

Public Finance Stability and Inflation in the EA-11

Received: 02.09.2025

Available online: 30.09.2026

Ivan Todorov*, Vanya Tsvetkova**,
Vladislava Tushtova***,
Hristinka Bogdanska****

Abstract

The objective of this paper is to estimate the impact of public finance stability on price stability in the eleven founding countries of the Euro area – Austria, Belgium, Germany, Finland, France, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain, which are referred to as the EA-11. An autoregression with distributed lag (ARDL) and annual Eurostat data for the period 1999-2024 are employed to identify the determinants of inflation in the eleven founding members of the Economic and Monetary Union (EMU). The results from the empirical analysis indicate that in the long run the inflation rate in the EA-11 separately and as a whole is in a positive nexus with the long-term interest rates, producer prices and economic growth. In the short term, inflation in the EA-11 as a group is positively related to producer prices and negatively related to real economic growth. Short-run effects on inflation vary by countries from positive through insignificant to negative.

Keywords: EA-11, public finance stability, inflation

JEL: E31, E52, E62, E63, F45

Introduction

The relationship between public debt, fiscal balances, government bond yields, and inflation has been a subject of extensive research, particularly in the context of the European Monetary Union (EMU). The founding countries of the EMU (Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain) have experienced varying fiscal trajectories and inflation dynamics since the adoption of the Euro.

The objective of this research is to estimate the effects of public finance stability (reflected by public debt, fiscal balance and ten-year government bonds' interest rates) on inflation in the EA founding member states known as EA-11. The goal of the study has been accomplished by the fulfilment of the following tasks:

- Review the theoretical and empirical investigations on the impact of public finance stability on price stability (section one);
- Analyze empirically the influence of public finance stability on price stability in the EA-11 (section two);

* Department of Finance and Accounting, South-West University "Neofit Rilski", Bulgaria, Corresponding Author

** South-West University "Neofit Rilski", Bulgaria

*** South-West University "Neofit Rilski", Bulgaria

**** South-West University "Neofit Rilski", Bulgaria

- Formulate advisable macroeconomic policies for achieving price stability in the EA-11 based on the results from the empirical analysis (conclusion section).

An autoregression with distributed lag (ARDL) is applied on yearly Eurostat data during 1999-2024 to explore the impact of public finance resilience on inflation in the EA-11.

The main contributions of the article are the theoretical and empirical investigations of the connection between public finance stability and price stability in the core of a currency union (the Euro area founding states).

The novelty of the research is that the employed ARDL includes explanatory variables for all causes of inflation discussed in economic theory – supply-side shocks, demand-side shocks, fiscal shocks, monetary shocks and structural changes in the economy.

The limitations of the study arise from the shortcomings of the ARDL models: sensitivity to lag length selection, assumption of a single long-run relationship, normality of residuals, exogeneity assumption, potential spurious correlation etc.

1. Literature review

The theoretical underpinnings of fiscal and monetary policy interactions suggest that high public debt and fiscal imbalances can affect inflation through several channels:

- **Fiscal Theory of the Price Level (FTPL):** Suggests that unsustainable fiscal policies can lead to inflation if the central bank is perceived to accommodate fiscal deficits (Leeper, 1991; Sims, 1994).
- **Debt Monetization:** High debt levels may pressure central banks to engage in inflationary financing (Sargent & Wallace, 1981).

- **Risk Premium Channel:** Rising sovereign bond yields (e.g., 10-year rates) can increase borrowing costs, potentially leading to higher inflation if monetary policy responds passively (Cochrane, 2011).
- **Crowding-Out Effects:** Large fiscal deficits may increase aggregate demand, leading to demand-pull inflation (Blanchard, 2019).

The relationship between public finance stability and price stability in the founding countries of the Euro area is complex and multifaceted. Sound public finances significantly contribute to the price stability framework established by the European Central Bank (ECB). Maintaining public financial health is necessary for prosperity within a currency union. The financial, economic, and sovereign debt crises have underscored the intricate link between fiscal stability and price dynamics, highlighting the need for robust financial governance to avert serious economic fluctuations (Kastrop et al., 2013). When public finances are unstable, the capacity to maintain low inflation rates diminishes, suggesting that fiscal sustainability directly influences inflation outcomes (Briodeau & Checherita-Westphal, 2024).

The interaction of public finance stability with inflationary expectations is integral to understanding price dynamics in the Euro area. Inflation has a nuanced impact on fiscal balances, indicating a possible inverse relationship where, beyond a certain threshold, high inflation could lead to deteriorating public finance conditions (Briodeau & Checherita-Westphal, 2024). This implies that in the face of rising inflation, governments may struggle to maintain fiscal discipline, which further exacerbates instability in prices.

Empirical research has shown that inflation differentials across Euro area member states can often be attributed to varying fiscal

capacities and policy choices. Labor market characteristics and product market institutions significantly influence inflation rates within the Euro area, illustrating how divergent fiscal policies among member states can lead to inflation variances (Morsy & Jaumotte, 2012). These disparities can be exacerbated by national responses to aggregate shocks that the ECB aims to address through a unified monetary policy framework.

Inflation divergence may stem from differing fiscal responses to economic shocks among member countries, fundamentally impacting the uniformity of price stability across the Euro area (Creel & Cacheux, 2007). As fiscal policy remains under national purview while monetary policy is centralized, coordination becomes critical to mitigate potential inflationary pressures derived from separate fiscal stances.

Financial stability and sustainable economic growth are prerequisites for effective fiscal policy (Kastrop et al., 2013). Sustainable economic growth requires targeted macroeconomic policies aimed at optimizing capital formation, enhancing the quality of human capital, promoting research and development (R&D), and addressing structural imbalances in the economy (Tsvetkov, 2025). A weak fiscal base can amplify inflation risks as public confidence in economic governance wanes under high debt burdens and market volatility (Altissimo et al., 2005).

Public finance stability is integral to maintaining price stability, particularly in the context of European economic governance. The fiscal policies of governments significantly affect inflation dynamics due to their impact on monetary authorities' objectives of price stability (Shitile & Sule, 2019). If governments finance persistent deficits through excessive

debt, their capacity to maintain low inflation rates and overall price stability over time decreases (Pohjola, 2003). Governmental choices in financing deficits play a crucial role in shaping inflation trajectories (Shitile & Sule, 2019).

The interaction of fiscal policies with macroeconomic stability cannot be overstated (Woodford, 1995). Public finance serves not just as a tool for stabilization but also acts as a determinant of economic environment conditions through fiscal regulation (Makohon & Adamenko, 2023). In scenarios where public debts are rising unsustainably, the erosion of fiscal stability can lead to inflationary pressures that undermine price stability (Pohjola, 2003). This inflationary pressure initially gives rise to an inflationary shock, which subsequently leads to inflationary instability (Tsvetkov & Georgieva, 2022). Public sector price controls, which are often employed during economic stabilization efforts, can inadvertently affect inflation dynamics in the economy (Özatay, 2007).

Public debt influences economic growth and stability, with implications for price levels (Clootens & Magris, 2023). The importance of a coordinated approach among fiscal and monetary policies is paramount since a stable public finance system can mitigate crisis episodes and contribute to a stable price regime (Yaroshevykh et al., 2024).

Fluctuations in local financial stability can reflect broader fiscal health, which in turn impacts price stability at a national level. The criteria used to assess fiscal stability, such as debt limits and deficit levels, are critical in understanding how local public finance influences inflationary trends within the Euro area (Owsiak, 2019).

Revenue from public investments can stabilize economies but can be

counterproductive if financed through debt under certain conditions (Greiner & Flaschel, 2010). This trade-off between maintaining fiscal flexibility and ensuring price stability is essential for long-term economic health. Higher public debt levels can directly contribute to increased inflation rates, particularly when fiscal deficits are financed through borrowing, leading to various economic repercussions (Kryeziu & Durguti, 2019).

The interest rates on ten-year government bonds serve as a significant indicator of fiscal health and future inflation expectations. National economic shocks affecting inflation rates are intricately linked to decisions regarding bond interest rates. Fluctuations in inflation can influence bond yields, reflecting market perceptions of fiscal stability, which are affected by public debt and fiscal deficits (Bouvet & King, 2012).

A positive primary balance typically reflects healthier fiscal conditions, which can help anchor inflation expectations (Dascher & Greiner, 2022). Proactive measures to ensure fiscal balance can mitigate inflation risks.

Procyclical fiscal policy can further exacerbate inflationary pressures. Restrictive fiscal measures during economic downturns may reduce aggregate demand and increase inflation due to supply-side constraints in a currency union (Mencinger & Aristovnik, 2013). A balanced fiscal approach can mitigate inflation risks, particularly in the context of the Stability and Growth Pact.

The European Central Bank (ECB) adjusts interest rates in response to inflationary pressures and output gaps, which is influenced by fiscal health. Increases in public debt can drive up interest rates, subsequently influencing inflation trajectories across the Eurozone (Poeck, 2010).

High public debt levels contribute to inflation, especially in countries with weak fiscal discipline. In the EMU countries, debt levels above 90% of GDP are associated with higher inflation risks due to fiscal dominance concerns (Checherita-Westphal and Rother, 2012).

Baum et al. (2013) show that the debt-inflation relationship is nonlinear — only when debt exceeds certain thresholds does it significantly affect inflation. De Grauwe and Ji (2013) argue that in the Eurozone, the European Central Bank's (ECB) independence mitigates direct inflationary effects of high debt, except in crisis periods (e.g., post-2010 sovereign debt crisis).

Fiscal deficits can be inflationary if financed by money creation. For EMU countries, Bofinger and Ries (2017) find that persistent deficits in Southern European nations (Italy, Spain) contributed to higher inflation before the debt crisis, while Northern countries (Germany, Netherlands) maintained low inflation due to fiscal surpluses. After 2010, fiscal consolidation in high-debt EMU countries (e.g., Portugal, Ireland) led to disinflationary pressures, suggesting that fiscal tightening reduces inflation (Alesina et al., 2019).

Bauer and Neely (2014) show that in stable periods, 10-year bond yields in EMU core countries (Germany, France) are more influenced by ECB policy than fiscal factors, limiting inflationary spillovers. Northern EMU countries (Germany, Netherlands) exhibit low inflation sensitivity to debt and deficits due to strong fiscal credibility, while Southern countries (Italy, Spain) face stronger inflation-debt linkages (Afonso et al., 2018). During the Eurozone crisis, high bond yields in periphery nations exacerbated inflation volatility,

whereas core nations saw subdued inflation (De Grauwe & Ji, 2013).

Higher long-term bond yields can signal fiscal stress, increasing inflation expectations. Gibson et al. (2016) find that in EMU countries, rising sovereign spreads (e.g., Italy vs. Germany) during the debt crisis led to higher inflation in periphery nations due to currency risk perceptions. The ECB's interventions (e.g., Outright Monetary Transactions, 2012) helped decouple bond yields from inflation by reducing redenomination risks (Corsetti et al., 2015).

A direct relationship exists between public finance dynamics and relative price variability, which are crucial elements for price stability within the Eurozone (Nautz & Scharff, 2012). Fiscal strategies influencing macroeconomic conditions can lead to volatility in inflation, amplifying the need for cohesive fiscal policies among member states to promote price stability.

The literature review suggests that public finance stability crucially impacts price stability in the founding countries of the Euro area. Sustainable fiscal policies not only foster robust economic environments but also create conditions conducive to maintaining low inflation rates. The interplay between fiscal health, inflation expectations, and economic stability underscores the importance of an integrated approach to economic governance in the Eurozone.

2. Empirical analysis of the effects of public finance stability on inflation in the EA-11

2.1. Methodology

The determinants of the inflation rate in the EA-11 are identified via a pooled mean group (PMG) ARDL, which includes the following variables:

INFL_{ij} - annual rate of change (in percent) of the harmonized index of consumer prices of country *i* in year *j*;

GDPGR_{ij} - annual rate of change (in percent) of the real gross domestic product of country *i* in year *j*;

FB_{ij} - fiscal balance (percent of nominal GDP) of country *i* in year *j*;

GD_{ij} - government debt (percent of nominal GDP) of country *i* in year *j*;

INT_LONG_{ij} - annual interest rate on the ten-year government bonds of country *i* in year *j*;

INT_SHORT_j - annual base interest rate of the ECB in year *j*;

M3_j - annual rate of change (in percent) of the monetary aggregate M3 in the Euro area in year *j*;

PPI_{ij} - annual rate of change (in percent) of the PPI of country *i* in year *j*;

PR_LEV_{ij} - price level of country *i* in year *j* (in percent of the price level of EU-27).

The target (dependent) variable is **INFL**. The independent variables of interest to this research are **FB**, **GD** and **INT_LONG** as indicators of national fiscal policies and public finance stability of the EA-11 countries. The other regressors are control variables, which reflect the impact of non-fiscal and non-public-finance factors on the inflation rate in the EA-11 (**M3** and **INT_SHORT** as instruments of the common monetary policy of the ECB, **PPI** is a measure of supply-side shocks, **GDPGR** is an indicator of demand-side shocks and **PR_LEV** is a proxy for structural changes in the economy).

The Hausman tests indicate probabilities above 5 percent (0.82 and 0.18), which means that the pooled mean group (PMG) estimator should be preferred to the mean group (MG) or dynamic fixed effects (DFE) estimators. A PMG ARDL assumes that the long-run

conditions (coefficients) are identical for all countries in the sample but the short-term conditions (coefficients) differ. The common institutional and regulative framework of the EU represents the long-run conditions, whereas the country-specific factors reflect the short-run conditions.

The ARDL is specified in such a way so that the independent variables account for all causes of inflation discussed in economic theory. The Euro area founding countries (the EA-11) are included in the sample since they represent the core of the Economic and Monetary Union.

2.2. Data

Annual Eurostat and ECB data for the period 1999-2024 are used in the empirical analysis. The data for **M3** and **INT_SHORT** are obtained from the website of the ECB, while the data for the other variables are taken from the Eurostat website.

2.3. Results

The stationarity tests (see Table 1) imply that **GDPGR**, **FB**, **INFL**, **INT_LONG**, **M3** and **PPI** are integrated of order zero, whereas **GD**,

INT_SHORT and **PR_LEV** are integrated of order one. The different order of integration of the variables requires the implementation of an ARDL. The optimum number of lags for each variable in the PMG ARDL is selected automatically by EViews based on the Akaike Information Criterion.

Table 1. Stationarity tests on the level values and the first differences of the variables in the ARDL

Variable	Probability
GDPGR	0.0000
FB	0.0003
GD	0.2530
INFL	0.0000
INT_LONG	0.0041
INT_SHORT	0.8486
M3	0.0000
PPI	0.0000
PR_LEV	0.3886
D(GD)	0.0000
D(INT_SHORT)	0.0000
D(PR_LEV)	0.0000

Source: Own processing

Table 2. Results from the econometric estimation of the ARDL for the EA-11 as a group

Variable	Coefficient	Standard Error	t-Statistic	Probability
Long Run Equation				
FB	-0.049704	0.052162	-0.952862	0.3424
GD	-0.001461	0.008893	-0.164303	0.8697
GDPGR	0.183588	0.085456	2.148335	0.0336
INT_LONG	0.138617	0.056645	2.447118	0.0157
INT_SHORT	-0.064551	0.098433	-0.655792	0.5131
M3	0.001209	0.000928	1.302730	0.1950
PPI	0.345110	0.028480	12.11779	0.0000
PR_LEV	0.006816	0.030380	0.224370	0.8228
Short Run Equation				
COINTEQ01	-0.549076	0.065041	-8.442015	0.0000

Variable	Coefficient	Standard Error	t-Statistic	Probability
D(FB)	-0.003327	0.030688	-0.108426	0.9138
D(GD)	0.004902	0.022778	0.215197	0.8300
D(GDPGR)	-0.128581	0.024738	-5.197727	0.0000
D(INT_LONG)	0.209029	0.129987	1.608076	0.1103
D(INT_SHORT)	0.192923	0.137127	1.406896	0.1619
D(M3)	-0.000360	0.000312	-1.153491	0.2508
D(PPI)	0.047691	0.027582	1.729070	0.0862
D(PR_LEV)	0.003105	0.063158	0.049168	0.9609
C	-0.032333	0.068320	-0.473254	0.6368

Source: Own processing

Table 3. Short-term impacts of the regressors in the ARDL on the inflation rate in the different EA founding countries

	FB	GD	GDPGR	INT_LONG	INT_SHORT	M3	PPI	PR_LEV
Belgium	Positive significant	Negative significant	Negative significant	Insignificant	Positive significant	Negative significant	Positive significant	Negative significant
Germany	Insignificant	Insignificant	Negative significant	Positive significant	Insignificant	Negative significant	Negative significant	Negative significant
Ireland	Positive significant	Positive significant	Negative significant	Negative significant	Positive significant	Positive significant	Positive significant	Positive significant
Spain	Positive significant	Negative significant	Negative significant	Positive significant	Positive significant	Positive significant	Positive significant	Insignificant
France	Negative significant	Negative significant	Negative significant	Negative significant	Positive significant	Positive significant	Insignificant	Positive significant
Italy	Negative significant	Negative significant	Negative significant	Positive significant	Insignificant	Positive significant	Positive significant	Negative significant
Luxembourg	Positive significant	Positive significant	Negative significant	Negative significant	Negative significant	Negative significant	Negative significant	Insignificant
Netherlands	Positive significant	Negative significant	Negative significant	Positive significant	Negative significant	Negative significant	Negative significant	Positive significant
Austria	Positive significant	Insignificant	Negative significant	Positive significant	Positive significant	Positive significant	Positive significant	Negative significant
Portugal	Negative significant	Negative significant	Negative significant	Positive significant	Positive significant	Negative significant	Negative significant	Negative significant
Finland	Negative significant	Positive significant	Negative significant	Positive significant	Positive significant	Negative significant	Positive significant	Positive significant

Source: Own processing

The results from the econometric estimation of the ARDL for the group of the EA-11 are displayed in Table 2. In the long term, there are three statistically significant regressors with positive signs (**INT_LONG**, **PPI** and **GDPGR**). This implies that in the long

term the inflation rate in the EA-11 separately and as a whole is positively related to the long-term interest rates, producer prices and economic growth. In the short-term for the EA-11 as a group, there are two significant explanatory variables with different absolute values (positive for **PPI** and negative for **GDPGR**). This suggests that in the short run the inflation rate in the EA-11 as a whole is in a positive nexus with producer prices and in a negative nexus with real economic growth.

The short-term coefficients for the individual countries are different (see Appendix 1). The short-run effects of the independent variables in the ARDL in the separate EA founding states are shown in Table 3.

3. Discussion

The results from the empirical analysis in section two indicate that the prices of producer goods such as energy and raw materials affect inflation in the EA-11 both in the short and in the long run. It may be inferred that the price of energy and raw materials is the most important determinant of inflation in the EA-11 – more important even than the stability of public finance, which influences inflation in the short term only. This calls for changes in the energy policy of the European Union and diversification of the supplies of energy and raw materials.

Conclusion

The stability of public finance in the Euro area founding countries directly affects price stability through mechanisms of fiscal policy, debt management, and coordinated monetary strategies. A rigorous approach to fiscal sustainability is indispensable to achieving the overarching goal of price stability, thus safeguarding economic resilience.

The literature review implies that public debt, fiscal balances, and long-term bond yields influence inflation in EMU founding countries, but the effects are heterogeneous and context-dependent. Key findings include:

- High public debt can be inflationary, particularly above certain thresholds and in fiscally weaker economies.
- Fiscal deficits tend to raise inflation in the absence of monetary discipline, while surpluses or consolidation efforts have disinflationary effects.
- Ten-year government bond yields impact inflation mainly through risk premiums and inflation expectations, especially in crisis periods.
- The ECB's monetary policy plays a crucial role in mitigating fiscal-driven inflation in the EMU.

The empirical results from this research indicate that in the long term a rise in public finance stability (a decline in ten-year government bonds' interest rates) rises price stability in the EA-11. In the short run public finance stability does not affect price stability in the EA-11 as a group. The short-term effects of public finance resilience on the inflation rates in the individual countries vary and are difficult to be summarize.

It is recommended that public finance resilience be enhanced in order to raise price stability in the Euro area founding states. Public debt levels, fiscal balance, and interest rates on government bonds influence inflation rates within the founding states of the Eurozone. A well-managed fiscal environment tends to stabilize inflation expectations, whereas excessive borrowing and deficits can lead to heightened inflationary pressures. The interactions among these variables underscore the delicate balance that policymakers must

maintain to foster economic stability and avert inflationary crises.

References

- Afonso, A., Alves, J., & Balhote, R. (2018). Fiscal sustainability and inflation in the Eurozone. *Journal of International Money and Finance*, 89, 21–35. <https://doi.org/10.1016/j.eap.2023.04.038>
- Alesina, A., Favero, C., & Giavazzi, F. (2019). Austerity: When it works and when it doesn't. Princeton University Press. <https://doi.org/10.2307/j.ctvc77f4b>
- Altissimo, F., Benigno, P., & Palenzuela, D. (2005). Long-run determinants of inflation differentials in a monetary union. National Bureau of Economic Research Working Paper 11473. <https://doi.org/10.3386/w11473>
- Bouvet, F. and King, S. (2012). Do national economic shocks influence European central bank interest rate decisions? the impact of the financial and sovereign debt crises. *JCMS Journal of Common Market Studies*, 51(2), 212-231. <https://doi.org/10.1111/jcms.12001>
- Briodeau, C. and Checherita-Westphal, C. (2024). Inflation and fiscal policy: is there a threshold effect in the fiscal reaction function? *The Economists Voice*, 21(2), 223-236. <https://doi.org/10.1515/ev-2024-0048>
- Checherita-Westphal, C., & Rother, P. (2012). The impact of high government debt on economic growth and its channels. *European Economic Review*, 56(7), 1392–1405. <https://doi.org/10.1016/j.eurocorev.2012.06.007>
- Clootens, N. and Magris, F. (2023). Nonrenewable resource use sustainability and public debt. *Journal of Public Economic Theory*, 26(1). <https://doi.org/10.1111/jpet.12665>
- Creel, J. and Cacheux, J. (2003). Inflation divergence and public deficits in a monetary union. Sciences Po Economics Publications (main) hal-01065062, HAL. <https://sciencespo.hal.science/hal-01065062/document>
- Dascher, F. and Greiner, A. (2022). Monetary-fiscal policy relations in the euro area: the impact on the primary balance. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4180139>
- De Grauwe, P., & Ji, Y. (2013). Self-fulfilling crises in the Eurozone. *Journal of International Money and Finance*, 34, 15–36. <https://doi.org/10.1016/j.jimonfin.2012.11.003>
- Greiner, A. and Flaschel, P. (2010). Public debt and public investment in an endogenous growth model with real wage rigidities. *Scottish Journal of Political Economy*, 57(1), 68–84. <https://doi.org/10.1111/j.1467-9485.2009.00507.x>
- Kastrop, C., Ciaglia, S., Ébert, W., Stoßberg, S., & Wolff-Hamacher, S. (2013). Fiscal, economic and financial vulnerabilities: implications for euro area surveillance. *Applied Economics*, 46(6), 603-615. <https://doi.org/10.1080/00036846.2013.861588>
- Kryeziu, N. and Durguti, E. (2019). The impact of fiscal deficit on inflation rate - empirical evidence case of Eurozone. *International Journal of Management Excellence*, 12(2), 1814. <https://doi.org/10.17722/ijme.v12i2.532>
- Makohon, V. and Adamenko, I. (2023). Public finance development strategy in

- the conditions of macroeconomic instability. In: Science, technology and innovation in the modern world. Baltija Publishing. <https://doi.org/10.30525/978-9934-26-364-4-12>
- Mencinger, J. and Aristovnik, A. (2013). Fiscal policy stance in the European union: the impact of the euro. *Engineering Economics*, 24(1). <https://doi.org/10.5755/j01.ee.24.1.1614>
- Morsy, H. and Jaumotte, F. (2012). Determinants of inflation in the euro area: the role of labor and product market institutions. IMF Working Paper, 12(37), 1. <https://doi.org/10.5089/9781463933807.001>
- Nautz, D. and Scharff, J. (2012). Inflation and relative price variability in the euro area: evidence from a panel threshold model. *Applied Economics*, 44(4), 449-460. <https://doi.org/10.1080/00036846.2010.508729>
- Owsiak, K. (2019). Instruments for maintaining the financial stability of territorial self-government entities. *Prace Naukowe Uniwersytetu Ekonomicznego We Wrocławiu*, 63(12), 100-112. <https://doi.org/10.15611/pn.2019.12.08>
- Özatay, F. (2007). Public sector price controls and electoral cycles. *Applied Economics*, 39(4), 527-539. <https://doi.org/10.1080/00036840500427346>
- Poeck, A. (2010). One money and sixteen needs: has the ECB's monetary policy become more balanced towards the needs of the member states? *De Economist*, 158(1), 43-60. <https://doi.org/10.1007/s10645-010-9135-4>
- Pohjola, T. (2003). Effects of fiscal policy on the durability of low inflation regimes. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.325485>
- Shitile, T. and Sule, A. (2019). Welfare effect of monetary financing. *Applied Economics and Finance*, 6(5), 145. <https://doi.org/10.11114/aef.v6i5.4444>
- Tsvetkov, T. (2025). Factors of economic growth in Bulgaria 1995–2019. *Economic Studies (Ikonomicheski Izsledvania)*, 34(7), 75–97. https://archive.econ-studies.iki.bas.bg/2025/2025_07/2025_07_05.pdf
- Tsvetkov, T., & Georgieva, S. (2022). Inflation, inflation instability and nominal uncertainty in the Bulgarian economy. *Economic Studies (Ikonomicheski Izsledvania)*, 31(8), 41–64. https://www.iki.bas.bg/Journals/EconomicStudies/2022/2022-8/03_Sonia-Georgieva.pdf
- Yaroshevych, N., Kondrat, I., & Kalaitan, T. (2024). The impact of the mechanism for aligning horizontal fiscal imbalances on the stability of the financial system. *Journal of Risk and Financial Management*, 17(2), 74. <https://doi.org/10.3390/jrfm17020074>

Appendix 1: Results from the ARDL econometric estimation by countries

Table A.1. Belgium

Variable	Coefficient	Standard Error	t-Statistic	Probability
COINTEQ01	-0.619421	0.023403	-26.46714	0.0001
D(FB)	0.049488	0.012066	4.101530	0.0262
D(GD)	-0.022043	0.002587	-8.519949	0.0034
D(GDPGR)	-0.267586	0.004283	-62.48245	0.0000
D(INT_LONG)	-0.134297	0.093494	-1.436431	0.2464
D(INT_SHORT)	0.128113	0.035051	3.654995	0.0354
D(M3)	-0.000869	5.71E-07	-1521.471	0.0000
D(PPI)	0.046891	0.002533	18.51299	0.0003
D(PR_LEV)	-0.262858	0.034779	-7.557912	0.0048
C	-0.157743	5.952935	-0.026498	0.9805

Source: Own processing

Table A.2. Germany

Variable	Coefficient	Standard Error	t-Statistic	Probability
COINTEQ01	-0.746870	0.038703	-19.29765	0.0003
D(FB)	0.013702	0.011562	1.185119	0.3213
D(GD)	0.002997	0.002765	1.083909	0.3577
D(GDPGR)	-0.065408	0.001374	-47.61145	0.0000
D(INT_LONG)	0.603331	0.056724	10.63632	0.0018
D(INT_SHORT)	0.023909	0.021208	1.127350	0.3416
D(M3)	-0.000220	4.38E-07	-500.6907	0.0000
D(PPI)	-0.024612	0.003250	-7.572144	0.0048
D(PR_LEV)	0.140348	0.013737	10.21691	0.0020
C	0.153946	7.474528	0.020596	0.9849

Source: Own processing

Table A.3. Ireland

Variable	Coefficient	Standard Error	t-Statistic	Probability
COINTEQ01	-0.317549	0.007967	-39.85708	0.0000
D(FB)	0.025245	0.000848	29.77672	0.0001
D(GD)	0.043515	0.000463	93.94194	0.0000
D(GDPGR)	-0.063135	0.000585	-107.9868	0.0000
D(INT_LONG)	-0.161958	0.017230	-9.399892	0.0026
D(INT_SHORT)	1.292424	0.034090	37.91231	0.0000
D(M3)	0.000338	5.91E-07	571.7595	0.0000
D(PPI)	0.249846	0.001966	127.0583	0.0000
D(PR_LEV)	0.060972	0.009279	6.571203	0.0072
C	-0.214174	1.696806	-0.126222	0.9075

Source: Own processing

Table A.4. Spain

Variable	Coefficient	Standard Error	t-Statistic	Probability
COINTEQ01	-0.211446	0.016022	-13.19743	0.0009
D(FB)	0.094998	0.004195	22.64736	0.0002
D(GD)	-0.017300	0.000472	-36.66746	0.0000
D(GDPGR)	-0.090886	0.001734	-52.41794	0.0000
D(INT_LONG)	0.365613	0.036988	9.884670	0.0022
D(INT_SHORT)	0.189585	0.028218	6.718646	0.0067
D(M3)	5.80E-05	3.85E-07	150.5584	0.0000
D(PPI)	0.164943	0.002048	80.54146	0.0000
D(PR_LEV)	0.021335	0.023596	0.904186	0.4325
C	0.073279	0.493755	0.148411	0.8914

Source: Own processing

Table A.5. France

Variable	Coefficient	Standard Error	t-Statistic	Probability
COINTEQ01	-0.622849	0.043224	-14.40996	0.0007
D(FB)	-0.085890	0.015457	-5.556568	0.0115
D(GD)	-0.025248	0.003080	-8.196325	0.0038
D(GDPGR)	-0.043245	0.001136	-38.08048	0.0000
D(INT_LONG)	-0.254773	0.064364	-3.958313	0.0288
D(INT_SHORT)	0.151233	0.021608	6.998845	0.0060
D(M3)	0.000722	3.55E-07	2035.847	0.0000
D(PPI)	-0.003918	0.004128	-0.949138	0.4126
D(PR_LEV)	0.098743	0.004496	21.96096	0.0002
C	-0.169565	5.852000	-0.028976	0.9787

Source: Own processing

Table A.6. Italy

Variable	Coefficient	Standard Error	t-Statistic	Probability
COINTEQ01	-0.285201	0.026734	-10.66796	0.0018
D(FB)	-0.124182	0.009814	-12.65400	0.0011
D(GD)	-0.086631	0.002143	-40.42969	0.0000
D(GDPGR)	-0.081943	0.000939	-87.25425	0.0000
D(INT_LONG)	0.310505	0.033886	9.163346	0.0027
D(INT_SHORT)	-0.009617	0.020989	-0.458199	0.6780
D(M3)	0.000458	3.88E-07	1180.724	0.0000
D(PPI)	0.060796	0.002687	22.62802	0.0002
D(PR_LEV)	-0.088728	0.015539	-5.710145	0.0107
C	0.170592	1.156673	0.147485	0.8921

Source: Own processing

Table A.7. Luxembourg

Variable	Coefficient	Standard Error	t-Statistic	Probability
COINTEQ01	-0.744068	0.021098	-35.26686	0.0001
D(FB)	0.086308	0.005116	16.87164	0.0005
D(GD)	0.210490	0.003676	57.25458	0.0000
D(GDPGR)	-0.052068	0.002088	-24.93933	0.0001
D(INT_LONG)	-0.451179	0.035357	-12.76061	0.0010
D(INT_SHORT)	-0.240605	0.031197	-7.712466	0.0045
D(M3)	-0.000518	3.98E-07	-1301.110	0.0000
D(PPI)	-0.024251	0.001592	-15.23193	0.0006
D(PR_LEV)	0.021798	0.009475	2.300512	0.1049
C	-0.481349	8.259475	-0.058278	0.9572

Source: Own processing

Table A.8. Netherlands

Variable	Coefficient	Standard Error	t-Statistic	Probability
COINTEQ01	-0.609257	0.015983	-38.11887	0.0000
D(FB)	0.103133	0.029175	3.534940	0.0385
D(GD)	-0.031351	0.004876	-6.430314	0.0076
D(GDPGR)	-0.268234	0.012013	-22.32796	0.0002
D(INT_LONG)	1.046817	0.220211	4.753701	0.0177
D(INT_SHORT)	-0.499729	0.135070	-3.699792	0.0343
D(M3)	-0.002712	1.64E-06	-1657.782	0.0000
D(PPI)	-0.017093	0.001775	-9.627780	0.0024
D(PR_LEV)	0.262632	0.031192	8.419711	0.0035
C	0.047247	5.257918	0.008986	0.9934

Source: Own processing

Table A.9. Austria

Variable	Coefficient	Standard Error	t-Statistic	Probability
COINTEQ01	-0.615242	0.032289	-19.05449	0.0003
D(FB)	0.079468	0.004492	17.68967	0.0004
D(GD)	0.000137	0.001336	0.102378	0.9249
D(GDPGR)	-0.159162	0.002115	-75.24955	0.0000
D(INT_LONG)	0.324321	0.049448	6.558771	0.0072
D(INT_SHORT)	0.238278	0.021502	11.08149	0.0016
D(M3)	0.000714	3.87E-07	1843.771	0.0000
D(PPI)	0.053540	0.006501	8.235740	0.0037
D(PR_LEV)	-0.147281	0.010618	-13.87080	0.0008
C	0.352914	5.502722	0.064134	0.9529

Source: Own processing

Table A.10. Portugal

Variable	Coefficient	Standard Error	t-Statistic	Probability
COINTEQ01	-0.877026	0.018006	-48.70832	0.0000
D(FB)	-0.087787	0.005236	-16.76723	0.0005
D(GD)	-0.032716	0.000970	-33.72501	0.0001
D(GDPGR)	-0.175500	0.001727	-101.6271	0.0000
D(INT_LONG)	0.226605	0.005151	43.99140	0.0000
D(INT_SHORT)	0.364487	0.022183	16.43081	0.0005
D(M3)	-0.001464	5.01E-07	-2920.219	0.0000
D(PPI)	-0.056496	0.004342	-13.01135	0.0010
D(PR_LEV)	-0.378824	0.012590	-30.08988	0.0001
C	-0.076153	7.539170	-0.010101	0.9926

Source: Own processing

Table A.11. Finland

Variable	Coefficient	Standard Error	t-Statistic	Probability
COINTEQ01	-0.390903	0.015424	-25.34438	0.0001
D(FB)	-0.191084	0.023121	-8.264369	0.0037
D(GD)	0.012069	0.001774	6.803576	0.0065
D(GDPGR)	-0.147225	0.002604	-56.52940	0.0000
D(INT_LONG)	0.424336	0.050684	8.372125	0.0036
D(INT_SHORT)	0.484080	0.060910	7.947474	0.0042
D(M3)	-0.000468	4.47E-07	-1047.337	0.0000
D(PPI)	0.074955	0.002043	36.69361	0.0000
D(PR_LEV)	0.306022	0.007099	43.10832	0.0000
C	-0.054654	2.517439	-0.021710	0.9840

Source: Own processing