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Exploring the Relationship Between Public Debt and Inflation Expectations: Evidence from Poland

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Abstract:

Purpose: *This study investigates the impact of both domestic and foreign public debt on inflation expectations in Poland, focusing specifically on the responses of Polish businesses from Q3 2008 to Q1 2025. The purpose is to understand how changes in public debt influence the formulation of inflation expectations and to differentiate the effects of domestic versus foreign debt.*
Design/Methodology/Approach: *The study utilizes quarterly data from the Central Statistical Office of Poland and the National Bank of Poland, incorporating a Vector Autoregression (VAR) model to analyze the dynamic relationships between public debt (both domestic and foreign) and inflation expectations. The analysis employs econometric techniques to explore the interactions and direct effects of public debt on inflation expectations, controlling for variables such as GDP, interest rates, and exchange rates.*
Findings: *The results reveal a statistically significant positive relationship between domestic public debt and inflation expectations, indicating that businesses anticipate higher inflation with rising domestic debt. In contrast, foreign public debt is found to have a negative impact on inflation expectations. The study highlights that the fiscal pressures associated with domestic debt are perceived as a risk of future inflation, while foreign debt influences inflation expectations through exchange rate depreciation and perceived macroeconomic instability.*
Practical Implications: *The findings underscore the importance for policymakers to consider the distinct effects of domestic and foreign public debt when formulating fiscal policies. Understanding these dynamics can help businesses, policymakers, and central banks anticipate inflationary pressures and make informed decisions on fiscal management and monetary policy, especially in times of economic uncertainty.*
Originality/Value: *This research contributes to the literature by distinguishing between domestic and foreign public debt and their respective impacts on inflation expectations in Poland. It also provides valuable insights into the role of businesses' inflation expectations as a critical component of economic forecasting, emphasizing the need for clear communication and transparent fiscal policies to manage inflation expectations effectively.*

Keywords: *Public Debt, Inflation Expectations, Domestic Debt, Foreign Debt, VAR Model.*

JEL: *E31, E62, H63, C32.*

Paper type: *Research paper.*

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1. Introduction

Public debt and inflation are two key indicators of macroeconomic stability. In Poland, particularly after the economic crises of 2020-2022, there has been a dynamic increase in public sector debt. In this context, rising corporate inflation expectations may be a response to the perception of risk associated with irresponsible fiscal policy.

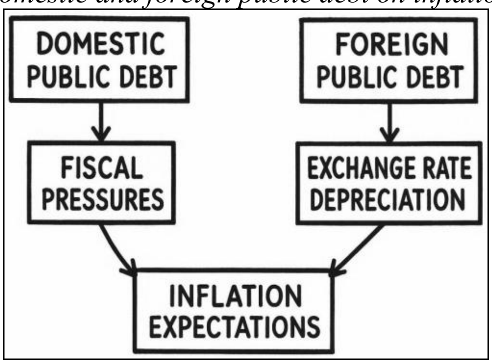
Hence, the aim of this article is to examine whether the growth of public debt (domestic and foreign) affects the way businesses formulate their expectations regarding future price levels.

Domestic public debt refers to liabilities issued by the government and held by domestic institutions or individuals, usually denominated in local currency. A growing stock of domestic debt can exert fiscal pressure on the government, particularly when interest payments absorb a large share of public revenue. In response to mounting obligations, governments may face pressure to monetize the debt, either through direct central bank financing or by influencing monetary policy.

This potential monetization fuels expectations of future inflation among households, firms, and financial markets. Foreign public debt is typically denominated in external currencies and held by non-residents. Servicing this debt exposes the government to exchange rate risk. If foreign investors doubt the government's capacity to repay, or if external shocks reduce foreign reserves, the local currency may depreciate.

Depreciation increases the domestic cost of imports and foreign-denominated liabilities, thereby transmitting to inflation expectations via imported inflation and perceived macroeconomic instability. The diagram illustrates how public debt, both domestic and foreign, can affect inflation expectations through two distinct pathways (Figure 1).

Figure 1. *Impact of domestic and foreign public debt on inflation expectations*



Source: *Own study.*

While these pathways offer a simplified and useful lens through which to understand the debt-inflation nexus, several important limitations must be acknowledged.

First, the model presumes a direct link between fiscal pressures and inflation expectations, yet in practice, independent central banks can offset fiscal dominance through credible monetary policy.

Secondly, not all fiscal pressures lead to monetization. Countries with strong institutions may rely on tax reform, spending adjustments, or debt restructuring instead.

Third, inflation expectations are not solely a function of debt levels. They are shaped by central bank credibility, policy communication, and institutional trust. In countries with well-anchored expectations (e.g., inflation-targeting regimes), even high debt levels may not trigger inflation fears.

Fourth, the impact of exchange rate depreciation on inflation varies by country. In economies with strong domestic production, the pass-through may be limited. Structural factors such as trade openness, financial dollarization, and pricing behavior influence how depreciation affects inflation.

Fifth, the pathways do not capture time lags or threshold effects. For instance, modest debt levels might not influence expectations until a critical threshold is breached. Market perceptions can shift abruptly based on geopolitical events, financial crises, or changes in global interest rates none of which are captured in the static framework.

And finally, sixth, the framework dichotomizes debt into domestic vs. foreign, overlooking hybrid forms such as local-currency foreign-held debt, or foreign-currency domestic-held debt, which blur the assumed distinctions in behavior. To examine the impact of public debt (domestic and foreign) on the inflation expectations of Polish businesses, two research hypotheses were formulated and then verified using appropriate statistical and econometric methods.

According to the first research hypothesis (1H0), an increase in domestic public debt leads to an increase in inflation expectations in Poland, while according to the second research hypothesis (2H0), an increase in foreign public debt leads to an increase in inflation expectations in Poland.

2. Literature Review

According to the rational expectations theory (Muth, 1961), economic agents adjust their decisions based on available information, including the level of public debt. Sargent and Wallace (1981) point out that public debt can be perceived as a precursor to future deficit financing through monetary issuance, which, in the absence of credible fiscal policy, can lead to increased inflation expectations.

Coibion, Gorodnichenko and Weber (2021) examine how fiscal policy influences households' inflation expectations through a randomized control trial involving U.S. households. Given the soaring levels of government debt, the authors explore whether individuals adjust their inflation outlook based on information about current and future fiscal conditions.

The study reveals that while current debt levels have minimal effect on inflation expectations, information about anticipated future debt significantly impacts households' forecasts, leading them to expect higher inflation, increased government spending, and rising interest rates. Interestingly, responses vary by political affiliation: Democrats and Republicans generally accept that future debt levels will rise without offsetting fiscal action, while Independents anticipate fiscal and monetary interventions to counterbalance the debt.

The research provides novel insights into how households form economic expectations and highlights the importance of communication on fiscal matters, ultimately suggesting that individuals distinguish between temporary and permanent fiscal changes when forming their beliefs about inflation. This study represents a pioneering effort to assess the effects of fiscal information on economic expectations using experimental methods.

Mello and Ponce (2022) investigate the relationship between fiscal policy, specifically budget deficits, and inflation expectations among price-setting firms in Uruguay. The authors provide empirical evidence that a positive correlation exists between the budget deficit as a percentage of GDP and firms' inflation expectations, suggesting that deteriorating fiscal outcomes can hinder the effectiveness of monetary policy in anchoring these expectations.

As inflation expectations significantly influence economic behavior, particularly in a context of varying fiscal health, the study emphasizes the interdependence of fiscal and monetary policies. The findings reveal that monetary policy alone, operating through interest rates and communication channels, is insufficient to fully mitigate the negative impact of fiscal policy on inflation expectations.

Bigio *et al.* (2024) explore the dynamics of inflation in the context of rising national debt, particularly following the COVID-19 pandemic. They introduce a modified New Keynesian model that incorporates expectations of monetary-fiscal reforms, suggesting that if such reforms occur, they could temporarily help manage debt through increased inflation. Research highlights the challenge for central banks, where raising interest rates can simultaneously dampen demand and exacerbate inflation expectations due to elevated debt levels.

Brandao-Marques *et al.* (2023) examine the impact of high government debt levels on monetary policy, particularly regarding inflation expectations in advanced and emerging market economies. It identifies a significant correlation between unexpected increases in sovereign debt and rising long-term inflation expectations in emerging markets, especially when debt levels are already high or when debt is dollarized.

The findings reveal that a 10-percentage-point increase in the debt-to-GDP ratio can lead to a 20 to 70 basis point rise in inflation expectations, depending on the time frame and specific economic conditions. In contrast, advanced economies do not exhibit the same sensitivity, largely due to established inflation-targeting regimes that bolster central bank credibility.

The paper highlights the nuances in the relationship between fiscal policy and monetary policy, noting that high debt may constrain central banks' ability to respond effectively to inflationary pressures, particularly in economies with less robust monetary frameworks. Overall, the document suggests that the circumstances surrounding government debt pose significant challenges for sustaining price stability in emerging markets while indicating a more muted effect in developed countries.

Mackiewicz-Łyziak (2014) examines the impact of public debt on consumer inflation expectations in 20 European countries, including both highly and low-indebted countries. The study aims to determine whether consumers are aware of the link between high debt levels and price stability and how this information influences their inflation expectations.

Using panel data, a model was constructed that analyzes the relationship between public debt and inflation expectations, taking into account the macroeconomic effectiveness of these expectations.

The results indicate that in low-indebted countries, public debt does not significantly affect inflation expectations, while in highly indebted countries, a positive and significant relationship was identified. In these countries, consumers also effectively process information about debt as a potential inflationary threat, whereas in low-indebted countries, forecasts are less accurate given the financial situation. The findings suggest an additional mechanism through which high debt may translate into higher inflation expectations.

Grigoli and Sandri (2023) explore the relationship between public debt and household inflation expectations through randomized controlled trials conducted in the US, UK, and Brazil. The authors, Francesco Grigoli and Damiano Sandri, identify that people tend to underestimate public debt levels, and once informed about actual figures, they revise their inflation expectations upwards. This increase in expectations correlates with the magnitude of the information surprise, indicating a causal effect of public debt on inflation perceptions.

The study highlights the importance of central bank credibility, revealing that greater confidence in monetary authorities decreases sensitivity to public debt information. Additionally, it finds that women and low-income households exhibit a higher sensitivity to changes in debt levels, driven by lower confidence in central banking and less familiarity with inflation targets.

Overall, the document contributes to an understanding of how fiscal parameters, such as public debt, influence inflation expectations, particularly in the context of prevailing economic uncertainties following crises like the COVID-19 pandemic.

Checherita-Westphal and Pesso (2024) examine the relationship between discretionary fiscal policy and inflation in the euro area, focusing on how varying levels of public debt impact this interaction. It reveals that fiscal policy's influence on inflation is non-linear, particularly under high debt conditions where fiscal expansions lead to amplified inflationary responses.

This study utilizes a novel dataset covering 1999-2022 and employs local projection methods to analyze the effects of fiscal stimulus and control for factors such as interest rates. The findings indicate that high government debt elevates inflation responses to fiscal measures, while higher interest rates diminish these effects. The paper also explores the repercussions of fiscal policy on private consumption and inflation expectations, noting that significant inflation expectations arise predominantly in high-debt contexts.

Moreover, it offers insights into the interaction between fiscal and monetary policies amid differing economic cycles and suggests pathways for future research, particularly in identifying exogenous fiscal shocks and exploring the impact of various fiscal instruments. Ultimately, this work contributes valuable empirical evidence to the ongoing discourse surrounding fiscal policy's role in shaping inflation dynamics in the euro area, particularly in light of recent inflationary challenges.

Mehmeti and Deda (2022) investigate the relationship between public debt and inflation, focusing on Kosovo and North Macedonia, particularly in the post-pandemic context. They analyze how public debt, interest rates, trade openness, GDP growth, and foreign direct investments affect inflation using econometric methods that combine Ordinary Least Squares (OLS) and the Arrellano-Bover/Blundell-Bond approach, based on secondary data from 2008 to 2021.

The research finds that public debt, interest rates, and trade openness significantly influence inflation, while GDP growth has a negative impact. Given the recent global inflation trends, this study is timely and provides new insights into ongoing debates about public debt’s effect on inflation, particularly under current economic pressures. The authors posit that understanding these dynamics can help policymakers design better fiscal policies to mitigate inflationary pressures. The document also offers theoretical foundations on the nature of inflation, the interplay of monetary and fiscal policies, and the implications of various economic theories underpinning public debt and inflation relationships.

Interesting research results regarding the significance of household inflation expectations in the context of monetary policy, highlighting a shift in focus from expert forecasts and market measures to understanding consumer beliefs were published by D'Acunto *et al.* (2024). Research underscores that consumers’ inflation expectations reflect a broader societal perspective and exhibit substantial deviations from traditional rationality norms.

As households formulate their expectations based on selective information and personal experiences, these beliefs significantly influence their economic behaviors, such as consumption and saving decisions. The research stresses that consumers' medium- and long-term inflation expectations often diverge from central bank targets and respond more closely to short-term inflation news.

Essentially, effective central bank communication becomes crucial for influencing these expectations and ensuring effective monetary policy transmission. The findings suggest that central banks must actively engage the public to foster trust and understanding, particularly by clearly conveying stability targets, as consumers' attention to economic information is limited amidst competing interests.

Based on the results of selected empirical studies cited above, it can be seen that the economic literature contains numerous empirical analyses examining the impact of public debt on inflation expectations in countries with varying levels of economic development. However, these analyses, in the vast majority of cases, treat public debt as a whole, failing to distinguish between domestic and foreign public debt.

This simplification of established research can significantly limit the research's cognitive value and fail to provide a true picture of the situation regarding the role of public debt (domestic and foreign) in shaping inflation expectations. Furthermore, the research results available in the economic literature primarily concern the impact of public debt on the inflation expectations of households, not enterprises.

Including household inflation expectations in studies can yield misleading results, if only because households generally have significantly less information and professional knowledge to properly (rationally) formulate their inflation expectations. Inflation expectations are formulated much more accurately by enterprises possessing the appropriate information, knowledge, and experience necessary to form rational inflation expectations.

Therefore, this study, firstly, takes into account the impact of both domestic public debt and foreign public debt on inflation expectations, and secondly, only enterprises' inflation expectations are included in the study.

3. Research Methodology and Results

The methodology adopted in this study to examine the impact of domestic and foreign public debt on inflation expectations in Poland assumes the existence of several potential channels through which public debt (domestic and foreign) influences inflation expectations:

- the fiscal channel, according to which rising public debt may suggest the need for future debt monetization, which businesses interpret as a risk of rising inflation;
- the fiscal policy expectations channel, according to which concerns about future tax increases or spending cuts to finance public debt may change businesses' perceptions of the costs of doing business;
- the interest rate channel, according to which an increase in public debt may lead to upward pressure on interest rates, affecting price expectations;
- the exchange rate channel, according to which an increase in foreign public debt, through a depreciation of the domestic currency, may contribute to expectations of increased import inflation.

In economic literature there are many different econometric models used to estimate the impact of the public debt on inflation expectations in selected countries. In order to analyze the issues in Poland, the VAR (Vector Autoregression) model presented below was used in this article.

$$Y_t = c + A_1Y_{t-1} + A_2Y_{t-2} + \dots + A_pY_{t-p} + \varepsilon_t \qquad (1)$$

Where:

Y_t - the 8×1 vector of endogenous variables at time t;
BS - Balance Statistics (inflation expectation based on respondents' opinions formulated qualitatively and relative to the current inflation rate in the survey question).
ND - National Debt. Domestic debt of the State Treasury.
FD - Foreign Debt. Foreign debt of the State Treasury.
PB - Public Balance. State budget result (balance).
RR- Reference Rate. Main interest rate of central bank monetary policy.
CPI - Consumer Price Index. Measure of inflation. ER - Exchange Rate. The price of 100 EUR expressed in PLN.
GDP - Gross Domestic Product (seasonally adjusted). p - the number of lags.
A_i - the 8×8 coefficient matrices for lag i; c - the 8×1 vector of constants (intercepts).
ε_t - N(0, Σ) the vector of white noise error terms.

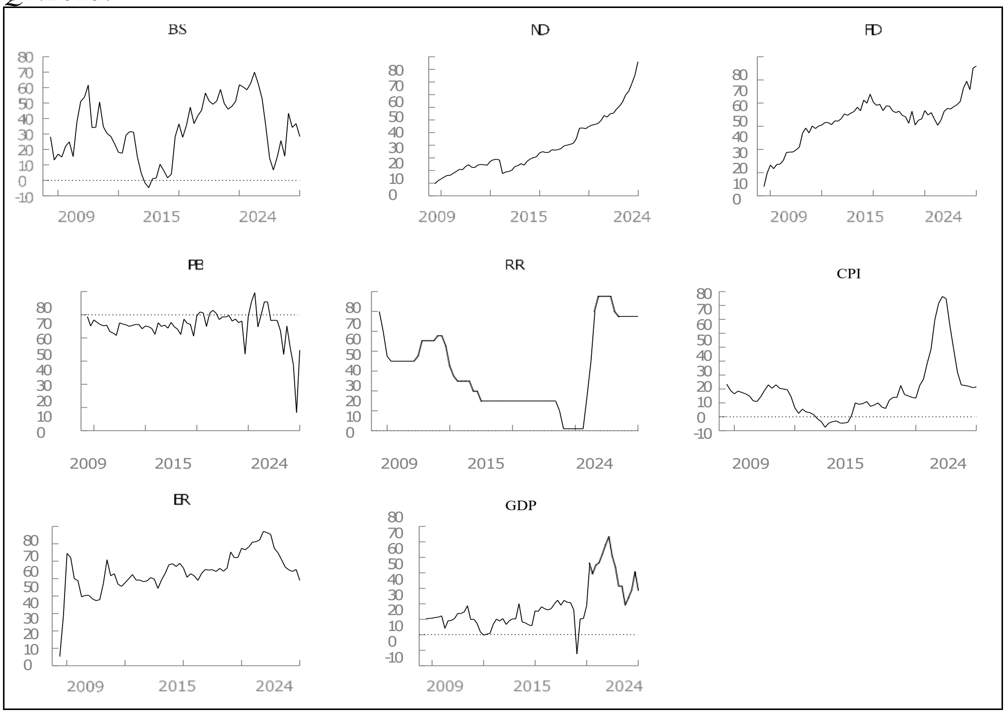
Expanded form of VAR model (1) can be written as follow:

$$\begin{bmatrix} BS_t \\ AI_t \\ \vdots \\ GDP_t \end{bmatrix} = \begin{bmatrix} c_1 \\ c_2 \\ \vdots \\ c_8 \end{bmatrix} + \sum_{i=1}^{p} \begin{bmatrix} a_{11,i} & a_{12,i} & \cdots & a_{18,i} \\ a_{21,i} & a_{22,i} & \cdots & a_{28,i} \\ \vdots & \vdots & \ddots & \vdots \\ a_{81,i} & a_{82,i} & \cdots & a_{88,i} \end{bmatrix} \begin{bmatrix} BS_{t-i} \\ AI_{t-i} \\ \vdots \\ GDP_{t-i} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \\ \vdots \\ \varepsilon_{8t} \end{bmatrix} \tag{2}$$

The study was based on the analysis of quarterly data from Q3 2008 to Q1 2025. The dependent variable is the inflation expectations of enterprises, measured based on surveys from the National Bank of Poland. The explanatory variable is the change in the domestic public debt.

Additionally, controlled variables were introduced, such as changes in GDP, the NBP reference rate, the CPI, the zloty-euro exchange rate, and the government deficit. Statistical data came from the statistical database of the main statistical office of Poland – the Central Statistical Office (GUS). Changes in individual indicators used in the model were presented during the period under analysis in accordance with the figure below (Figure 2).

Figure 2. *Changes in BS (Balance Statistics), ND (National Debt), FD (Foreign Debt), PB (Public Balance), RR (Reference Rate), CPI (Consumer Price Index), ER (Exchange Rate) and GDP (Gross Domestic Product) in the period Q3.2008 to Q1.2025.*



Source: *Own study.*

The average value of BS is 32.7, with the median slightly higher at 34.2, indicating a generally positive trend. However, the presence of negative values (Min. -4.64) suggests that there were occasional periods of decline. The relatively high standard deviation (19.1) points to considerable variability over time. ND shows a large average value, suggesting it represents a high-magnitude variable.

The distribution shows that values can more than double from minimum to maximum, and the high standard deviation (221,000) confirms substantial fluctuations. FD is also a high-value variable but at a lower scale than ND.

The data shows less variability (Std. Dev. 50,500) with values mostly clustered around the mean. PB has a negative mean and median, indicating that deficits are common in the observed period.

The wide range (from significant negative values to occasional surpluses) and the high standard deviation (34,500) reflect fiscal volatility.

The average RR is 3.06, with a median of 2.5, suggesting a moderate rate level overall. The minimum value (0.1) points to periods of very loose monetary policy, during economic downturns, while the maximum (6.75) indicates tightening in some periods. The variability (Std. Dev. 1.97) indicates that the policy environment has shifted significantly over time. The average inflation (CPI) is moderate at 3.66%, but the data shows considerable fluctuations, including deflationary periods (negative CPI) and high inflation spikes up to 17.3%.

The standard deviation (4.11) highlights that inflation has been unstable in certain periods. The exchange rate (ER) appears relatively stable with an average and median of 428 and modest variability (Std. Dev. 23.2). The exchange rate fluctuated between 331 and 474, showing moderate currency movements without extreme volatility. The GDP variable exhibits high variability, a right-skewed distribution, and potential anomalies such as the negative minimum. This suggests periods of both strong growth and sharp downturns (Table 1).

Table 1. *Summary statistics, using the observations 2008:3 - 2025:1*

Variable	Mean	Median	S.D.	Min	Max
BS	32.7	34.2	19.1	-4.64	70.0
ND	6.90e+005	6.09e+005	2.21e+005	3.96e+005	1.36e+006
FD	2.63e+005	2.74e+005	5.05e+004	1.20e+005	3.80e+005
PB	-2.33e+004	-2.11e+004	3.45e+004	-2.11e+005	4.76e+004
RR	3.06	2.50	1.97	0.100	6.75
CPI	3.66	2.90	4.11	-1.50	17.3
ER	428.	428.	23.2	331.	474.
GDP	3.66e+004	2.76e+004	3.01e+004	-2.48e+004	1.26e+005

Source: *Own study.*

Based on the data presented in the table, it can be seen that most correlations are weak or not statistically significant, suggesting limited linear relationships among the variables in the sample. The only strong and significant relationship is between Exchange Rate (ER) and Foreign Debt (FD) as well as between Balance Statistics (BS) and Gros Domestic Product (GDP). The correlation between Balance Statistics (BS) and National Debt (ND) as well as between Balance Statistics (BS) and Foreign Debt (FD) are not significant (Table 2).

Table 2. *Correlation coefficients, using the observations 2008:4 - 2025:1*

RR	CPI	ER	BS	ND	PB	GDP	FD	
1	-0.0152	0.0173	-0.0231	-0.0473	-0.0153	0.1909	-0.1352	RR
	1	-0.0526	-0.0228	0.1156	-0.0152	-0.1903	-0.1408	CPI
		1	0.0249	0.0679	-0.0038	0.0521	0.5223	ER
			1	-0.1234	-0.0233	0.2461	0.0790	BS
				1	0.0921	-0.2380	0.0218	ND
					1	0.0123	0.0414	PB
						1	0.0593	GDP
							1	FD

Note: *5% critical value (two-tailed) = 0.2423 for n = 66.*
Source: *Own study.*

Before estimating the VAR model, it was necessary to determine stationarity analyzed time series, because any lack of stationarity could cause the occurrence of spurious regression between variables. For this purpose, the following extended Dickey-Fuller test – ADF (Augmented Dickey-Fuller). Stationarity was observed for all analyzed variables (Table 3).

At the same time, due to the presence of stationarity examined time series and the lack of cointegration between variables the model could not be extended or structurally transformed VAR model into a vector error correction model.

The results of estimating a VAR model using the classical least squares method are presented below. Every variable is included in the estimation as endogenous, and each is modeled as a function of the lagged values of every other variable. Information criteria like AIC or BIC were used to choose the one-quarter lag duration. Since every variable was steady, the original series was used to estimate the model.

The VAR (Vector Autoregression Model), which Sims (1980) devised, was then used to estimate the model. McCarthy (1999), who examined a variety of macroeconomic interdependencies in the Organization for Economic Co-operation and Development (OECD) member nations, was the first to employ this methodology. According to Sims's (1980) assumption, the VAR technique concurrently resolves the issue of exogeneity of explanatory variables by analyzing a given occurrence using a system of equations. The results of the model estimation are presented in the following (Table 4).

Table 3. *Augmented Dickey-Fuller test, sample size 65*

	coefficient	std. error	t-ratio	p-value	
RR_1	−0.999840	0.125000	−7.999	4.77e-014	***
CPI_1	−1.00013	0.125000	−8.001	4.70e-014	***
ER_1	−1.06888	0.0732215	−14.60	2.85e-031	***
BS_1	−0.990629	0.124995	−7.925	7.43e-014	***
ND_1	−0.618245	0.119008	−5.195	2.90e-07	***
PB_1	−1.00000	0.125000	−8.000	4.73e-014	***
GDP_1	−1.43509	0.111193	−12.91	3.52e-027	***
FD_1	−0.918135	0.0984802	−9.323	1.34e-017	***

Source: *Own study.*

Table 4. *VAR model estimation. Equation 1: BS*

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
BS_1	0.78	0.07	10.41	<0.0001	***
ND_1	0.40	0.01	3.13	0.0027	***
FD_1	−0.08	0.04	−1.86	0.0680	*
PB_1	0.07	0.04	1.47	0.14	
RR_1	−0.86	1.03	−0.83	0.40	
CPI_1	−0.88	0.81	−1.08	0.28	
ER_1	0.02	0.02	1.23	0.22	
GDP_1	−0,09	0.07	−1.22	0.22	

Mean dependent var	32.79	S.D. dependent var	19.23
Sum squared resid	4966.52	S.E. of regression	9.25
R-squared	0.94	Adjusted R-squared	0.94
F(8, 58)	131.47	P-value(F)	0,002
rho	−0.01	Durbin-Watson	1.97

Source: *Own study.*

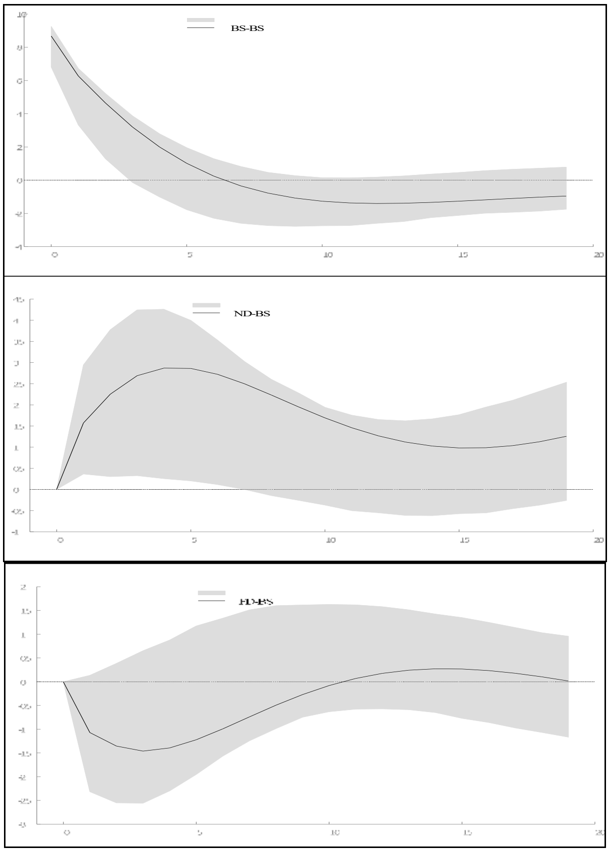
On the basis of data from above table R-squared indicates that about 94.8% of the variance in the dependent variable is explained by the model. P-value of 0.002, this indicates that the model as a whole is statistically significant.

Durbin-Watson statistic is very close to 2, suggesting no significant autocorrelation in the residuals. BS_1 is highly significant and positively related to the dependent variable. ND_1 is also highly significant and positively associated. FD_1 is marginally significant, with a negative effect. The rest of the variables (PB_1, RR_1, CPI_1, ER_1, GDP_1) are not statistically significant, as their p-values exceed the typical 0.05 threshold.

The next stage of the analysis was to assess the strength of the impact of the analyzed factors on the inflation rate in Poland. This measurement was made using the so-called impulse response function (IRF). This function defines the dynamic (time-distributed) response of the i-th endogenous variable in the VAR model to the disturbance of the j-th random component.

In this case, the impulse response function was used to examine the response of the inflation rate to an impulse in the form of a unit change in the central bank's reference rate and the market interest rate (Figure 3).

Figure 3. *Impulse Response Functions of inflation expectation (BS) on changes in BS, ND, FD*



Source: *Own study.*

The above graphs show that the shock increase in the BS led to an immediate increase in the expected inflation rate over the next two quarters from the moment the price shock occurred, and then to a gradual decrease in inflation expectations.

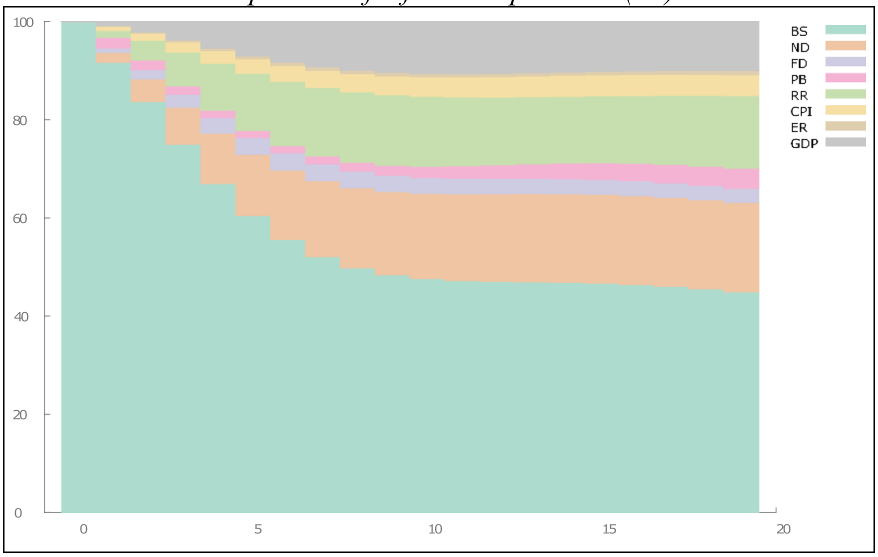
Stabilization of inflation expectations take place after ten quarters from the date of shock. In contrast, the increase in the national public debt leads to a rapid increase in the inflation expectations over the next five quarters from the moment the shock, and then to a decrease and stabilization in the inflation expectations in the following periods.

An opposite situation occurs with respect to the impact of changes in the foreign public debt on the inflation expectation in Poland. Specifically, an increase in the foreign public debt leads to a rapid decrease in inflation expectations over the next four quarters from the moment the shock, and then to gradual increase in the inflation expectation and then to stabilization in the next periods.

The next stage of the analysis was the decomposition of the residual component variance. This procedure allows to determine the share of shocks affecting each of these variables in explaining the variance of individual model variables.

The variance decomposition measures the percentage share of each of the individual shocks (variance disturbances) in explaining the variability of individual model variables. In this case, the variance of the balance statistics in Poland in the period under study was decomposed in order to estimate the impact of changes in the analyzed factors (the lagged national public debt and the foreign public debt) on the formation of inflation expectations variability (Figure 4).

Figure 4. *Variance decomposition of inflation expectation (BS)*



Source: *Own study.*

Based on the data in the above figure, it can be seen that changes in the inflation expectations of companies explain more than 50% volatility of inflation expectations in the twenty quarters after the shock. This means that most of the changes in inflation are explained by its own past behavior.

Moreover, changes in the national public debt explain over 18% volatility of inflation expectations in the twenty quarters following the shock. On the other hand, changes in the foreign public debt explain almost 4% volatility of inflation expectations in the twenty quarters following the shock.

4. Conclusion

This study offers valuable insights into the relationship between public debt and inflation expectations in Poland, with a focus on distinguishing the impacts of domestic and foreign debt. The results of the conducted research confirm the first of the adopted research hypotheses (1H0), but on the other hand reject the second research hypothesis (2H0).

The empirical analysis confirms that domestic public debt exerts a statistically significant positive influence on inflation expectations among Polish businesses, suggesting that rising domestic debt is perceived as an indicator of potential future inflationary pressures. Conversely, foreign public debt is found to have a negative impact on inflation expectations, likely due to the exchange rate effects and the perception of external macroeconomic risks.

The research highlights the critical role of businesses in formulating inflation expectations, particularly in the context of economic uncertainty and shifting fiscal conditions. While central banks and policymakers have the ability to anchor expectations, the findings underscore the importance of managing both domestic and foreign debt levels carefully.

Given the significant influence of public debt on inflation expectations, especially within the business sector, it is essential for fiscal policies to account for these dynamics in order to maintain economic stability and prevent the escalation of inflationary pressures.

The study's originality lies in its distinction between domestic and foreign public debt, an approach that has been underexplored in existing literature. Moreover, by focusing on the inflation expectations of businesses, the research fills a gap in understanding how fiscal policy influences economic forecasting at the corporate level.

Future research could explore the long-term effects of these debt dynamics in other emerging economies, as well as the potential role of central bank communication in mitigating inflation expectations.

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