CORE Metadata, citation and similar papers at core.ac.uk

THE IMPACT OF THE FINANCIAL CRISIS ON MONETARY AND FISCAL POLICY IN THE EURO AREA

Joanna Stawska

Abstract

The financial crisis started in 2008 has contributed to many changes in the conduct of monetary and fiscal policy in the euro area. In the euro area significant decline in economic growth and problems of public finance (debt growth countries) is noticeable as a result of the crisis The aim of this article is to highlight the changes in monetary and fiscal policy in the euro area, which emerged in the aftermath of the crisis. The article verifies the hypothesis that during the financial crisis the coordination of monetary policy and fiscal policy weakened the deepening of the crisis in its early stages in both the euro area.

Keywords (in your language): *policy mix, monetary policy, fiscal policy, financial crisis*

1 INTRODUCTION

Coordnation of both policies allows to avoid crisis situations having destibilizing effect on economy. Cooperation between central bank and government is quite difficult due to preclusive aims of fiscal and monetary policies. Financial crisis in 2008 had a profound impact on many changes in governance of monetary and fiscal policies in the euro area. It revealed significant economic decline and problems related to public finances (increase in debt obligations) in the euro area. In reaction to the crisis in the euro area, the monetary authorities introduced many changes. An increase in expansionary monetary policy speaks volumes about an attempt to utilize the transmission channel of the monetary policy to improve economy.

This paper focuses on highliting the changes ocurred in monetary policy and fiscal policies that were the consequence of the financial crisis in the euro area. The article verifies the hypothesis that the increased level of the coordination of monetary policy and fiscal polices caused by the financial crisis contributed to deepening the crisis in its early stage in the euro area (in the period of 2008-2009). To verify the hypothesis the following research methods were used: review of scientific literature, statistical research methods and graphic presentation of economic events.

1.1. REVIEW OF LITERATURE RELATED TO POLICY MIX

According to J. Skrzypczynska, the core of the coordination of monetary and fiscal policy (policy mix) is based on the combination of the both policies to enable to achieve goals related to price stability and economic growth and employment.[1] So many stands have been published in the literature about the coordination of policy mix. The subject has been studied by inter alios: M. Buti i A. Sapir[2], and R. Clarida, R., Gali, J.,Gertler[3], K. Flanagan, E. Uyarra, M. Laranja[4], or J. Skrzypczyńska who pointed out the benefits of the coordination of

[1] Skrzypczyńska J., *Koordynacja polityki fiskalnej i pieniężnej strefy euro w obliczu kryzysu finansowego*, „Rocznik Integracji Europejskiej” 6/2012, p. 289.
[2] M. Buti, A. Sapir, *Economic Policy in EMU*, Clarendon Press-Oxford 1998.
[3] R. Clarida, J. Galí, M. Gertler, *Monetary Policy Rules and Macroeconomic Stability: Evidence and Some Theory*, “Quarterly Journal of Economics”, 2000.
[4] Flanagan K., Uyarra E., Laranja M. (2011) *Reconceptualising the ‘policy mix’ for innovation,* [in:] www.imf.org (access on 13.10.2014).

monetary and fiscal policies (policy mix). P. Jacquet, J. Pisani-Ferry emphasize the importance of coordination of monetary and fiscal policies exemplifying the eurozone. They claim that in reality a national fiscal policy and structural policy influence an average level of inflation in a given country and thus the decisions of fiscal authorities of the member states may affect the decision of a central bank related to common monetary policy in the euro area.[5] It should be stressed that the liberty of national authorities at conducting fiscal policy was limited by the rules of the Maastricht Treaty. Hence it seems that desirable coordination of fiscal and monetary policy is easier achievable in the process of pursuing financial stability[6]. The restrictive fiscal policy consists in suppression of inflation pressure by monetary authorities. Then, restrictive fiscal policy reveals the pursue of low level of public finance deficit which is favorable to maintain the low level of inflation. At the moment of loosening fiscal policy, the central bank more often than not decides to tighten the monetary policy. On the other hand, in case of maintaining the restrictive fiscal policy, the central bank conducts expansionary monetary policy.[7]

I. Worniecka-Leciejewicz states that more often than not, a government seeks to achieve the planned economic growth and the central bank strives to hold inflation at some numerically specified level (so-called inflation targeting). The policy governed by fiscal authorities and priorities of the central bank greatly influence the decisions of the central bank concerning the conduct of monetary policy Often, more expansionary fiscal policy is, the central bank employs more restrictive monetary policy. In turn, the choice of a kind of fiscal policy depends on pursuing monetary policy and priorities of a government within budgetary policy.[8]

Figure 1 depicts a map of restriction of monetary and fiscal policies. According to the line chart, the most desirable situation is, where changes in policy-mix are along the line of the angle of inclination of minus 45 degrees. Then, along with loosening fiscal policy tightening of monetary policy ensues, on the other hand, while fiscal policy is being tightened, monetary policy is being loose.[9]

---

[5] P. Jacquet, J. Pisani-Ferry, *Economic policy co-ordination in the euro-zone. What has been achieved?. What should be done?*, "Sussex European Institute Working Paper" 40/2001, p. 7.

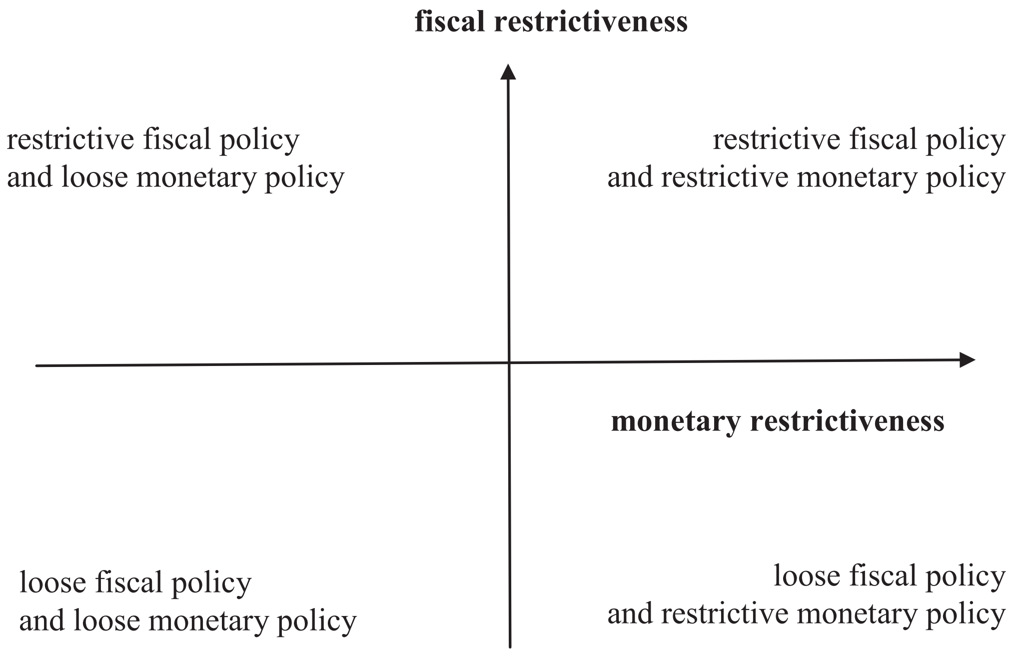
[6] J. Skrzypczyńska, *Koordynacja ...*, op. cit., p. 289.

[7] A. Kot, *Metody kwantyfikacji restrykcyjności monetarnej, fiskalnej i Policy – mix w krajach akcesyjnych*, „Bank i Kredyt" 06/2003, p. 20.

[8] I. Woroniecka – Leciejewicz, *Analiza policy-mix z uwzględnieniem interakcji decyzyjnych między bankiem centralnym a rządem i ich priorytetów*, Zeszyty Naukowe Wydziału Informatycznych Technik Zarządzania Wyższej Szkoły Informatyki Stosowanej i Zarządzania „Współczesne Problemy Zarządzania" 1/2011, pp. 39 - 60.

[9] A. Kot, *Metody ...*, op. cit., p. 26.

Figure 1: Restrictiveness map of monetary and fiscal policy



Source: A. Kot, *Metody* ..., op. cit., p. 25.

Long-term objective of monetary policy considering price stabilization encounters destructive factors, which results in difficulties in the process of coordination of fiscal and monetary policies. There is interdependence between monetary and fiscal policies, which are a subject of extensive research focusing on the implications of potential conflicts between them, and the benefits resulting in coordination of the authorities responsible for economic policy. K. Kuttner emphasizes that the coordination of fiscal and monetary policies strongly influences economy and at the same time they are interrelated.[10] Using the models based on the game theory, the interaction between monetary and fiscal policies has been studied and the implications, which emerge at the time of application of the game theory, during the process of design and realization of economic policy.[11]

T. Sargent and N. Wallace pointed out that overly expansionary fiscal policy often caused tightening of monetary policy which may have an adverse effect on economy. Instead, too restrictive monetary policy of the central bank might result in increase in cost of disinflation and increase in liabilities of the fiscal policy, which is related to outlays counteractive to the results of disinflation. The analysis of the models based on the game theory proves that coordination of both policies would be beneficial to economy.[12]

In the euro area policy-mix is based on the common monetary policy for all members of the Monetary and Economic Union (EMU) and national fiscal policies. Here, we should

---

[10] K. N. Kuttner, *The Monetary – Fiscal Policy Mix: perspectives from the U. S.* , "Bank i Kredyt " 11-12/2002, pp. 208 – 209.

[11] H. Bennett, N. Loayza, *Policy biases when the monetary and fiscal authorities have different objectives,* "Central Bank of Chile Working Papers", 66/2001, p. 301.

[12] P. Marszałek, *Zastosowanie teorii gier do badania koordynacji polityki pieniężnej i polityki fiskalnej*, [w:] W. Przybylska-Kapuścińska (red.), *Studia z bankowości centralnej*, „Zeszyty naukowe Akademii Ekonomicznej w Poznaniu", 56/2005, p. 223.

refer to the results of analyses conducted by C. Badarau and G. Levieuge who concentrated on studies of policy-mix suitable to the monetary union in a context of financial heterogeneity. Using dynamic, stochastic general equilibrium model (DSGE), they came to several conclusions. First of all, they have ascertained that centralized monetary policy was more advantageous for the monetary union than alternative national monetary policies. Also, they have found that national budget policies can mitigate cyclical divergences. Nevertheless, the analysis of various cases of policy-mix shows the certain advantage of the common budget and it allows better stability of price divergence in Monetary and Economic Union[13].

1.2. MANAGEMENT OF MONETARY AND FISCAL POLICIES IN THE EUROZONE IN THE PERIOD OF 2007-2013

States applying for accession to the Monetary and Economic Union are obliged to meet four euro convergence criteria: fiscal, interest rate, foreign exchange rate and price stability based on Article 126 and 140 of the Treaty on Functioning of the European Union and the attached Protocol no. 12 on the Convergence Criteria on the Excessive Deficit Procedure. The fiscal criterion constitutes that the reference values are: 3% for the ratio of the planned or actual government deficit to gross domestic product at market prices; 60% for the ratio of government debt to gross domestic product at market prices. Long-term interest rates criterion means that over a period of one year of before the examination, a Member State notes an average nominal long-term interest rate (measured on the basis of long-term government bonds or comparable securities) that does not exceed by more than 2 percentage points that of, at most, the three best performing Member States in term of price stability. To comply with the foreign exchange rate criterion, a Member State is obliged to participate in the European exchange rate mechanism for minimum two years without significant fluctuations in the exchange rate with an acceptable exchange rate fluctuation band of +/- 15% deviation of the central rate. The criterion on price stability means that a „... Member State has a price performance that is sustainable and an average rate of inflation, observed over a period of one year before the examination does not exceed by more than 1 ½ percentage points that of, at most, the three best performing Member States in terms of price stability".[14]

As M. Ochrymiuk and A. Rogut state in their studies, the willingness to join the eurozone and the associated compliance with the convergence criteria was a motivating factor for the Member States to conduct microeconomic policy that was low inflation rate oriented.[15] Currently, the European Central Bank is responsible for framing and impementing the EU monetary policy, and fiscal policy is managed by each State Member authorities. State Members, being concurrently members of the EU and EMU are bound to comply with the resolutions of the Treaty of Functioning of the European Union or the Pact of Stability and Growth.

The sole goal of the Central Bank and national Central Banks in the euro area is to keep prices stable. The primary objective was defined in Article 127 of the Treaty of Functioning of the European Union and it stipulates that it should support and contribute to the achievement of the goals of the European Union[16]. The support of general economy and

---

[13] C. Badarau, G. Levieuge, 2011, *Which policy-mix to mitigate the effects of financial heterogeneity in a monetary union?,* "LAREFI Working Paper" no. CR11-EFI/09, pp. 2 - 3.

[14] *Traktat o Unii Europejskiej* oraz *Traktat o funkcjonowaniu Unii Europejskiej*, (consolidated version), Dz. U. C 326 from 26.10.2012.

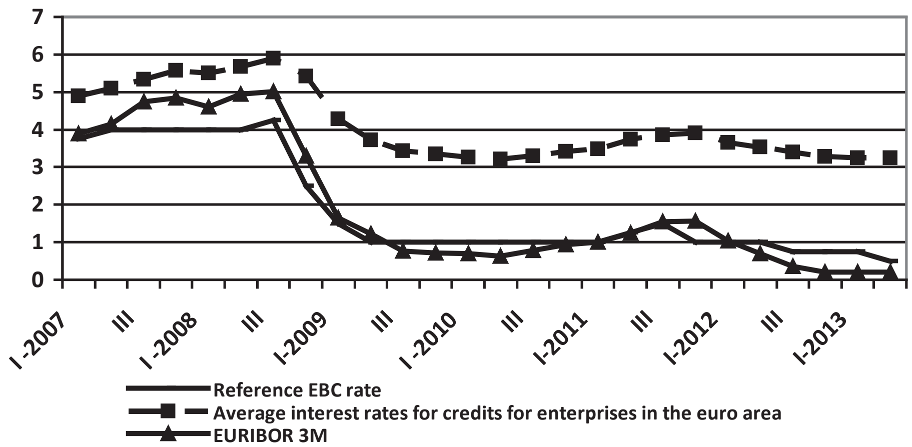
[15] Ochrymiuk M., Rogut A., *Konwergencja nominalna w strefie euro. Implikacje dla Polski*, NBP, Warszawa 2010, p. 15.

[16] *Traktat o Unii Europejskiej* oraz *Traktat o funkcjonowaniu Unii Europejskiej*, (wersja skonsolidowana), Dz. U. C326 z 26.10.2012.

its objectives i.e. high employment rate, non-inflationary growth should have no harm to price stability.[17] The Treaty established a clear hierarchy of objectives for the Eurosystem. Price stability is the paramount goal of the Eurosystem.[18] In October of 1998 the Governing Council of the ECB defined the quantative definition of price stability. It is so called Harmonised Index of Consumer Prices (HICP) .The primary goal of the ECB is to maintain price stability, defined as keeping the year on year increase HICP below but close to 2% for the medium term. In 2003 the Governing Council pinned down that it will aim to maintain inflation rate close to 2 % over the medium term.[19]

In the eurozone in 2007 the inflation pressure continued, which did not aid price stability. Hence, the ECB Executive Board made a decision to raise interest rates by 50 basis points in all, maintaing the basic interest rate of main refinancing operations at the level of 4%. (Figure 1).[20] Since August, 2007 the difficult conditions to run monetary and fiscal policies have emerged in the eurozone . They were affected by global financial market turmoil. This phenomenon intensified in 2008 what was manifested by an increase in inflationary pressure caused by higher commodity prices (June and July, 2008). HICP inflation reached its highest rate of 4%). There was a risk of emergence of second round (so called secondary effects consisting in pay raise attributable to increase in inflation. Hence the ECB Executive Board decided to raise interest rates by 25 basis points (basis rate for refinancing operations-4,25%). Additionally, mounting turbulence in financial markets and an escalation of uncertainty triggered liquidity deficit.). In December, 2008 a decrease in monthly inflation was observed (by 1,6%) (Figure 2) and midyear (by 3,3%).

Figure. 1. Reference EBC rate, average interest rates for credits for enterprises in the euro area and EURIBOR 3 M over the period of 2007 - 2013



Source: The own source based on statistical data by Eurostat

Due to the weakening inflation stress and economy decline (actual GDP was 0,8%), the EBC monetary authorities decided to decrease interest rates inclusively by 175 basis points (an interest of main refinancing operations was lowered to 2,5%) (figure 1).[21] Furthermore, monetary authorities in the eurozone introduced enhanced credit support, mainly for those banks which were supposed to enhance the flow of credit through specific policies

[17] *The Monetary Policy of the ECB*, European Central Bank, Frankfurt n. Menem, 2004, p. 42.
[18] P. P. Gierałtowski, *Polityka pieniężna w unii walutowej,*[w:] *Mechanizmy funkcjonowania strefy euro,* red. Kowalewski P., Koziński W., Warszawa 2010, p. 84.
[19] *The Monetary …*, op. cit., s. 42.
[20] *Annual Report 2007*, European Central Bank, Frankfurt n. Menem 2008, p.18.
[21] *Annual Report 2008*, European Central Bank, Frankfurt n. Menem 2009, p. 10,16.

whereby to improve financial conditions in the markets. The program encompassed the following elements:[22] offering unlimited liquidity to the eurozone banks, borrowing against collateral in all refinancing operations, enhancement of list of assets to be used as collateral, prolongation of maximum maturity from three months to one year; supply of liquidity in foreign currencies, mainly in US dollars: direct buying of security bonds.

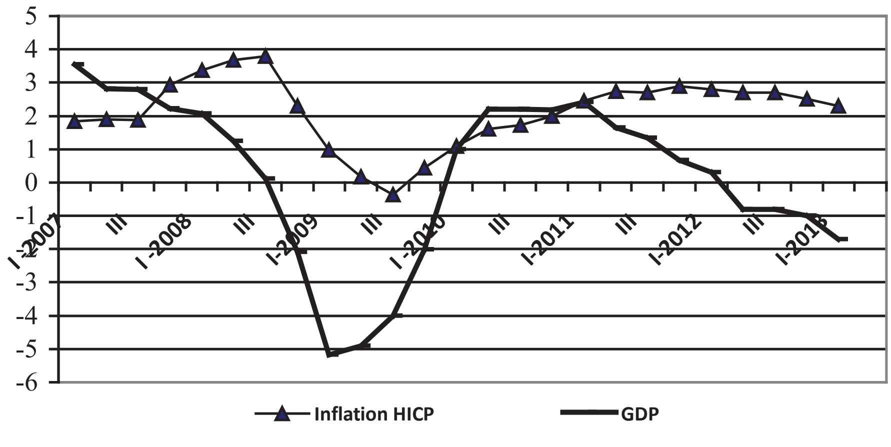
Consequently, an implementation of the enhanced credit support contributed to improvement in liquidity in a banking sector and a flow of credit in the euro area.

Besides, due to the low inflationary pressure (average annual inflation rate was 0,3% in 2009) and economic crisis (actual GDP decreased by 4% inclusively in 2009; figure 2), the European Central Bank made a decision to lower basis interest rates (from January 2009 to May 2009 by a further 150 basis points; figure 1).[23] Consequently, a rate of main refinancing operations was 1%, deposit rate at a central bank 0,25% and credit interest rate at a central bank was 1,75%. This decision was reflected by lower interest rates and spreads in financial markets and decrease in credit interest rates at banks.

Based on established rules within the program of enhanced credit support , in June, September and December of 2009 the EBC Governing Council took steps to conduct three longer-term refinancing operations to provide liquidity with 12 months maturity.

For instance the first of the operations provided the eurozone banking with 442 billion Euros with 1% interest rate. As a result of those activities, an interbank reference deposit interest rates such as overnight EONIA (Euro Overnight Index Average*)* became stable (after earlier fluctuations) at an average level of approximately 10 basis points over a deposit rate at the end of a day at a central bank. By engaging in outright purchasing of covered bonds issued in the eurozone, since July 2009 the financial market was supplied with liquidity worth 60 billion Euros within 12 months.[24]

Figure 2. Inflation HICP and dynamics of GDP in the eurozone over the period of 2007-2013



Source: The own source based on statistical data by Eurostat

Begining in September, 2008 we can talk about the first phase of financial crisis that was primarily related to a banking sector in the world. Moreover, during that period, a decrease in economy has been noticed in the whole world. Significant drop in trade, decline in export was caused by a global demand, limited investments and collapse of confidence in authorities, less

[22] Ibidem, p.19.
[23] *Annual Report 2009*, op. cit, s. 16 -18.
[24] Ibidem, s. 44.

reserves: those are only a few consequences of the financial crisis.[25] Those events affected budget income and the situation was not favorable to maintain budget balance. As a result of increasing budgetary expenditure on the aid granted by the state to banking sector came second phase of the crisis, namely phase of the crisis of public finances. Due to an increase in budget outlays, the banking sector received help from the governments of Member States. This aid was based, inter alia, on the European Commission[26] communications and recommendations of the ECB[27]. On October 12, 2008 the governments of the Eurozone accepted the European Action Plan in which they declared to provide additional help to Member States at the level of each country. Public help referred mainly to banking obligations:[28] government guarantees on interbank loans and newly issued securities, providing support for financial institutions such as capital injection, credit and loans, enlarging the scope of security of retail deposits. Governmental aid to the financial sector carried some risks related to an increase in budget outlays which in the short or intermediate term had a negative impact on the bottom line of a public finance sector (table 1). Undertaking contingent commitments (provision of warranties and guarantees), governments risked meeting those commitments partially and make the new ones. Additionally, the governmental support such as provision of additional capital, assets and loans purchasing had a tremendous impact on the structure of a budget (increase in outlays) in each country.[29]

Table. 1. General government debt and public debt in euro zone (% GDP)

	General government debt						
	2007	2008	2009	2010	2011	2012	2013
Euro zone	–0.7	–2.1	–6.4	–6.2	–4.2	–3.7	–3.0
	Public balance						
Euro zone	66.3	70.1	79.9	85.3	87.2	90.6	92.6

Source:Eurostat–http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database.

In conditions of increased midyear inflation HICP (2,7%) in April and July of 2011, the ECB raised basis interest rates by 50 basis points, and simultaneously the EURIBOR 3M increased and credit interest rate for enterprises, which did not have a positive effect on increase in investments. Nevertheless, in the second midyear of 2011 a debt burden surfaced in the eurozone (see Table 1), therefore, the EBC Governing Council decided to keep a basis interest rate at 1% (figure 1).[30] In view of increasing pressure in financial markets, the ECB

---

[25] *Annual Report on the Euro Area 2009*, European Economy 2009/6, European Commission, Luxembourg 2009, s. 21.

[26] Among the messages of the European Commission included the following documents: Banking Communication, OJ C 270 of 25 October 2008.; The Recapitalization Communication, OJ C 10 and 15 January 2009.; Communication on impaired assets, OJ C 72 of 26 March 2009., as well as the Communication on the return to viability and the assessment of restructuring measures in the financial sector, OJ C 195 of 19 August 2009.

[27] Among the recommendations of the ECB for the government include the ECB's Governing Council Recommendation on the provision of state guarantees for bank debt from 20 October 2008. And Recommendation on the pricing of recapitalisations of 20 November 2008.

[28] *Annual Report 2008*, op. cit., p. 82 – 84.

[29] At the end of 2009., implicit contingent liabilities in the balance sheets of countries , which were the resources allocated to guarantee schemes (except for government guarantees on retail deposits) accounted for 20.1% of the GDP of the euro area. The explicit contingent liabilities in the balance sheet , which referred to the warranty actually used by banks, accounted for approximately 9.4% of GDP.

[30] *Annual Report 2011*, European Central Bank, Frankfurt n. Menem 2012, p. 8 - 9.

decided to conduct two long-term refinancing operations (LTROs) with a maturity of 36 months and the option of early repayment after one year .The first operation started in December, 2011 and the second one in February, 2012 (within non-standard activities adopted on December 8, 2011). Moreover, they decided to reduce the reserve ratio from the binding 2% to 1% as of the reserve maintenance period starting on 18 January 2012 and temporarily increased collateral availability offered to central national banks. Due to the fall in an inflation level to 2,5% in 2012 and materialization of risk factors of weakening economy in July, 2012 , the EBC lowered basis interest rates by 25 basis points (figure 1).[31] In the second quarter of 2013 the basis EBC rates were lowered again to 0,5 % reference rate. The interest rates on loans to households and companies also dropped (with an average of 3.91% in the fourth quarter of 2011 to 3.24% in the second quarter of 2013.

Intensity of the debt burden in the first midyear of 2012 sparked discussions on the tighter coordination of fiscal and monetary policies. Thereby The Treaty on Stability, Coordination and Governance was signed on 2 March 2012 by the leaders of all then euro area members and ractified by 12 EU member states, and entered into force on 1 January 2013. The aim of the treaty was to reinforce existing fiscal frames and to implement a balanced budget rule in their national legislation through permanent, binding provisions.
The document is supposed to contribute to budget stability, stronger supervision, control and management of public finances by the Governing Council and the European Commission and to ensure better coordination of economic policy. Moreover, in 2011 The Budget Control Act was signed into law. The regulations defined the rules of creating state budgets, pace of increase in expenditures and required pace of reduction of public debt.[32]

Finally, by a collaborative effort, the fiscal and monetary authorities succeeded in restoration of stability of fiscal and monetary systems, though the effects of the financial crisis are still being felt and there are many challenges to achieve full stability in financial markets.

2 CONCLUSION

During the last financial crisis in the eurozone an increase in budget deficit and public debt has been noted (see Table 1). This was caused by slackening economic growth in those countries, outlays connected with additional financing of banking sector to support the states particularly affected by the crisis and bigger expenditures (investment outlays, public aid) . The last crisis affected the monetary policy loose in the euro area. In turn economic authorities stepped in to take actions to prevent the crisis from deepening. To sum up, the purpose of the article has been achieved concentrating on the essential significance of changes in monetary and fiscal policies in the eurozone.

Furthermore, the hypothesis has been corroborated that the crisis contributed to changes in management of economic policy and tightening of coordination of fiscal and monetary policies, what might have weakened the process of deepening the crisis in its early stage in the eurozone**.**

Sources

1. *Annual Report 2007*, European Central Bank, Frankfurt n. Menem, 2008.
2. *Annual Report 2008*, European Central Bank, Frankfurt n. Menem, 2009.
3. *Annual Report 2011*, European Central Bank, Frankfurt n. Menem, 2012.
4. *Annual Report 2012*, European Central Bank, Frankfurt n. Menem, 2013.

[31] *Annual Report 2012*, European Central Bank, Frankfurt n. Menem 2013, p. 7 - 10.
[32] Ibidem.

5. *Annual Report on the Euro Area 2009*, European Economy 6/2009, European Commission, Luxembourg, 2009.
6. Badarau C., Levieuge G., 2011, Which policy-mix to mitigate the effects of financial heterogeneity in a monetary union?, "LAREFI Working Paper" no. CR11-EFI/09.
7. Bennett H., Loayza N., 2001, *Policy biases when the monetary and fiscal authorities have different objectives*, „Central Bank of Chile Working Papers", no. 66.
8. Buti M., Sapir A., *Economic Policy in EMU*, Clarendon Press-Oxford 1998.
9. Clarida, R., Galí J.,Gertler M., Monetary Policy Rules and Macroeconomic Stability: Evidence and Some Theory, "Quarterly Journal of Economics", 2000.
10. Eurostat- http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database.
11. Flanagan K., Uyarra E., Laranja M. (2011) *Reconceptualising the 'policy mix' for innovation,* [in:] www.imf.org (access on 13.10.2014).
12. Gierałtowski P. P., *Polityka pieniężna w unii walutowej* [w:] *Mechanizmy funkcjonowania strefy euro,* red. Kowalewski P., Koziński W., NBP, Warszawa 2010.
13. Jacquet P., Pisani-Ferry J., Economic policy co-ordination in the euro-zone. What has been achieved?. What should be done?, "Sussex European Institute Working Paper" 40/2001.
14. Kot A., Metody kwantyfikacji restrykcyjności monetarnej, fiskalnej i Policy – mix w krajach akcesyjnych, „Bank i Kredyt" 06/2003.
15. Marszałek P., *Zastosowanie teorii gier do badania koordynacji polityki pieniężnej i polityki fiskalnej* [w:] W. Przybylska-Kapuścińska (red.), *Studia z bankowości centralnej*, „Zeszyty naukowe Akademii Ekonomicznej w Poznaniu", 56/2005.
16. *The Monetary Policy of the ECB*, European Central Bank, Frankfurt n. Menem 2004.
17. Ochrymiuk M., Rogut A., Konwergencja nominalna w strefie euro. Implikacje dla Polski, NBP, Warszawa 2010.
18. Skrzypczyńska J., Koordynacja polityki fiskalnej i pieniężnej strefy euro w obliczu kryzysu finansowego, „Rocznik Integracji Europejskiej" 6/2012.
19. Stawska J., *The impact of the monetary - fiscal policy mix on investments of euro area countries in the context of the financial crisis*, "Science and Studies of Accounting and Finance: Problems and Perspectives", Scientific Journal No 1(8), Lithuania 2012.
20. Svensson L. E., How Should Monetary Policy Be Conducted in an Era of Price Stability, "NBER Working Papers", 2000.
21. Woroniecka – Leciejewicz I., *Analiza policy-mix z uwzględnieniem interakcji decyzyjnych między bankiem centralnym a rządem i ich priorytetów*, Zeszyty Naukowe Wydziału Informatycznych Technik Zarządzania Wyższej Szkoły Informatyki Stosowanej i Zarządzania „Współczesne Problemy Zarządzania" 1/2011.
22. Vlad O., The use of the monetary policy instruments by central banks under globalization, Alexandru Ioan University, Iasi–Romania 2008.

Contact

Joanna Stawska, Ph.D.
University of Lodz
39 Rewolucji 1905 Street, Lodz, Poland
Tel: +48 42 635 52 49
email: joanna.stawska@uni.lodz.pl