DETERMINANTS OF FINANCIAL DEVELOPMENT IN NORTH MACEDONIA

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Abstract: Financial development is critical for economic growth, financial stability, and sustainable development by effective allocation of financial resources and increased financial services access. Even though literature regarding the determinants of financial development has been constantly increasing, empirical evidence for North Macedonia still remains limited. In this research paper, will be examined the influence of gross domestic product per capita , inflation , and domestic credit to the private sector on the Financial Development Index (FDI) in North Macedonia during 2002-2020 period. Annual secondary data have been collected from the International Monetary Fund and the World Bank. An OLS regression analysis was used to identify the impact of macroeconomic variables chosen by us on financial development. Based on the obtained empirical results, it should be stated that GDP per capita and domestic credit to the private sector positively affect the Financial Development Index, while inflation negatively influences it, though insignificantly. In conclusion, it can be stated that economic growth and increased credit access are crucial factors determining financial sector development in North Macedonia.
Keywords: Financial Development Index, GDP per capita, inflation, domestic credit to the private sector, North Macedonia, OLS regression.

1. INTRODUCTION

This research considers the macroeconomic factors determining financial development in North Macedonia with emphasis on GDP per capita, inflation rate, and domestic credit to the private sector. Financial development can be defined as the development of financial institutions and markets' depth, availability, and efficiency and can be considered as one of the key components of economic growth, investments, and financial stability. The dominance of the activity of the banking sector in allocation of resources in developing and transition economies like North Macedonia makes the process of financial development extremely significant.
The years 2002-2020 were marked by great economic disturbances caused by the coronavirus pandemic, high inflation in the world economy, and changes in monetary policy. This made financial market uncertain and had impact on credit conditions, economic growth, and inflation process. That is why finding out the determinants of financial development in the given period would have great practical importance for policy-making.
The aim of this study is to identify the macroeconomic factors determining financial development in North Macedonia during 2002-2020 considering GDP per capita, inflation, and domestic credit to the private sector.

2. LITERATURE REVIEW

It is well known that the association between GDP per capita and financial development has been widely studied in the literature on finance and growth. Measures of financial development include financial development indexes, private sector credit, and broad money. It has been empirically demonstrated that income has a positive impact on the development of financial sector due to the growing demand for financial services and investments.
Indeed, there is a positive correlation between GDP per capita and financial development. So, for instance, Taghizadeh-Hesary et al. (2019) found that income along with economic integration had an impact on financial development in East Asia and the Pacific. In turn, Le et al. (2023) revealed that countries with higher GDP per capita had more developed digital financial systems due to financial accessibility, technology development, and institutions' improvement. Furthermore, Lee et al. (2020) argued that the level of income promoted financial sector development as it increased the capital accumulation and financial intermediation.
However, the relationship between GDP per capita and financial development might be not only linear. Khatib et al. (2023) discovered nonlinear dynamics in the relationship between finance and growth. It means that the effect of GDP per capita depends on the level of economic and financial development, and the contribution of income in financial deepening diminishes with the maturity of the financial system.
Some researchers pay much attention to the moderating effect of institutional quality and other structural factors in the GDP per capita-financial development relationship. So, Taghizadeh-Hesary et al. (2019) found that the financial integration had a positive effect on the relationship between income and financial development due to the increased capital mobility and market efficiency. Moreover, Khatib et al. (2023) noted that such aspects as governance quality, financial regulation, and macroeconomic stability affected the effectiveness of economic growth on financial sector development.

Country-specific research shows that there is considerable heterogeneity in the relationship between GDP per capita and financial development. Thus, for example, Afonso and Reimers (2022) found that the establishment of stock exchanges in African economies facilitated economic growth but the effect was conditional on the financial market and institutional development. In turn, Kitonyo et al. (2019) found that the development of infrastructure in COMESA countries increased foreign direct investment which stimulated the financial sector development via economic growth.

At the same time, some researchers differentiate GDP per capita levels and GDP per capita growth in their studies of financial development. For instance, Lee et al. (2020) claimed that GDP growth had a positive effect on the financial sector development due to savings, investment, and demand for financial services. However, Khatib et al. (2023) noted that GDP growth did not lead to financial development if the financial system was immature and constrained by the institutions.

Inflation is considered to be one of the major macroeconomic variables affecting financial development. Financial development is assessed via composite financial development indexes measuring depth, access, and efficiency, and such proxies as private sector credit and broad money are used. Several mechanisms via which inflation impacts financial development are discussed in the literature, including monetary policy credibility, savings behavior, inflation uncertainty, financial stability, and intermediation efficiency.

Thus, low and stable inflation facilitate financial development via macroeconomic stability, preservation of the real value of financial assets, savings, and investment. Struthmann et al. (2023) argued that the macroeconomic stability facilitated financial development as it decreased the volatility of growth and increased financial market efficiency. Similarly, Asteriou et al. (2023) found that macroeconomic stability increased the financial sector development and sustainable economic growth in Europe.

On the contrary, high inflation and volatile environment might inhibit financial development as it increases uncertainty, decreases the real returns on financial assets, and discourages long-term investments. Haan (2011) argued that the inflation targeting increased the effectiveness of monetary policy and created favorable environment for financial market development. In turn, Capasso et al. (2023) found that financial stability and efficient monetary policy stimulated financial stability, while the inflation reduced intermediation efficiency and increased uncertainty of financial markets.

Besides, the literature indicates that the relationship between inflation and financial development is nonlinear and depends on institutional quality. So, for instance, Lee et al. (2020) demonstrated that the effect of macroeconomic variables on financial development depended on the stage of financial sector development. Moreover, Khatib et al. (2023) identified the nonlinear connections between financial development and economic growth. It means that the adverse effect of inflation becomes more evident in economies with undeveloped financial system and macroeconomic instability.

The institutional quality and financial inclusion moderate the inflation-financial development relationship. According to Arshad et al. (2021), financial inclusion increased the effectiveness of monetary policy and made the financial system more resilient. In turn, Oanh et al. (2023) found that countries with developed financial sectors were more capable of absorbing inflation shocks due to financial inclusion and the effectiveness of monetary policy.

The studies devoted to developing countries reveal that the inflation-financial development relationship is situation-specific. Thus, for instance, Utonga and Ndoweka (2023) stressed the importance of inflation for the financial development in Tanzania and noted that the direction and intensity of the relationship depended on financial sector dynamics and macroeconomic environment. In addition, Gachoki (2023) identified the long-run relationship between financial development and inflation in Kenya. It means that the macroeconomic stability plays an important role in financial sector development.

Moreover, the literature indicated that structural reforms facilitated financial development in addition to the inflation stabilization. Thus, for example, Adekunle and Tella (2021) argued that financial development increased the effectiveness of remittance usage and sustainable economic growth.

Domestic credit to the private sector (DCPS) is one of the most popular indicators of financial development. High levels of private sector credit indicate financially developed environment characterized by depth, intermediation, and access to the financial services. Paredes (2023) identified domestic credit to the private sector as the main determinant of financial development via the promotion of investments and economic activity. In addition, Blas and Flores (2023) argued that private sector lending increased the financial competitiveness and financial market development.

The relationship between DCPS and financial development has been investigated in various country-specific contexts. Amezcua and Rincón (2014) found that the efficiency of Mexican credit market depended on the efficient allocation of private sector credit, stressing the importance of this indicator for financial development. In addition, Alcántara-Lizárraga and Gallegos (2011) revealed the long-run relationship between bank credit and economic growth in Mexico, which implied that domestic credit growth increased financial sector development. In Colombia, it was revealed that the improvements in the availability of private sector credit increased financial intermediation and financial system efficiency (Villar-Gómez et al., 2005).

In regional perspective, Latin America stresses the importance of domestic credit as the main determinant of financial development. Thus, Calvo (2018) pointed out that the banking credit alone was not enough for financial system development and other instruments were needed; however, domestic private sector credit remained highly influential determinant of financial development. Paredes (2023) added that domestic credit together with domestic savings and capital market development significantly contributed to financial sector development.

At the same time, the literature showed that the institutional quality moderated the efficiency of private sector credit as a determinant of financial development. Sanga and Aziakpono (2022) found that the institutions amplified the effect of private sector credit on financial development in African countries. Poor governance and inadequate regulatory framework inhibited credit allocation and financial sector development. Abdulai et al. (2024) warned that the increase in private sector credit could promote financial development, but excessive credit allocation without adequate institutions could lead to financial instability.

3. RESEARCH METHODOLOGY

This study uses annual time-series data for North Macedonia from 2002 to 2020 and contains nineteen observations. This period includes the major events connected with the financial sector development in the country. The data sources are the reputable international sources, including the World Development Indicators (WDI) of the World Bank, the International Monetary Fund (IMF), and other official statistical reports of the country.

Financial Development Index (FDI) is the dependent variable of this study which shows the financial sector development in North Macedonia. Independent variables are GDP per capita (GDPC), inflation (INFL), and domestic credit to the private sector as percentage of GDP (DCPS). GDPC represents economic development and

The econometric model of this study, which helps to determine the determinants of financial development is the multiple linear regression which is estimated as follows:

$$\mathbf{FDI = \beta_0 + \beta_1 GDPC + \beta_2 INFL + \beta_3 DCPS + \varepsilon}$$

where:

- **FDI** = Financial Development Index
- **GDPC** = Gross Domestic Product per capita (US$)
- **INFL** = Inflation rate (%)
- **DCPS** = Domestic Credit to the Private Sector (% of GDP)
- $\boldsymbol{\beta_0}$ = Constant (intercept)
- $\boldsymbol{\beta_1, \beta_2, \beta_3}$ = Regression coefficients
- $\boldsymbol{\varepsilon}$ = Random error term

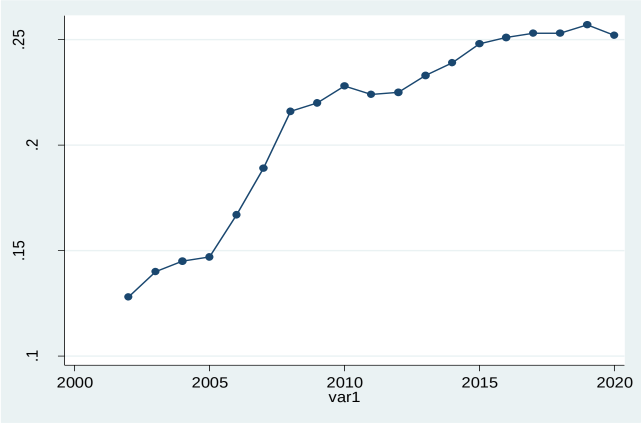
The association between the level of financial development and the determinants of macroeconomics was determined using the Ordinary Least Squares (OLS). OLS is widely used in economic analysis due to the fact that this method generates efficient and unbiased parameter estimates provided that the assumptions of the linear regression model hold.

Descriptive statistics were calculated for the purpose of describing the variables used in the analysis. The goodness of fit of the model was measured using the coefficient of determination (R^2), while the significance of the whole model was checked using the F-test.

4. RESULTS

Figure 1 shows the Financial Development Index trajectory of North Macedonia between 2002 and 2020. From the graph, it can be noted that the index has shown a consistent upward trend during the period, moving from about 0.10 in the early 2000s to 0.25 in 2020. There have been some periods where the index has not moved significantly, but that is mainly because of economic crises in 2008-2009 and the pandemic in 2020.

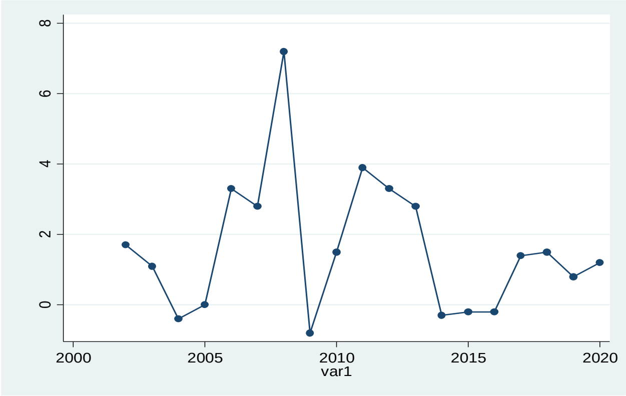
Figure 1: Financial development index



Source: World Bank

The rate of inflation was quite moderate throughout most of the period under study, with only occasional spikes during the aftermath of commodity price shocks in the international market. Unlike GDP per capita and domestic credit, there is no long-term upward tendency in the rate of inflation. The relatively stable level of inflation kept by the National Bank could be the reason why the impact of inflation on financial development is insignificant.

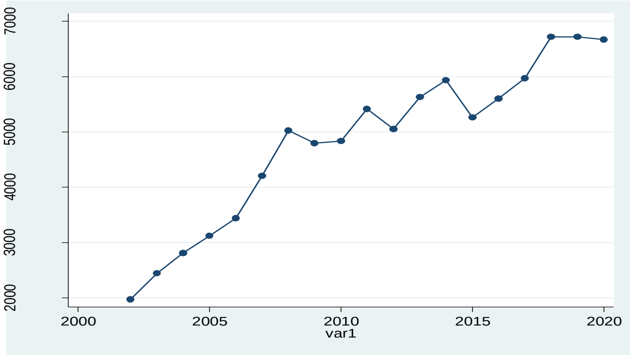
Figure 2: Inflation



Source: World Bank

The trend of rising GDP per capita is an indication that the economy was experiencing growth and improvements in the standard of living. Rising income levels will lead to increased savings, investments, and demand for banking services. It follows that the increasing trend of GDP per capita is a good indicator of financial sector development.

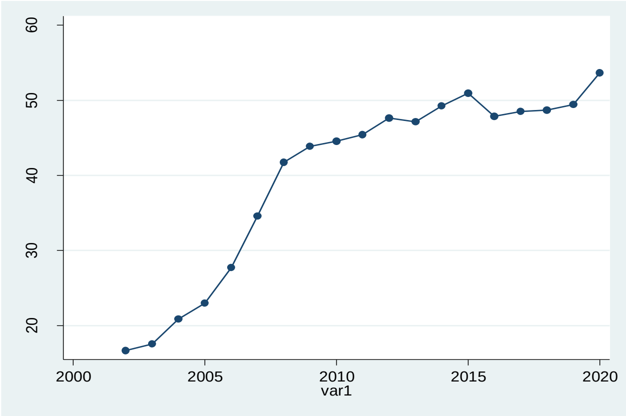
Figure 3: GDP per capita



Source: World Bank

Private domestic credit was greatly increased during the analysis period. This improvement in bank credit availability indicates improved efficiency in the financial intermediation process and better access to finance on the part of households and companies. Such results confirm the idea that credit growth is among the main factors of financial development in North Macedonia.

Figure 4 Domestic Credit to Private Sector



Source: World Bank

Table 1: Descriptive statistics

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
Financial Development Index	19	0.211	0.044	0.128	0.257
Inflation (%)	19	1.611	1.956	-0.800	7.200
GDP per capita (US$)	19	4,823.180	1,455.144	1,974.061	6,720.332
Domestic credit to the private sector (% of GDP)	19	39.957	12.370	16.669	53.677

Source: Author's findings

Table 1 provides the summary statistics for the variables that were used in this paper. The mean value for Financial Development Index is 0.211 for the period of 2002–2020, with minimum and maximum values being 0.128 and 0.257 respectively, thus showing an improvement in the level of financial development. The mean value of Inflation is 1.61%, however, there was significant variation, with inflation levels reaching up to -0.8% and as high as 7.2%, thus indicating periods of deflation and inflation. The mean GDP per Capita is US$4,823, with a sharp increase from US$1,974 to US$6,720, thus showing economic growth during the analyzed period. The average value of Domestic Credit to Private Sector was 39.96%, with the minimum and maximum levels of 16.67% and 53.68%.

Table 2: Regression Results

Source	SS	df	MS	Statistic		Value
Model	.034486451	3	.011495484	Number of obs		19
Residual	.000635651	15	.000042377	F(3, 15)		271.27
Total	.035122102	18	.001951228	Prob > F		0.0000
				R-squared		0.9819
				Adj R-squared		0.9783
				Root MSE		.00651
Financial Developmentindex	Coef.		Std. Err.	t	P>|t|	[95% Conf. Interval]
gdpc	9.40e-06		3.59e-06	2.62	0.019	1.76e-06 .000017
infl	-.0008892		.000785	-1.13	0.275	-.0025624 .0007841

Domestic credi tto private sector	.0024679	.0004219	5.85	0.000	.0015687 .0033672
_cons	.0687849	.0054252	12.68	0.000	.0572214 .0803484

Source: Own research

The empirical results suggest strong explanatory power of the model, where GDP per capita and domestic credit to the private sector emerge as the main factors determining the level of financial development in North Macedonia. GDP per capita proves to have a positive and significant influence on financial development; that is, higher levels of income are conducive to greater development of the financial system due to increased savings, investments, and the need for financial services. It is the most significant factor in terms of having a positive influence; thus, growth of household and corporate credit is the main engine behind financial development in North Macedonia. Inflation shows a negative yet insignificant influence on financial development. Theoretically expected to hinder the process of financial development due to macroeconomic instability it causes, the effect of inflation in the 2020-2022 period is limited.

5. DISCUSSION

The findings generally agree with theoretical predictions and support a large corpus of scholarly work about financial development. The positive correlation between GDP per capita and financial development proves that economic growth continues to be a crucial factor behind financial deepening in North Macedonia. With the increase in income levels, savings build up and firms raise investment demand, which promotes the growth of banking and financial market infrastructure. This pattern confirms previous research, which identifies income growth as one of the main drivers of financial development.

The strong positive coefficient of domestic credit to the private sector further supports the idea that access to finance is a key element of the development of the financial sector. In other words, the findings prove that growing credit supply to the private sector significantly promotes financial depth and efficiency. Such result is especially relevant for North Macedonia since continuing support of private investment and financial inclusion remains a critical policy target. Improvements in credit markets facilitated by responsible banking regulation and increased access to finance can lead to general economic development.

While inflation had a negative correlation with financial development, its impact was statistically insignificant. This means that inflation was not a serious obstacle to financial sector development in the period under consideration. One of the possible explanations is that the National Bank of the Republic of North Macedonia kept inflation low and stable, which prevented inflation from affecting adversely financial intermediation. However, maintaining price stability is vital, because prolonged high inflation would decrease financial savings, discourage investment, and harm the credibility of financial institutions.

In sum, the empirical results suggest that economic growth and private sector credit expansion were the major drivers of financial development in North Macedonia rather than inflation. Such findings stress the significance of policies that will foster economic growth and support financial institutions, access to finance, and lending.

6. CONCLUSION

This paper explored the determinants of financial development in North Macedonia between 2002 and 2020 based on the effects of GDP per capita, inflation, and domestic credit to the private sector on the Financial Development Index. Using OLS regression technique, it was revealed that GDP per capita and domestic credit to the private sector have a positive and statistically significant effect on financial development, while inflation has a negative but statistically insignificant relationship.

According to the findings, sustainable economic growth and increased access to private sector credit continue to be the main drivers of financial development in North Macedonia. Such results mean that policies that will stimulate investments, growth in productivity, financial inclusion, and efficient credit allocation can enhance the development of the country's financial sector. Although inflation did not significantly impact financial development during the period under consideration, maintaining stable macroeconomic environment is essential for preserving the credibility of financial institutions and financial development.

The current research contributes to the limited empirical literature on financial development in North Macedonia by using the Financial Development Index developed by IMF as an indicator of financial sector development. However, the current study is limited by a rather small number of observations and three explanatory variables. Further research can include institutional quality, foreign direct investment, trade openness, financial inclusion, governance indicators, or panel data for the Western Balkans countries to provide a better understanding of the determinants of financial development.

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