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TRADITIO ET EXCELLENTIA



BABEŞ-BOLYAI UNIVERSITY CLUJ-NAPOCA
Doctoral School of Economics and Business Administration
Department of Economics

PhD Thesis

Summary

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Cluj-Napoca

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**REVISITING THE FINANCIAL DEVELOPMENT-GROWTH NEXUS: A TIME SERIES
AND A PANEL THRESHOLD EFFECTS ANALYSIS WITH A FOCUS ON EU
COUNTRIES**

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TABLE OF CONTENTS

LIST OF TABLES	8
LIST OF FIGURES	11
LIST OF ACRONYMS.....	12
INTRODUCTION	14
STYLIZED FACTS	20
Bibliography	23
Appendix.....	27
Paper 1. The Causal Relationship Between Banking, Capital Markets and Economic Growth in the European Union	33
1. Introduction.....	34
2. Literature Review.....	35
3. Methodology.....	38
3.1. Data collection	39
3.2. Data analysis	40
4. Results.....	41
4.1. Countries with banking-oriented financial sectors	43
4.2. Countries with capital market-oriented financial sectors.....	44
4.3. Countries with banking and capital market-oriented financial sectors.....	46
5. Conclusions.....	48
Bibliography	50
Appendix Paper 1.....	53
Paper 2. The Relationship between Financial Development and Growth in Germany and Luxembourg: A Time Series Analysis Approach	67
1. Introduction.....	68
2. Literature Review.....	71
3. Methodology.....	74
3.1. Data collection	74
3.2. Data analysis	75
4. Results.....	77

5. Conclusions.....	80
Bibliography	81
Appendix Paper 2.....	85
Paper 3. The Relationship between Financial Development and Economic Growth: Panel Data Evidence from the European Union Countries	86
1. Introduction.....	87
2. Literature Review.....	88
3. Methodology	91
3.1. Data collection	91
3.2. Data analysis	92
4. Results.....	95
5. Conclusions.....	100
Bibliography	102
Appendix Paper 3.....	105
Paper 4. Financial Development and Economic Growth in High-Income Countries: An Empirical Assessment of Threshold Effects	107
1. Introduction.....	108
2. Literature Review.....	109
3. Methodology	114
3.1. Data collection	114
3.2. Data analysis	115
4. Results.....	116
4.1. Main Results	116
4.2. Robustness Check	118
4.2.1. EU high-income countries	118
4.2.2. Non-EU high-income countries	120
4.3. A New Measure of Finance: The Financial Composite Index	121
5. Conclusions.....	124
Bibliography	125
Appendix Paper 4.....	129
GENERAL CONCLUSIONS	134

ABSTRACT

The main scope of the present research is to analyze the relationship between financial development and economic growth from different perspectives. Employing various methodologies, it brings new empirical evidence to the specific field. Firstly, we search for causality, and more specifically, Granger causality between financial enhancement and economic growth. We perform time series analysis for all 27 European Union (EU) countries for a period of 30 years and discuss the results at the country level. We identify the presence of reverse causality. Secondly, we extend the analyzed period to 50 years and perform a comparative study in the case of two of the EU founding countries and Eurozone members, namely Germany and Luxembourg, with interesting implications on the way their financial sectors developed in time. Thirdly, by employing panel analysis, we test the impact of financial progress on growth for the 27 EU countries and compare the results for different economic periods. Finally, more empirical evidence is provided by exploring the presence of threshold effects in the financial development-growth nexus, not only for the EU countries, but for a larger sample of high-income countries. This allows us to compare the results on sub-groups of countries. To accomplish the study, we employ the Principal Component Analysis (PCA) methodology and construct a new measure of financial development, namely the Financial Composite Index (FCI). Compared to other financial indices, our new measure also accounts for financial stability, besides financial depth and financial efficiency, producing a significant impact on the final empirical results. We provide evidence that, after a certain level, the marginal impact of financial enhancement on growth weakens, or becomes even negative.

Keywords: financial development; economic growth; time series; panel; Granger causality; threshold effects.

INTRODUCTION

In the field of economics, *economic growth* holds a special place.

First, the concept must be studied to further understand how to improve the living standard across different economies while reducing income inequalities among the population. Thus, it represents a main point of interest for policymakers. The need to obtain suitable answers made researchers accept such a challenge, and as a result, more and more studies enlarged the related literature. But becoming a highly discussed research topic could be considered a challenge in itself, as more and more opinions were brought to light. Depending on the specific analyzed sample of countries, period of time, methodology, and measures employed, the results on how to promote long time economic development which are presented in the literature differ.

Second, we might say that economic growth is, in our daily lives, a concern at least as relevant as it is in the academic area. Each economic agent faces the specificities of the macroeconomic environment one is living in. The economic circumstances influence the available opportunities. Here, many indicators may be included, such as income stability, access to goods and services, quality of possibilities of consumption, and financial inclusion. Unappealing conditions may influence economic agents to evaluate alternative possibilities of relocation. In this context, economic evolution may determine a nation's capacity to preserve its human resources and attract investments.

A highly debated view, initially stated by Bagehot (1873/1962, p. 37-49), is that the *financial sector* is a main factor of influence for economic growth. It influences the capital accumulation and allocation. But measuring the financial sector is another challenge faced by researchers, which caused, again, the existence of many different conclusions in the related literature. A significant part of the evidence on the impact of financial progress on growth is based on analyses in which individual financial measures, that are considered relevant for the financial sector (such as credit to the private sector, credit to the government, and return on assets), are employed.

However, the World Bank (2016) suggests that financial sector development occurs when all its components support the access, depth, efficiency, and stability of this sector, a view that we also align with. Thus, in the current thesis, in addition to studying the impact of individual financial measures on economic growth, we identify the necessity of a new indicator of financial

enhancement, that may account for financial stability. Therefore, we employ the Principal Component Analysis (PCA) methodology and construct a new measure of financial development, namely the Financial Composite Index (FCI). Compared to other measures of financial progress, our new index includes financial stability proxies such as bank non-performing loans and stock price volatility, which we find relevant, especially for the countries in our sample.

The relationship between *financial development* and *economic growth* has been intensively researched over time, but different conclusions have been drawn in terms of causality presence, significance, and direction of influence between the two (Beck and Levine, 2004; Arcand et al., 2015; Benczúr et al., 2019). With evidence remaining inconclusive, it continues to be a topic of interest. Even more so during these times, when several technological innovations in finance (fintech) are available, causing the expansion of the financial activity.

First, there is a primary concept in the early literature, suggesting that financial development is a driver of economic growth (King and Levine, 1993). Thus, more and better financial services may influence economic expansion. Second, there is evidence that the impact is the other way around, so in good economic periods, economic agents request advanced financial facilities (Demetriades and Hussein, 1996).

Third, a significant part of the related literature identifies the presence of bidirectional causality, meaning that the financial enhancement and economic expansion reinforce each other (Fuinhas et al., 2019). Fourth, in case of specific samples or specific countries in the samples, the results cannot confirm the presence of causality between the two, or it appears only to a limited extent (Al-Yousif, 2002). Fifth, empirical evidence suggests that the impact of financial progress on growth is negative (Fetai, 2018). Sixth, the presented evidence in the related literature suggests, lately, that the financial enhancement-growth relationship is non-linear (Asteriou et al., 2024).

Moreover, we identify several methodological approaches in the literature, employed to investigate the link between finance and economic expansion, which evolved in time due to some meaningful concerns regarding endogeneity, reverse causality, and heterogeneity. Early contributions are based on the cross-sectional Ordinary Least Squares (OLS) method, which has several limitations, such as ignoring dynamics and missing responses to endogeneity issues. A large number of methods of estimation to study economic dynamics at the individual country-level have been developed. Vector-autoregressive (VAR) and Vector Error-Correction Model (VECM),

together with cointegration and causality tests, are popular estimations in case of time series analysis.

For simultaneity, several panel methods are employed, allowing to capture a general interpretation. To control unobserved country effects and to capture the dynamic nature of economic growth, fixed effects models, instrumental variables, and dynamic panel estimators such as Generalized Method of Moments (GMM) are adopted. Even more, non-linear modelling techniques have been introduced to capture potential threshold effects.

Therefore, this thesis builds upon the methodological evolution by integrating causality tests, dynamic panel estimators, and threshold effects analysis. This approach allows us to address endogeneity and potential non-linearities in the financial development-growth nexus. By addressing the gaps, we offer a more nuanced review of the relationship between financial enhancement and economic expansion. Even more, by focusing on the European Union (EU) countries, we cover a region that remained insufficiently explored as a distinct structural environment.

The current thesis consists of the sections described below.

The Stylized Facts section presents the evolution of the gross domestic product (GDP) in the European Union. We identify a general increasing trend over the years. However, when looking at the share in the global GDP, a declining trend can be observed, suggesting that the overall significance of the European Union structure in the world economy may decrease over time. We believe that studying the impact of the financial enhancement on economic expansion, as we do in the current thesis, may help policymakers in finding ways to interrupt the current direction.

Additionally, the increasing importance of the financial sector in the total economy can be observed. While still being dominated by banks (as four of the five largest central European banks are banks of EU countries), the European Union's financial sector has an increasing capital market, with some large stock exchange institutions globally recognized. Stock market measures are, therefore, included in our analysis.

Also, we expose a generally stable saving rate and inflation rate, measures that are also employed in part of our analysis, when studying the presence of threshold effects. Exceptionally, during stressful economic times, these rates are changing considerably, but quick recovery can be observed.

Even more, we discuss the overall importance of international trade activity in the European Union's economy, which is increasing in time. However, when studying the share of world imports and exports, there is a new sign that the global significance of the European Union structure may continue to diminish over time. Thus, new perspectives that may help the European construction to enhance its worldwide influence are needed.

In Paper 1 (based on Palcau and Pop Silaghi, 2025), we perform a time series analysis with causality tests at the country level for all 27 EU countries. We document the existence of three categories of EU countries, based on our results. A first category of countries includes many nations which were included in the prior communist bloc. With a more institution-oriented instead of market-oriented financial system, we show that, in these countries, the banking proxies, such as credit to government and credit to the private sector, appear more significant in Granger causing economic expansion.

In a second category of countries, stock market capitalization and stock market turnover ratio present a more impactful Granger causality with economic growth. In general, this is the case of larger economies that managed to construct strong financial infrastructures. These countries may encounter lower costs of capital and better financial shocks absorption.

Additionally, there are cases in which both financial sub-sectors, namely financial institutions and financial markets, Granger cause economic growth. This is a third category of countries, that succeed in promoting additional funding sources. Thus, there entire financial sector is a determinat of economic expansion.

The presence of bidirectionality in some cases confirms that financial progress and economic enhancement reinforce each other. On one hand, promoting sustainable expansion and stability may be crucial to maintain the positive effects of the financial sector. On the other hand, our results draw attention to endogeneity issues when studying the financial development-growth nexus.

We use a similar approach in Paper 2 and perform a comparative analysis in the case of two EU founding countries and Eurozone members, namely Germany and Luxembourg, for a longer period of time (based on Palcau, 2023). Interestingly, by retesting the existence of causality, not only capital market supports the presence of causality with growth, but also banking area. In comparison to the results obtained for a shorter and more recent period of time, the significance of

the financial institutions (banking) lowered, and the capital market's power increased in these two specific countries.

Paper 3 compares the results of exploring the financial development-growth nexus across 27 EU countries in the case of different economic periods: pre-crisis, years of crisis, and post-crisis years. We employ the System Generalized Method of Moments (SGMM) estimator on panel data sets to address endogeneity issues, as reverse causality was previously identified. The empirical findings support, in general, a positive causal relationship between financial enhancement, trade openness, and economic evolution, but there are some strength variations during the studied sub-periods. We identify the necessity of a new measure of financial development that would incorporate financial stability, along with financial depth and efficiency.

Paper 4 brings up even more empirical evidence as we search for the presence of threshold effects in the relationship between financial development and economic enhancement. We enlarge our sample to 51 high-income countries, which enables us to identify and compare the results for two sub-groups of countries: EU countries and non-EU countries. The panel threshold regression analysis with fixed effects addresses the unobserved heterogeneity. There is strong evidence of non-linearities in the relationship.

As an item of novelty, we respond to the requirement previously identified, and we construct a new quality-adjusted financial development measure, namely the Financial Composite Index. The new results bring to light cases when further financial deepening is not desired, as it would negatively impact economic growth.

Finally, the general conclusions are presented.

The current thesis has important policy implications by expanding the related literature on the response of economic performance to financial enhancement. On one hand, in the EU countries that joined the European structure after a long time of communism, policy decisions that promote financial diversification, such as developing capital markets infrastructure, deepening corporate bond markets, and promoting financial education for investors, may lower the risk of excessive dependence on the banking sector.

On the other hand, for the countries that we identify having a market-based financial sector, policymakers should take into consideration, while continuing to foster a sustainable capital market development, the side effects of the financial system deepening, that could result in external shocks and spillover effects. Also, we draw attention to the fact that financial development may be

beneficial up to a point. Above that level, the marginal impact of financial enhancement on growth weakens or becomes even negative. The policies promoting the quality of the financial sector should be preferred instead of those promoting quantity. Thus, efficient and stable financial deepening may be a key factor in advancing economic development.

Taking all into consideration, we find the current thesis on the financial development-growth nexus, while focusing on EU countries, relevant and bringing a contribution to the related literature. The results may clarify if the European structure managed to financially integrate the member states and whether uniform regulations are efficient, or instead, tailored policy actions are required to support economic expansion, and to stop the current diminishing trend of its significance in the global economy.

Paper 1. The Causal Relationship Between Banking, Capital Markets and Economic Growth in the European Union

Abstract: The current paper investigates the causal relationship between financial development and economic growth in 27 European Union (EU) countries, for the period 1990-2019. Granger causality tests are applied, using the cointegration and Vector Error-Correction Model (VECM). Through the empirical analysis, we found evidence of the presence of Granger causality between financial evolution and growth, sometimes even bidirectional causality, but the nature of the relationship is far from being uniform across all EU countries. Therefore, a one-size-fits-all approach by policymakers may not be effective for the financial sector to drive economic growth. The results suggest that there are different interactions between the financial sector and economic expansion, based on country specifics, as the causality is sustained by the banking sub-sector in some cases, especially in the case of countries that were part of the former communist bloc, and it is driven by the capital market in other cases. There are also cases in which both financial sectors Granger cause economic growth, mostly in the countries that succeeded in better diversifying their sources of funding. These findings highlight the presence of financial structural differences among EU countries, and, at the same time, the importance of tailored policies to support further economic expansion.

Paper 2. The Relationship between Financial Development and Growth in Germany and Luxembourg: A Time Series Analysis Approach

Abstract: The present paper examines the economic growth and financial development relationship in two of the European Union's (EU) founding countries and Eurozone members, namely Germany and Luxembourg, by taking into consideration a large period, from 1970 to 2019. We motivate the choice of these two specific countries based on the similar rate of gross domestic product (GDP) per capita growth over the years, and also on the relevance of the financial sector in the total economy. Five different measures of financial development are employed. We apply Granger causality tests, using the cointegration and Vector Error-Correction Model (VECM). The empirical analysis indicates consistent results, as in the cases of Germany and Luxembourg, it can be established Granger causality for the economic growth-financial development nexus. There is also evidence of a bidirectional relationship.

Paper 3. The Relationship between Financial Development and Economic Growth: Panel Data Evidence from the European Union Countries

Abstract: The present study focuses on the relationship between financial development and economic expansion in the European Union (EU) countries by employing the System Generalized Method of Moments (SGMM) estimator alongside Granger causality tests. We compare three different periods: the years before the financial crisis, the years during the crisis, and the post-crisis period. Our results reveal a bidirectional causality between financial evolution and growth before the financial crisis. During and after the crisis, financial development Granger causes economic growth only unidirectionally for the analyzed sample. The highest positive impact of financial enhancement on economic expansion is observed after the crisis.

Paper 4. Financial Development and Economic Growth in High-Income Countries: An Empirical Assessment of Threshold Effects

Abstract: This paper investigates the relationship between financial development and economic growth in high-income countries for the period 1990-2019, by employing a panel threshold analysis. The results show non-linear effects between financial enhancement and growth.

For robustness check, we retest our hypothesis on sub-samples of countries: European Union (EU) countries versus Non-European Union (Non-EU) countries. As an extension, we construct a new measure of financial development, namely the Financial Composite Index (FCI), by employing the Principal Component Analysis (PCA) methodology. Compared to the well-known Financial Development Index (FDI) developed by the International Monetary Fund (IMF) (Svirydzhenka, 2016), our new index totals a larger number of financial proxies, including financial stability measures. By retesting the initial hypothesis, the findings support the presence of threshold effects, with strong evidence of a negative impact of financial evolution on growth, after financial development reaches a certain level. Volatility and higher risk exposure may affect financial stability and reduce the long-run growth benefits of further financial development.

GENERAL CONCLUSIONS

In my thesis, I expand the literature related to the relationship between financial development and economic growth and bring new empirical evidence on the causality and the impact, by employing different methodologies and by comparing different time spans and samples. Additionally, a new, broader measure of financial development is constructed and employed in the analysis.

Based on our results in Paper 1, we confirm the presence of Granger causality between financial development and economic growth, in the case of all 27 European Union (EU) countries, for the period 1990-2019. We also found evidence of bidirectional causality. The employed methodology with time series analysis at the country-level allowed us to determine some specificities, as follows.

First, we found empirical evidence in the case of 11 EU countries that their banking sectors Granger cause economic growth. Particularly, in Bulgaria, Finland, Hungary, Romania, Ireland, Malta, Poland, Romania and Sweden, the results showed that the credit to government and to state-owned enterprises is the main determinant of the presence of Granger causality between financial progress and economic growth. It can be observed that an outstanding number of these countries were part of the former communist bloc. In many cases, the government is still heavily involved in some of the main sectors, such as energy and transport. The need for intensive investments to enhance their infrastructure in these countries might be one of the main reasons for the governments to rely on banking funding. Even more, after becoming part of the European Union

structure, these countries gained access to European funds, the government often being a co-financier. But productive investments are not always the main reason for debt. Therefore, an important aspect that merits further investigation is the level of public debt across these countries. In case of inefficient spending, high volumes of public debt might reduce the impact of financial progress on economic growth. As an overall implication for this group of countries, the policy decisions that promote financial diversification may lower the risk of too much reliance on the banking sector.

Second, our findings showed that there is a limited number of EU countries that succeeded in developing their financial markets, such as France, Germany, and Luxembourg. In these countries, we found a stronger causal relationship between capital market proxies and economic growth when compared to banking proxies. In general, stock market capitalization holds up the causality. This category of countries might experience the benefits of having a market-oriented financial structure. Thus, with a substantial capital market infrastructure, large listed corporations, and an overall financial investment openness among population and institutions, these countries may encounter lower costs of capital and better economic and financial shocks absorption. Further capital market development in these countries should be perceived as a priority by policymakers, but not without taking into consideration the side effects of the financial system deepening.

Third, for a limited number of EU countries, we found evidence that both financial sub-sectors, namely the banking environment and the capital market, present a significant Granger causality with economic growth. Therefore, there is a sign of financial complementarity in this group of countries. To this category belong EU member states like Italy, the Netherlands, and Spain. In their case, having financial alternatives might result in better capital allocation and also an enhanced financial risk counteraction through risk sharing. Additionally, this could imply a strengthened financial stability. Also, one of the main advantages of financial diversification may be the preservation of intense competition among financial institutions and financial markets. This may further support lower funding costs. In our opinion, the policymakers across all EU countries should consider the benefits of having a developed financial sector with various sources of financing.

Additionally, we believe that bidirectionality is highly important, and the results confirmed the presence of reverse causality between financial development and economic growth in most of the cases. On one hand, we found evidence that financial development and economic growth

reinforce each other. On the other hand, the presence of bidirectionality grabbed our attention in terms of methodologies that should be employed to explore the financial enhancement effect on economic growth, in the case of panel data sets.

In Paper 2, we presented additional empirical findings on causality. We employed a time series analysis by considering a larger period of 50 years, from 1970 to 2019, and we focused on 2 EU countries and Eurozone members, namely Germany and Luxembourg. The motivation for choosing these two specific countries was based, firstly, on their similar growth rates of gross domestic product (GDP) per capita. Germany and Luxembourg are constantly among the first 10 EU countries regarding the standard of living. Secondly, they registered high values of finance and business services in GDP, which suggested a possible increasing importance of the financial sector in these economies.

Unexpectedly, by retesting the presence of causality for a larger period of time, it can be noticed that banking also Granger causes economic growth in these two countries, not only the capital market. For Germany, the results confirm the presence of Granger causality between economic progress and the following financial measures: stock market capitalization, credit to government, banks' assets, and bank non-performing loans. In the case of Luxembourg, the results support the presence of Granger causality between banks' assets and economic growth, and stock market capitalization and economic growth. There is also evidence of a bidirectional relationship, as economic growth Granger causes financial development in some cases, for Germany. By comparing the findings to the ones obtained for a shorter period in Paper 1, we could say that the significance of the banking environment lowered in time and the force of the capital market was enhanced in these two specific countries.

Next, in Paper 3, we provided empirical evidence on the financial development-growth nexus in the European Union by employing a dynamic panel data analysis with Granger tests. The System Generalized Method of Moments (SGMM) estimation was employed, which could deal with endogeneity and with unobserved country effects. As a measure of financial development, we employed the Financial Development Index (FDI) from the International Monetary Fund (IMF), which accounts for financial institutions and markets access, depth, and efficiency. The results showed that, overall, there is a positive causal relationship between financial development and economic growth, but there are some differences in terms of magnitude during the studied time spans.

For the years before the financial crisis, from 1990-2007, when more than half of the current EU members joined the European structure, the results showed that historical growth rates of GDP, financial development, and trade openness had a positive impact on GDP. The dynamic mechanism reconfirmed that both financial deepening and international trade contribute to economic evolution. Especially the countries that became EU members in that period, after a long time of communism, such as Hungary, Poland, and the Slovak Republic, experienced expansion. Based on our results, by starting to have access to the single market (which might support trade openness), in addition to the liberalization and free movement of capital (which might enhance financial development), the EU countries achieved economic prosperity.

Interestingly, during 2008-2014, the financial crisis period, the empirical evidence suggested that financial development maintained its role in driving economic expansion. On one hand, the results suggest that the financial sector of the EU countries over these years may have been satisfied with the condition of strong financial resilience. This condition may helped financial development to continue to exert an overall positive impact on the growth rates. On the other hand, another reason for obtaining these results might be the decision of employing a financial development measure that focuses on depth, access, and efficiency of the financial sector, which may be more related to quantity rather than quality and risk exposure of the sector. Thus, we identified a new gap in the literature, the necessity to construct an even more comprehensive financial development measure that is able to account for financial stability as well. And we managed to accomplish this in Paper 4.

Moreover, international trade had a positive impact on GDP growth rates for the crisis years. The results underlined, once again, the power of trade openness in helping the economies to cope with potential crises. Therefore, we consider that relevant policies in promoting export activities should be considered during such stressful times. Even more, the results showed a negative impact of past rates of GDP growth on the current rates of GDP growth. We found this rational, because as the economy adjusts to decreased levels of production, the historical levels of economic growth may have a negative impact on current economic growth. Even more, reduced investment and consumption during pressured times, in addition to a lowered general economic activity, might result in a set of pessimistic predictions made by the economic agents about the future economy.

After the years that were impacted by the crisis, during 2015-2019, financial development had the strongest impact on economic growth, while previous growth rates kept their negative impact on current growth rates. The results confirmed the power and relevance of the financial sector in supporting economic recovery. Therefore, we find it relevant for policymakers to adopt measures that support the financial development as a whole, including the progress of financial institutions and financial markets as well, because there is evidence that financial enhancement may help further in sustaining economic growth, even after an unfavorable context.

Our next approach was described in Paper 4. Compared to the previous papers, we expanded the sample to 51 high-income countries, which allowed us to differentiate the results and compare them for two sub-groups of countries: EU member states and non-EU countries. The employed methodology was a panel threshold regression analysis with fixed effects, which solved the issue of possible time-invariant heterogeneity. It led us to the following main result: there is a non-linear relationship between financial development and economic growth for the analyzed sample of 51 high-income countries during 1990-2019.

The main results, which were obtained by testing for threshold effects on the full sample of 51 high-income countries, showed that the impact of financial enhancement on growth was positive and significant initially, while there were diminishing effects after finance exceeded a certain threshold (0.3, FDI). After the threshold, financial amplification failed to remain significant in supporting economic growth. Also, the results underlined, again, the importance of international trade activity, which had a positive impact on economic growth, and highlighted the fundamental requirement to monitor inflation, as it had a significant negative impact on economic growth.

Further, we wanted to check if the results still verified after splitting the sample into two sub-groups, but also, we were curious if any specificities of EU countries could be identified. On one hand, threshold effects were still confirmed. The estimated threshold was 0.4781 (FDI). Below this threshold, financial enhancement exerted a positive and significant effect on economic growth, while above the threshold, the marginal effect becomes non-significant. EU policymakers should focus on maintaining a moderate level of financial development, as modest values of financial development may promote further economic expansion. Surprisingly, in non-EU countries, the marginal effect of financial development on growth was not statistically significant in either regime (before and above the threshold). The estimated threshold was 0.2963 (FDI), with very small detectable effects. These findings supported that, in non-EU countries, financial development did

not have a linear neither a strong effect on economic expansion. Therefore, we found evidence that financial enhancement was not the key growth engine in these countries during the analyzed period, but rather international trade led economic expansion. Also, we assumed that the lower predicted threshold for non-EU countries was related to poorer institutional frameworks and generally a less developed financial infrastructure. These characteristics may limit the ability of financial development to stimulate economic progress.

Even more, as we identified previously the essential necessity to construct a broader measure of financial development, we employed the Principal Component Analysis (PCA) methodology. This allowed us to compute 30 financial depth, efficiency, and stability proxies, and construct the new Financial Composite Index (FCI) for the analyzed sample. We considered that, in order to evaluate financial progress, the financial quality and risk exposure should be included in the measure. Our new index accounts, therefore, for financial stability, including measures such as bank credit to bank deposits, bank non-performing loans, and stock price volatility.

By retesting the initial hypothesis, we found evidence of a negative impact of financial development on growth, after our quality-adjusted new measure exceeded the threshold value (0.2, FCI). We provided evidence that financial development could stimulate economic growth in countries with emerging financial systems. Additionally, we reconfirmed the importance of international trade in the growth process. Macro stability measures to control inflation are highly relevant in this process. Moreover, the threshold analysis suggested that, in more advanced financial systems, further expansion might not result in additional growth. As a policy implication, these countries might consider adjusting their policies from size-oriented to quality-oriented.

Coming to an end, the financial development-growth nexus may be rather considered non-linear. On one hand, we present evidence that a deeper and stronger financial system may enhance economic progress, mainly in the presence of a robust activity of international trade. The credit to the private sector and to the government, the pension and mutual funds' assets, the number of bank branches, the return on assets, the stock market capitalization, and the stock market turnover ratio are only a few measures that, once enhanced, there is evidence of supporting economic expansion.

On the other hand, in certain cases, a more developed financial sector becomes insignificant, while in other cases, we showed that it could negatively impact economic growth. Therefore, as a policy implication, promoting a deeper, more accessible, and more efficient financial enhancement should be considered, but not without focusing on its stability and strength.

Tracking stability indicators, such as bank credit to bank deposits, bank non-performing loans, and stock price volatility, is critical to maintain the positive impact of financial development on growth.

In the specific case of EU countries, there is a strong necessity for tailored policy actions. Although there are great efforts in terms of integration and convergence, we discovered important specificities at the country level. There are many EU members with a financial system that still relies on the banking sector, while other members managed to diversify their sources of funding, constructing a profound and solid financial market.

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