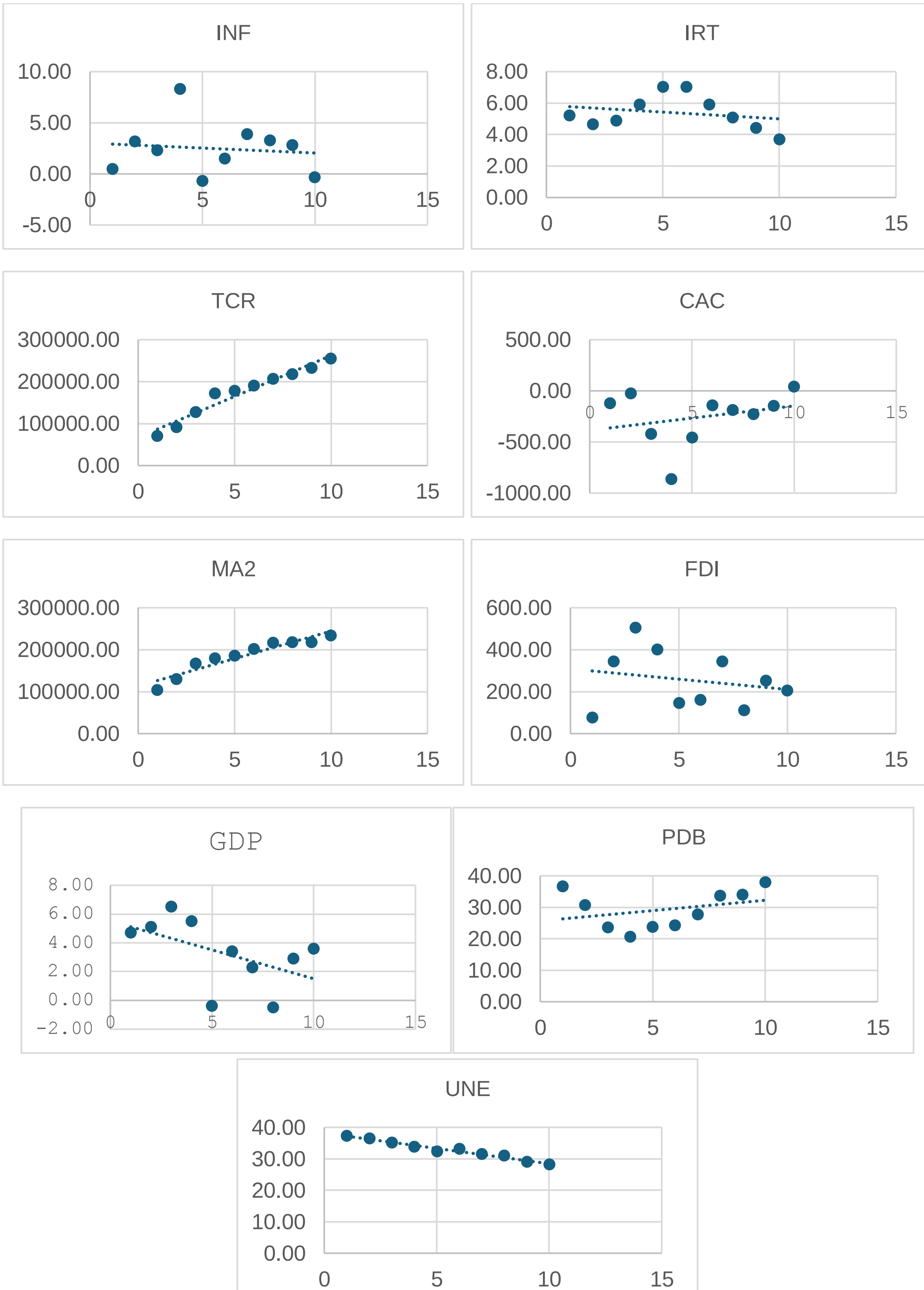

Figure 1 Trend analysis.

Source: Authors' calculations (Excel).

As a monetary policy response to the effects of the crisis, the interest rate on deposits in Denars from 2007 to 2010 recorded a growing trend (Figure 1), slowing the growth of credit placements and monetary aggregates. Due to the decline in exports, and as a result of the strong effects of the crisis on the European economy, Macedonia's current account balance of payments deficit increased rapidly in 2007, 2008 and 2009.

5. Discussion

The results of the research show that the Republic of North Macedonia, as a developing country and an open economy, did not experience critical consequences from the Global Financial Crisis, due to the low public debt and mostly owing to the Macedonian financial markets, as well as the prudent monetary policy that largely contributed to the prevention of spillover of the crisis. The global financial crisis has seen the country experience short-term inflationary increases, as well as a decline in FDI inflows and a higher current account deficit.

Based on the research, the general and specific hypotheses of the research are accepted. Regarding the first specific hypothesis H1 – The increase of the interest rate on Denar deposits had a significant contribution to the stabilization of the Macedonian economy, the NBRNM in 2008, 2009 and 2010 increased the reference interest rate several times, this caused an increase in commercial interest rates, increasing the expectations of the economy and the population for a stable economy, and on the other hand causing caution in borrowing from commercial banks. Regarding the second special hypothesis H2 – The slowdown in the growth of the volume of credit placements had a significant contribution to the stabilization of the Macedonian economy, the increase in commercial interest rates caused a slowdown in the growth of bank credit placements, with GDP recording a decline of 0.4% in 2009, however, the slowdown in credit growth had a significant impact on the amortization of crisis shocks and the expectations of the economy and the population in the domain of deposit safety and bank liquidity. Regarding the third special hypothesis H3 – The slowdown in the growth of the monetary aggregate M2 had a significant contribution to the stabilization of the Macedonian economy, namely, the slowdown in growth of M2 significantly contributed to the sterilization of imported inflation and its return within the established corridor.

6. Conclusion

The global financial crisis of 2007/2008, which occurred as a result of uncontrolled mortgage lending with overvaluation of the value of the mortgage and the collapse of the banking system due to the increasing proportion of non-performing loans in total loans, contributed to the destabilization of global economic flows. Namely, the crisis that arose in the United States relatively quickly spilled over into the countries that were the largest trading partners of the United States at the time, implying an increase in inflation, slowing economic activity, recession in some countries, and growing investor distrust in financial systems. In order to stabilize and consolidate the banking system, a large number of

Central Banks created a series of conventional and unconventional measures, among which the most common were the increase in the reference interest rate, the purchase of non-performing loans, and the nationalization of banks with critical credit portfolios.

The research concludes that the effects of the global financial crisis were most prevalent in developed countries of the European Union, which are the so-called natural trading partners of the United States, primarily due to close economic and trading ties as well as the strong influence of financial markets located in the United States on stock markets in the EU. The Republic of North Macedonia, as a developing country and a country susceptible to the import of global crises, in this case, due to previously undertaken economic policies, especially the low public debt rate and the small percentage share of borrowing on foreign markets in total borrowing and the prudent monetary policy, the country did not feel significant consequences of the crisis.

Consequently, the crisis was reflected in a decrease in GDP growth, an increase in inflation, and a decrease in FDI inflows. The research shows that the NBRNM has taken a series of restrictive monetary measures to deal with inflation and prevent major shocks, the most significant measure being the increase in the reference interest rate, which implied an increase in commercial interest rates, a slowdown in the growth of credit placements and the money supply in circulation.

References

Andersen, T. M. (2009). *Fiscal policy and the global financial crisis.* Aarhus: School of Economics and Management, Aarhus University. doi:https://dx.doi.org/10.2139/ssrn.1414243

Berkmen, S. P., Gelos, G., Rennhack, R., & Walsh, J. P. (2012). The global financial crisis: Explaining cross-country differences in the output impact. *Journal of International Money and Finance, 31*(1), 42-59. doi:https://doi.org/10.1016/j.jimonfin.2011.11.002

Bernanke, B. S., & Geithner, T. F. (2013, November 22). *The Great Recession and Its Aftermath.* Retrieved 04 04, 2025, from Federal Reserve HISTORY: https://www.federalreservehistory.org/essays/great-recession-and-its-aftermath

Bordo, M. D. (2021). Monetary Policy Cooperation/Coordination and Global Financial Crises in Historical Perspective. *Open Economies Review , 32*, 587-611. doi:https://doi.org/10.1007/s11079-020-09611-5

Claessens, S., Dell'Ariccia, G., Igan, D., & Laeven, L. (2010). *Lessons and Policy Implications from the Global Financial Crisis.* Washington DC: International Monetary Fund. Retrieved from https://www.imf.org/external/pubs/ft/wp/2010/wp1044.pdf

da Silva, C. G., & Vilela, F. V. (2017). Monetary and fiscal policy in advanced and developing countries: An analysis before and after the financial crisis. *The Quarterly Review of Economics and Finance, 63*, 13-20. doi:https://doi.org/10.1016/j.qref.2016.04.013

Giannone, D., Lenza, M., & Reichlin, L. (2008). *EXPLAINING THE GREAT MODERATION - IT IS NOT THE SHOCKS.* Frankfurt am Main: EUROPEAN CENTRAL BANK. Retrieved from https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp865.pdf

Isabella, M. (2012). *The impact of the global financial crisis: What does this tell us about state capacity and political incentives to respond to shocks and manage risks?* London: Overseas Development Institute. Retrieved from https://assets.publishing.service.gov.uk/media/57a08a80e5274a31e000062e/60895-part1_crisis_lit_review-effects_of_GFC.pdf

Kohn, D. L. (2010). *The Federal Reserve's Policy Actions during the Financial Crisis and Lessons for the Future.* Ottawa: FED. Retrieved from https://www.federalreserve.gov/newsevents/speech/kohn20100513a.htm

McKibbin, W. J., & Stoeckel, A. (2009). *The Global Financial Crisis: Causes and Consequences.* Washington DC: LOWY INSTITUTE FOR INTERNATIONAL POLICY. Retrieved from https://www.files.ethz.ch/isn/109461/LWP_fincri.pdf

Padoan, P. C. (2009). *Fiscal Policy in the Crisis: Impact, Sustainability, and Long-Term Implications.* Tokyo: Asian Development Bank Institute. Retrieved from https://www.adb.org/sites/default/files/publication/156033/adbi-wp178.pdf

Toarna, A., & Cojanu, V. (2015). The 2008 Crisis: Causes and Future Direction for the Academic Research. *Procedia Economics and Finance, 27*, 385-393. doi:https://doi.org/10.1016/S2212-5671(15)01010-2