The Non-Sensitivity of Public Development Banks to Key Stability Performance of the Banking Sector: The Lessons for Policymakers

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Abstract

Public development banks are mission-oriented financial institutions whose purpose is to finance investments on behalf of the policymakers. After the last global financial crisis and the changes in the regulatory framework, the lending activities of commercial banks have declined, and their business models have shown a strong pro-cyclical character. On the other hand, public development banks are gaining considerable importance in maintaining the supply of credit in the event of disruptions in the financial system. Because the activity of public development banks is policy-driven, their credit supply is not affected by the GDP rate movement. The paper not only links the credit activity of public development banks with the indicator of financial stability of commercial banking before

and after the establishment of the new banking regulatory framework but also examines the quality of the loan portfolio of public development banks and the movement of the ratio of non-performing loans of the commercial banking sector. The empirical analysis was conducted on a panel sample of EU27 countries using the publicly available database of the World Bank and the Bloomberg database for the 10 largest public development banks in the European Union in the period from 2005 to 2021. A research model with dynamic panels and a systematic one-step GMM estimator was employed.

The results of the research confirmed and supported the basic research hypothesis that lending by public development banks is negatively related to the stability of the banking system, which indicates the contribution of public development banks in providing access to finance during the banking system crisis. Furthermore, research results showed that public lending by development banks is not related to GDP growth. The results of the research also confirmed an additional research hypothesis that the quality of lending by public development banks is significantly inversely proportional to the share of non-performing loans in the banking system as a whole. Accordingly, it is associated with a stable business model during economic cycles, solid credit standards, disclosure obligations, and public interest monitoring to avoid adverse shocks.

Finally, the research result has confirmed the positive role of European public development banks in case of an increase in the probability of banking system distress due to efficient risk management and credit standards. Its conclusion is that the policymakers need to continue to promote the importance of public development banks in contributing to policy objectives and extending financial inclusion, both during the periods of financial stability and in the periods of indications of financial uncertainties and crises.

Keywords: EU public development banks, stability performance of the banking sector, regulatory framework for commercial banks, dynamic panel models

JEL classification: C33, D53, F65, G21

1 Introduction

Public development banks are mission-oriented financial institutions that finance investments on behalf of governments (Xu, Marodon, & Ru, 2021). Although the share of assets of public development banks is small compared to the overall financial system of the European Union, their importance in supporting economic growth and development is increasing.

Even though the growth of public development banks may be an institutional construct, their lending, stable financing structure, and countercyclical behavior are no less important. The aim of monetary and economic policy should be to maintain the continuity of the banks' credit supply in the event of disruptions to the financial system. Following the financial crisis of 2007 and the reorganization of the regulatory framework, the business model of commercial banks and their performance indicators have changed significantly (OliverWyman, 2023). High cost of capital, low market-to-book ratio, minimum leverage ratio requirements, pure income, and return ratios have reduced lending to the private sector in the European Union (Ben Naceur, Pépy, & Roulet, 2017). During the last decade of the financial and economic crisis, pro-cyclical behavior of the European Union banking sector was observed (Hauptmeier, Kamps, & Radke-Arden, 2022). Therefore, bank-specific characteristics limited the efficiency of monetary policy through the credit and risk channel (Gambacorta & Marques-Ibanez, 2011).

The decline in credit supply and the inefficiency of the monetary credit channel during the financial crisis alerted policymakers to the need to expand institutions and mechanisms for financing business continuity and investment. Public development banks are recognized as institutions that can mobilize and finance public and private investments and support investment policy (especially in sectors that are underserved by commercial banks) and that do not respond to market failures (European Commission, 2015). The activities of public development banks multiply the benefits to economies, which include a mission-oriented role, a risk capital and capital development role, as well as countercyclical credit activity

(Colombo & Cuda, 2023). The resilience of public development banks to market crises stems from their deposit-free funding structure and continuous funding opportunities (Xu, Wang, & Ru, 2020), their exclusion from the regulatory framework for financial institutions, and their organizational evolution that increases lending efficiency.

After the last global financial crisis, Ata Can, Demirgüç-Kunt, and Huizinga (2015) conducted an extensive study on the activities of public development banks and concluded that lending by public development banks is less procyclical than lending by private commercial banks (Huljak, Martin, Moccero, & Pancaro, 2020). Based on previous research, public development banks stabilize the supply of loans through economic cycles, but due to their size and relative importance in the financial system, they cannot be used as a countercyclical instrument. However, they can support investments, liquidity, and financial inclusion in times of crisis. State ownership and the influence of policies on public development banks do not exclude the need to review and monitor the credit quality of clients and the quality of the credit portfolio to avoid negative effects and enable effective business continuity (Eslava & Freixas, 2021). On the contrary, the financing structure and business objectives allow public development banks to mitigate market imperfections in credit policy to reduce the rate of non-performing loans (Wruuck, 2015).

The main objective of the paper is to analyze the lending activities of public development banks during the changes introduced to the stability measures of the banking system. The base research hypothesis is that lending by public development banks is negatively related to banking system stability. While the credit supply from commercial banks decreased during the financial crisis (Ivashina & Scharfstein, 2010), public development banks, which are mission-oriented institutions, intensified their lending activities depending on the policy objectives and the fiscal capabilities of their public owners. Considering that the behavior of the public development bank is policy-determined, the public interest is to increase credit supply which is disturbed during the crisis period. Consequently, a

negative relation between the lending activities of public development banks and banking system stability measures is expected. The research model will use the insolvency Z-score measure as a composite indicator of banking system stability (Gulati, 2023). Therefore, the business model of public development banks and their behavior during business cycles imply that the non-performing loan ratio of public development banks is significantly and negatively related to the non-performing loan ratio of the commercial banking sector, which is the additional hypothesis of the research.

The sample used in this study includes the annual data from 2005 to 2021 for the largest public development banks in the European Union (see Appendix, Table A1) as well as the data on the main indicators of financial stability of the commercial banking sector in the EU27 countries (see Appendix, Table A2). To test the research hypothesis, a panel analysis was conducted using the dynamic Arellano-Bover/Blundell-Bond panel with a one-step GMM estimator and a robust standard error. The paper is divided into five separate parts. The introduction is followed by an overview of relevant theoretical and empirical research. In the third part, we present research methodology, research analysis, and the descriptions of the research variables, as well as the research sample and data collection. The fourth part presents the results of the research. The synthesis of the analysis with recommendations is presented in the fifth, concluding part of the paper.

2 Literature Review

Development banks represent an effective instrument for the government in promoting economic growth by providing loans to economic entities that are not sufficiently supported by private financial intermediaries or do not have access to capital markets (De Luna-Martínez & Vicente, 2012). Most discussions on the importance of public development banks are related to ownership structure and efficiency evaluation. Their proponents oppose orthodox neoclassical economists

(Levy Yeyati, Micco, & Panizza, 2007). Marcelin and Mathur (2015) continued the policy and academic debate on the ownership structure and performance of financial institutions without emphasizing the key differences between the function of development and commercial banks. On the other hand, Korinek (2011) analyzed the risk-taking decisions of public development banks and their response to significant adverse shocks. Finally, the imperfection of financial markets and the transmissibility of negative externalities to an economic system require policy interventions (Greenwald & Stiglitz, 1986).

The pro-cyclical behavior of commercial banks also contributes to the importance of public development banks, especially after the last financial crisis (Hauptmeier et al., 2022). Di John (2020) concludes that public development banks are most active in market failures and do not compete with private commercial banks. Therefore, the importance of public development banks in the crisis period is particularly relevant during the financial crisis, considering that commercial banks redirect lending from client-related assets to risk-free assets (Gambacorta & Marques-Ibanez, 2011).

Mazzucato and Penna (2016) explain the role of public development banks in terms of their institutional function and the creation of new markets. In analyzing the empirical activities of public development banks and the presentation of theoretical arguments during the last decades, the authors demonstrated the market failure justification in increasing the role of public development banks and state-supported investments. They concluded that the market failure framework calls for structuring efficient public institutions to avoid the risk of "governmental failures". Furthermore, in explaining the conceptual framework of public development banks, Heugens and Lander (2009) applied institutional theory and the isomorphism of public development banks on the economic, social, and legal environment. Regardless of the fact that the activities of public development banks are determined by politics, the theory tries to explain the processes of homogenization of the organizational structure, internal processes, and behavior according to the best practice in the banking industry. All this can

increase the efficiency of public development banks and reduce public costs in achieving policy goals. Finally, Xu, Ren, and Wu (2019) have emphasized the importance of the funding structure of public development banks in lending continuity during market failure.

When discussing the benefits of public development banks, most authors focus on their role in supporting social and political goals but also on their countercyclical capacity (Ribeiro de Mendonça & Deos, 2017; Ata Can et al., 2015; Colombo & Cuda, 2023). In addition to policy-driven determinants, the countercyclical capacity of public development banks primarily stems from the structure and potential of financing through the mobilization of private and public funds, regardless of the economic situation (Xu et al., 2019). The financial and organizational strength of public development banks and their network of cooperation between the public and private sectors can therefore provide long-term and low-cost, well-distributed financing options, even in the event of a market crisis (Marois, 2021). Moreover, credit capacities and policies determined by business activities caused public development banks to intensify lending activities during the crisis more than during stable periods (Micco & Panizza, 2006; Brei & Schclarek, 2013). Therefore, public development banks should be an important part of the state infrastructure for facilitating investment through quasi-fiscal mechanisms, supporting policy-driven economic transformation, expanding financial inclusion, as well as promoting public benefits (Griffith-Jones, Ocampo, Rezende, Schclarek, & Brei, 2018; Mertens & Thiemann, 2019).

Following the theoretical framework and concerning the importance of the business model and the new financial regulatory architecture, an empirical model was formed in which the dependent variables represent the lending activity of public development banks and the quality of their loan portfolio, while the independent variables of the model represent the non-performing credit portfolio of the banking system, an indicator of financial stability, as well as GDP growth rate as macroeconomic variables of the EU27. Finally, the choice of model reflects

the research idea to emphasize the increasing role of public development banks in supporting the economy in case of market disturbances.

3 Data Description and Methodology

The survey sample used in this study was drawn from the Bloomberg database and publicly available data from the World Bank. A strongly balanced data panel was created, containing consolidated balance sheet data (according to International Financial Reporting Standards, IFRS) for the 10 most important public development banking groups in the European Union as well as systemic data on the financial stability of the commercial banking sector in the EU27 from 2005 to 2021 (Appendix, Table A1 and Table A2).

The study was conducted using a panel data model. The dynamic nature of the empirical data sample itself precluded the possibility of using both fixed and random effects models, while the two-step analysis revealed no significant change in model quality. To minimize bias in the estimated models and eliminate endogeneity, a minimum number of instrumental variables was used to estimate all model variables.

Following the empirical analysis of Klinac (2023), we performed a dynamic Arellano-Bover/Blundell-Bond panel analysis with a one-stage GMM estimator using a robust standard error to find out whether financial stability factors of the commercial banking sector have an impact on lending and the quality of the loan portfolio of public development banks. The list of model variables as well as the calculation, sources, and expected effects on the dependent variables are shown in Table 1, while the proposed empirical model is written as follows:

$$TL_{i,t} = \mu+\gamma TL_{i,t-1}+\beta_{1,1}NPA_{i,t}+\beta_{2,1}Zscore_{i,t}+\beta_{3,1}GDP_{i,t}+\alpha_i+\varepsilon_{i,t}\ ,$$
$$i = 1,...N, t = 1,...T$$

and

$$LQ_{i,t} = \mu+\gamma LQ_{i,t\text{-}1}+\beta_{1,1}NPA_{i,t}+\beta_{2,1}Zscore_{i,t}+\beta_{3,1}GDP_{i,t}+\alpha_i+\varepsilon_{i,t}\ ,$$
$$i = 1,\ldots N, t = 1,\ldots T$$

Whereby:

- $TL_{i,t\text{-}1}$ represents the lending activity of public development banks from the previous period,
- $LQ_{i,t\text{-}1}$ represents the quality of the public development banks' loan portfolio from the previous period,
- $NPA_{i,t}$ is the matrix of indicators of the non-performing loan portfolio of the commercial banking system of the country i in period t,
- $Zscore_{i,t}$ is the matrix of financial stability indicators of the commercial banking system of country i in period t,
- $GDP_{i,t}$ represents the macroeconomic environment for the public development bank i in period t,
- μ is a constant term,
- $\beta_{1,1}$ is the coefficient with indicators for the non-performing portfolio of the commercial banking system,
- $\beta_{2,1}$ is the coefficient with indicators of the financial stability of the commercial banking system,
- $\beta_{3,1}$ is the coefficient with indicators of the macroeconomic environment,
- α_i is the specific error for the i-th bank under the assumption that $\alpha_i \sim IID(0,\sigma_\alpha^2)$,
- $\varepsilon_{i,t}$ is the error of the relationship of the i-th bank in period t under the assumption that $\varepsilon_{i,t} \sim IID(0,\sigma_\varepsilon^2)$,
- N is the number of banks,
- T is the number of periods.

Table 1: *Summaries of Variables and the Expected Impact of Independent Variables*

Label	Variable	Expected sign	Explanation	Calculation	Source
TL	Total Gross Loan Portfolio*		Dependent variable	ln*Total Gross Loans*	Bloomberg https://www.bloomberg.com/
LQ	Quality of the Gross Loan Portfolio		Dependent variable	$\ln \frac{Loan\ Loss\ Reserves}{Total\ Gross\ Loans}$	Bloomberg https://www.bloomberg.com/
NPA	Non-Performing Asset portfolio	-	The ratio of defaulting loans (payments of interest and principal past due by 90 days or more) to total gross loans (total value of the loan portfolio). The loan amount recorded as nonperforming includes the gross value of the loan as recorded on the balance sheet, not just the overdue amount.	$\left(\frac{Non\text{-}Performing\ loans}{Total\ Gross\ Loans}\right)$	World Bank https://databank.worldbank.org/
Zscore	Banks' system stability	-	It captures the probability of default of a country's commercial banking system. Z-score compares the buffer of a country's commercial banking system (capitalization and returns) with the volatility of those returns.	$\left(\frac{(equity/assets)+ROA}{\sigma(ROA)}\right)$	World Bank https://databank.worldbank.org/
GDP	Gross domestic product	+/-	The macroeconomic variable of EU27	GDP_{yoy}	Eurostat https://ec.europa.eu/eurostat/data/database

Note: *Total Gross Loan Portfolio at public development banks includes direct loans to customers and indirect customer financing through banking financial intermediation.

Sources: Bloomberg, World Bank, and authors.

The general characteristics of the variables in the observed research sample are described by descriptive statistics, as shown in Table 2. The statistical package STATA 14.2 was used for the empirical calculation of the sample data.

Table 2: *Descriptive Statistics of Research Variables*

Variables	Obs	Mean	Std. Dev.	Min	Max
TL	459	740,916.2	294,961.8	237,775.9	1,128,055.70
LQ	459	0.0253748	0.0119992	0.0021877	0.0574589
NPA	414	6.55025	7.608722	0.1	47.74785
Zscore	457	14.03573	9.49953	-0.3259739	57.44071
GDP	459	1.206345	2.639344	-5.677581	5.392521

Source: Authors' calculation.

Before the final results of the model were produced, it was necessary to check the correlation between the selected variables. According to current knowledge, there is no multicollinearity test for panel models, whereas for empirical questions the coefficients between the pairs of potentially independent variables are used to test multicollinearity. From the results of the correlation matrix in Table 3, it can be concluded that there are no pairs of variables that could cause multicollinearity if included in the model at the same time, considering that there is no coefficient that exceeds the value of 0.5.

Table 3: *Correlation Matrix of the Impact of Independent Variables*

	TL	*LQ*	*NPA*	*Zscore*	*GDP*
TL	1				
LQ	-0.2095 (0.0000)	1			
NPA	-0.1345 (0.0107)	-0.0773 (0.1319)	1		
Zscore	-0.1591 (0.0014)	0.0653 (0.1772)	-0.0464 (0.3688)	1	
GDP	-0.2898 (0.0000)	0.2760 (0.0000)	-0.2103 (0.0000)	0.0216 (0.6555)	1

Source: Authors' calculation.

The stationarity of the selected research sample is analyzed by establishing the null hypothesis of the non-stationarity of the process. The test was performed using the unit root or augmented Dickey-Fuller test. The results presented in Table 4

show that all selected variables are equal in first differences, i.e. the null hypothesis of the existence of a unit root is rejected at the 1 percent statistical significance level for both the dependent and all independent variables.

Table 4: *Results of the Augmented Dickey-Fuller Stationarity Test*

	TL	*LQ*	*NPA*	*Zscore*	*GDP*
t-stat	-6.7493	-42.2234	-6.5501	-17.0954	-17.9577
p-value	0.0000	0.0000	0.0000	0.0000	0.0000

Source: Authors' calculation.

4 Research Results and Discussion

The results of the analysis of the two observed models are shown in Table 6, while the standard Wald and Arellano-Bond tests were used to check the reliability of the results of the regression models (see Table 5). The Wald test confirms the statistical significance of the entire model, with the test statistic AR(1) being negative and significant. In contrast, there is no statistical significance at the AR(2) level. To summarize, the empirical models are well specified, i.e., the first-order autocorrelation is confirmed at a significance level of 5 percent, while this is not the case for the second-order.

Table 5: *Results of the Empirical Model Diagnostic Test*

Number of observations	312	356
Number of groups	27	27
Wald χ^2	414.91 (0.0000)	85.87 (0.0000)
AR(1)	-3.8461 (0.0001)	-4.2202 (0.0000)
AR(2)	0.27258 (0.7852)	-1.3831 (0.1666)

Source: Authors' calculation.

The results of the model are consistent with the theoretical assumptions and the basic hypothesis of the research.

Table 6: *Results of the Panel Analysis of the Influence of Financial Stability Factors on Lending Activity and the Quality of the Loan Portfolio of Public Development Banks*

Model / Label	$TL_{i,t-1}$	$LQ_{i,t-1}$	$NPA_{i,t}$	$Zscore_{i,t}$	$GDP_{i,t}$	μ
MODEL_1	-0.2737297*** (-9.31)[a]	/	-0.0077277*** (-2.94)	-0.0138494*** (-3.08)	-0.0015595 (-1.59)	-0.0162702*** (-6.50)
MODEL_2		0.1259405*** (7.65)	-0.0171427** (-2.12)	0.0186519*** (3.27)	-0.0017074 (-0.70)	-0.0775833*** (-19.96)

Notes: All variables are used as the first difference of the previous value; * stat. sign. at 10%, ** stat. sign. at 5%, *** stat. sign. at 1%. [a] Values in parentheses are t-values.

Source: Authors' calculation.

Most of the variables of the observed models are statistically significant, with the expected directions of effect, which is consistent with the expectations and basic assumptions of empirical research.

Model 1 is related to the main research hypothesis. The lending activity of public development banks is negatively related to the measure of health and stability of the banking system (see Figure A1). The research finding is in line with similar research (Ture, 2021), which emphasizes a significant increase in lending activities of public development banks after the last global financial crisis (Chen, Chen, Lin, & Sharma, 2016). The model also suggests that the lending activity of public development banks is not correlated with GDP growth, due to the strong political role that drives their business model. Although public development banks play a valuable role in financing development during market shocks, their lending policies still take the credit quality of borrowers into account to avoid negative shocks. Moreover, public development banks are under the supervision of national or supranational authorities (Wruuck, 2015) when it comes to the allocation of public funds to public projects and must rationalize their lending policies and asset verification. The negative impact of the share of non-performing loans on the lending activities of public development banks is related to the deterioration

of the creditworthiness of the private sector, which reduces the potential client base (regardless of whether public development banks provide financing directly or indirectly through banking financial intermediaries). Ari, Chen, and Ratnovski (2021) showed that banks' non-performing loans have a sharp inverted U-shape, increasing at the beginning of the crisis, peaking in the first crisis period, and then stabilizing and decreasing in the short period of banking restructuring (OECD, 2021). This illustrates that public development banks are affected by the deterioration of the potential customer base in the short run, which does not contradict the long-term countercyclical role of the policy.

Model 2 confirmed the additional research hypothesis and revealed that the credit quality of public development banks is negatively correlated with the ratio of non-performing loans in the banking system, indicating different credit standards over economic cycles. Moreover, the European Systemic Risk Board (2019) found that credit risk in the banking sector is underestimated (or overestimated) due to the pro-cyclical behavior of the banking sector, which affects the policy of provisioning for loan losses and the non-performing loan ratio of commercial banks. On the other hand, public development banks have continuity in their business model, credit standards, disclosure obligations, and loan portfolio screening, resulting in lower volatility of non-performing assets and less dependence on performance ratios of economic cycles. Thus, the model shows that the credit quality of public development banks does not depend on the development of GDP but is positively related to the indicator of the stability of the banking system (Z-score). Therefore, the results are consistent with the research of De Luna-Martínez and Vicente (2012), who concluded that, when the credit quality of their customer base deteriorates, especially in the SME sector, public development banks shift their investment policy to large infrastructure and development projects to support lending.

Finally, the results of the two research models correspond in their conclusions about the countercyclical behavior of public development banks, mitigating

credit risk, and avoiding negative shocks, which can be identified as an additional benefit of the research compared to similar work.

5 Conclusion

The results of the research fully confirm the hypotheses of the work. Public development banks demonstrate significant support to the economy by providing funding to the non-financial sector in case of market disruptions. During the crisis, the public development banks, with the support of policy makers' initiatives, promoted investments and liquidity in the financial system and improved the financial inclusion of non-financial economic entities. In a succession of financial and economic shocks and crises over the past two decades, public development banks have expanded their lending even as the stability of the banking sector deteriorated, which is particularly important in bank-based economies such as the European Union. Finally, although public development banks are not subject to prudential regulation, they reduce risk and maintain a quality structure of the loan portfolio.

Due to the financing structure and policy objectives, their growth and relative importance in the financial market depend on government support and the fiscal potential of national or supranational owners (Ture, 2021). To increase the importance of public development banks, those responsible for economic policy must take a dynamic view of the position of public development banks in the economic system, taking the changes in historical, political, and economic determinants (Mertens & Thiemann, 2019) into account. The institutional function of public development banks legitimizes policyholders to expand their economic importance regardless of ownership structure. European Union authorities have observed this fact, as public financial institutions, including public development banks, play a key role in the development of the financial system and economic governance (Mertens & Thiemann, 2018).

In conclusion, unlike orthodox political economy, the challenges for further research lie in developing the current theoretical basis of the role of public development banks in the coming transformation of the economic environment. Only a structurally heterogeneous financial system is capable of stimulating the green transition, promoting financial inclusion and social justice.

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Appendix

Table A1: *Average Empirical Data Sample for Public Development Banks in the 2005–2021 Period*

No.	Banks	Country	TL	LQ
1	Agence Française de Développement	France	22.740,7	0.028288018
2	Agenzia Nazionale Per L'Attrazione	Italy	2.332,9	-
3	BNG Bank N.V.	Netherlands	81.817,1	0.000898627
4	Bpifrance Financement S.A.	France	26.681,4	0.070100017
5	Cassa Depositi e Prestiti S.p.A.	Italy	231.643,5	0.001568253
6	EBRD	UK	15.594,2	0.039751686
7	EIB	Luxembourg	269.965,7	0.001072352
8	Instituto De Crédito Oficial	Spain	20.521,2	0.067728635
9	KfW	Germany	118.218,1	0.02919678
10	Nederlandse Waterschapsbank N.V.	Netherlands	46.365,0	-

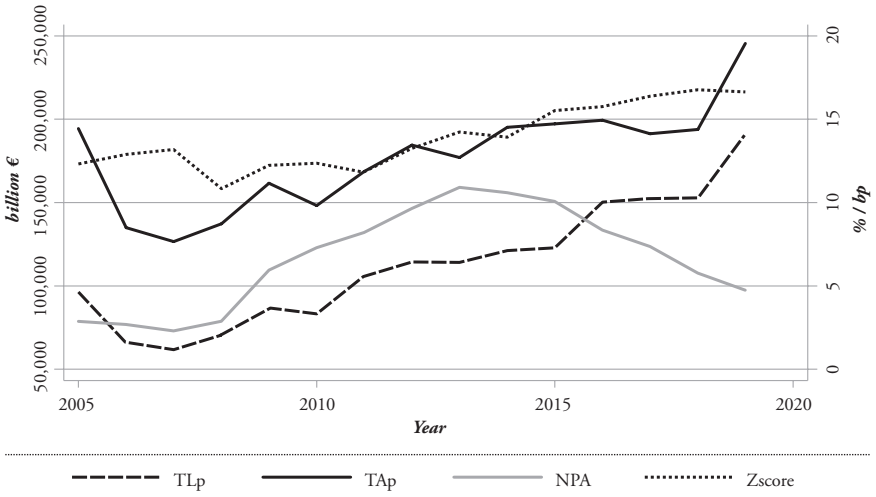
Sources: Bloomberg and authors' calculation.

Table A2: *Average Empirical Data Sample for Selected EU27 Countries in the 2005–2021 Period*

No.	Country	NPA	Zscore
1	Austria	2.495974656	29.43195059
2	Belgium	2.795706719	12.69782312
3	Bulgaria	9.430217331	8.423044
4	Croatia	10.19228241	7.368887059
5	Cyprus	22.56004405	7.680837706
6	Czech Republic	4.160505431	10.78249235
7	Denmark	2.828699461	18.69487867
8	Estonia	1.663572176	9.324947647
9	Finland	0.991249346	14.59607588
10	France	3.540060907	17.37540647
11	Germany	2.53333334	14.29899429
12	Greece	22.77644183	5.588641159
13	Hungary	7.423021747	7.879638118
14	Ireland	10.44071609	8.452564671
15	Italy	10.78446278	13.92213824
16	Latvia	6.119131069	6.563153706
17	Lithuania	7.846499416	6.317042353
18	Luxembourg	0.524668297	42.58059824
19	Malta	6.051430413	22.65298118
20	Netherlands	2.539442315	9.877123118
21	Poland	4.935270875	9.05999
22	Portugal	8.409697373	12.88548253
23	Romania	8.690305131	10.12224282
24	Slovak Republic	4.197016238	21.30385353
25	Slovenia	7.384306193	3.851985418
26	Spain	4.45264898	17.54309588
27	Sweden	0.745594237	30.23694353

Sources: World Bank and authors' calculation.

Figure A1: *The Dynamics of the Average Value of Loans and Total Assets of Public Development Banks and Commercial Banks' Financial Stability Indicators in the 2005–2021 Period*



Notes: *TLp* – average total loans / public dev. banks (left scale); *TAp* – average total assets / public dev. banks; *Avrg_NPA* – average non-performing assets / (EU27); *Avrg_Zscore* – average financial stability / (EU27) (right scale).

Sources: Bloomberg, World Bank, and authors' calculation.

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