FINANCIALIZATION: CURSE OR SALVATION? THE CASE OF LATVIA, A SMALL AND POST-TRANSITION ECONOMY[*]

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Abstract. The role of financial sector has increased significantly since the 1980s, introducing a new term or phenomenon i.e. the financialization of the economy. There is still some imprecision about the nature and dynamics of financialization, including its impact on the economy. The main task of the financial sector is to allocate funds for its most productive use, while ensuring sustainable development. Recent studies show that excessive financial deepening negatively impacts the economies of developed countries, but is this true for post-transition economies? The aim of this paper is to look into the relationship between financialization and the state of a small and post-transition economy, the Latvian economy. Using a European database and methodological framework we analyze this relationship in Latvia between 1999Q1 and 2017Q4. In our study, we apply the standard Vector Auto-Regressive model (VAR). Our research results do not indicate that financialization causes significant changes in the state of the Latvian economy. The interpretation of this result is related to the degree of financial deepening in Latvia.

1. Introduction

Financialization is a relatively new term that encompasses such a wide range of phenomena that it is difficult to give a precise definition. This term is most often used by researchers and economists trying to understand the contemporary rise of finance and its powerful role. Finance and technology have had a profound influence on our everyday life as a consequence of financialisation. A financial market's expansion is not just about the increase in volume, but also about the diversity of transactions and actors on the market and their exposure to all types of economic and societal elements. It is important to understand the term "financialization" as a radical change within the financial market that has affected whole economies, from households to business, to real markets and monetary systems. Financialisation is multifaceted. The Jamaica Accords greatly facilitated the movement of funds across borders, and internal restrictions on financial flows were eased. As a result, it became easier for banks to lend and borrow, creating the potential for unlimited liquidity. The variety of financial instruments offered by financial institutions and their clients is becoming more and more diversified as institutions and clients are constantly looking for new profit opportunities. Moreover, thanks to the Internet and FinTech, more people have access to the financial market than ever before.

The COVID-19 crisis has placed government finances under strains since the governements support costs (health care, protection of firms from bankruptcy and wages of employes, protection of unployees) that conduct to an upward on bond issuance and give further impetus to the scale growth of the global financial markets (Lysandrou and Ranjbaran, 2021). The debt-based financial chains contribute to exacerbate existing economic and social disparities (Sokol and Pataccini, 2020). Finally, nowadays concerns about environmental sustainability can not be separated from financial development since there can exist a long run association (positive) between economic development (GDP per capita) and financial development (Nasir et al., 2021).

However, despite the increasing importance of financialization in our daily life, there is still no clear consensus about its impact on the economy. Much of the macroeconomic literature on financialization concerns the impact of financialization on economic growth, investment, productivity growth, employment, stability and income distribution. This literature has assessed the impact of an evolving financial sector on advanced economies and some developing countries. However, it fails to address the peculiar features of financialization in small and post-transition economies. Even if, following the classification of international institutions as IMF, OECD, UNCTAD, Latvia became an advanced or developed economy by joining the EU and the Euro area, it seems more accurate to characterize Latvia as a post-transition economy due to the essential and fast movement from a centrally planned economy to a market economy. Only three countries from the Soviet Union joined the European Union, which provided a powerful incentive for reforms and led to the liberalization and deregulation of the financial system, with the formation of banking sector and conditions that allowed the development of financialization. Latvia's uniqueness lies in its geographical and geopolitical position; it is also part of the European Single Market, and on the other hand, it is located close to the Nordic countries and the Commonwealth of Independent Countries. The literature on financialization in small and post-transition economies is relatively new, and to the best of the authors' knowledge, it lacks systematic research and a rigorous theoretical framework, hence we are trying to fill this gap.

This research aims to look into the relationship between financialization and the state of the Latvian economy (a small and post-transition economy). We also seek to understand its strength of influence, namely, when the financialization variables reach their original levels after a shock. Since the measurement of financialization is still an issue in the literature, we propose less explored measures of financialization that allow to capture the input and the output side of this process. Despite the lack of a clear consensus regarding the precise definition of the financialization process, this phenomenon needs to be evaluated. The most traditional measure is the ratio of financial assets or banking assets to GDP (Battiston, 2018; Mhadhbi, 2014). Other popular proxies are the gross value added of financial activities, the size of the economy's banking sector (loans, deposits, and bank

concentration ratio), short-term and long-term interest rates; stock market capitalization and volume traded, and many other indicators (Assa, 2012; R. Barradas, 2018; R. Barradas, Lagoa, S., Leão, E., Mamede, R. P., 2018; Mhadhbi, 2014; Pagano, 2014; Svilokos, 2017).

One of the most important issues in assessing the relationship between financialization and economy is how to obtain a satisfactory empirical measure of financialization. Based on the literature review, we selected two variables to measure the financialization:
1. share of employment in the financial sector of the economically active population (L); it represents the workforce employed in the financial sector and represents a proxy of financialization (Assa, 2012; Svilokos, 2017);
2. financial sector real assets per capita at constant (2016Q4) prices (A); this variable relates the value of the assets of the financial sector (financial sector size) to the size of the population, as a proxy of financialization.
We suppose these proxies are better indicators of financialization of small and post-transition economies because they capture the effect of modern growth, which many consider more unequal at present.
The literature review shows that there is no clear answer about the effect of financialization on the state of the economy, especially in the case of small and post-transition economy. We contribute to this strand of literature with the study of the Latvian economy and while using new measures of financialization.

We apply a VAR model and analyze impulse response functions and the error decomposition variance to find the effects of the selected financialization variables in the state of the Latvian economy. The empirical evidence does not support that financialization causes significant changes in the economy of Latvia which is compatible with the balanced level of financialization revealed by this economy. This can be explained by the fact that Latvia may not yet have reached the level of excessive financial deepening, the point beyond which the financial sector is damaging the economy. We cannot confirm the positive impact of finance on the state of economy, but we found that GDP per capita in Latvia affects financial asset values and employment in the financial sector. We also discovered that proxies of financialization (employment (2.3%) and assets in the financial sector (7%), in total about 9.3%, can be used to forecast the state of the economy in the long-time horizon.

The remainder of this paper is organized in the following manner. In Section 2, we present the theoretical background and set up the hypothesis we want to test econometrically. In Section 3 we analyze the key statistical facts that have been associated with the financialization process in Latvia. In section 4 we present the data and the econometric approach. Section 5 analyzes and discusses the results and section 6 contains conclusions.

2. Theoretical background

The literature on financialization has focused on two important questions. The first is the definition and measurement of financialization and the second is the role that financialization plays in the economy. Kim (2013) and Wisniewski (2012) see financialization as a process in which the financial markets, institutions and elites are gaining increasing influence in economic policy and economic performance. According to Seccareccia (2012), it takes over the leading role in the economic systems through the financial markets based so far on bank financing. Among the main sources of financialization are listed the deregulation of the financial system, the processes of concentration in the financial sector, the increasing size and share of institutional investors in the financial market, and the dominance of the neoliberal model of monetary, fiscal and economic policies (Tomaskovic-Devey, 2012). Barradas (2016) argues that the liberalization and deregulation of the financial sector, accompanied by the idea, supported by empirical findings, that financial development contributes positively to economic growth contributed to excessive financial deepening. According to Palley (2007), the causes and sources of financialization can be found in the process of transformation of the financial sector's interests. They drive changes in the structure and functioning of financial markets, solutions for socio-economic policy, as well as the

behavior of companies. These causes of financialization are called leading channels of distribution. Between these channels, there are interactions based on a feedback mechanism.

Adams and Glück (2015) note that the distribution effects of financialization are the basis of economic growth. They help to change the behavior of companies and households, which are caused by the growth of significance of the financial sector. Ease of obtaining credit money led to the development of the real estate market, which has a positive impact on economic growth. King and Levine (1993a) assert that financial markets facilitate the financing and the efficient allocation of investment and there is a positive correlation between the development and accumulation, growth and efficiency of financial markets. Beck, Levine and Loayza (2000) argue that the development of financial markets is expected to have a positive impact on growth by fostering an increase in total productivity. Love (2003), Beck and Levine (2004), Gilchrist and Himmelberg (1995), Merton (1995) and Levine (2005) argued that development of financial markets facilitates the efficient allocation of investment resources and alleviates financing constraints of enterprises, which in turn allow them to reach higher levels of efficiency and growth that lead to higher economic growth.

Financialization effects that influence economic growth are also related to the decisions of the central bank and the government as part of the monetary and fiscal policy (policy mix) (Stawska, Mourao, 2021). Monetary and fiscal policy certainly affect economic growth, for example, through the level of investment. Stawska (2012) analyzed the impact of the policy mix on the economy through the investment channel during the 2008-2009 financial crisis in the euro area. Stawska (2012) noted that gross investment declined significantly despite expansionary monetary policy and high government spending. Stawska (2012) associates this observation primarily with the increased level of risk in the euro area financial markets, and not with the failures of policy mix decision-makers. On the other hand, Malinowska (2016) studied the combined impact of monetary policy and public debt on the level of non-financial investments of enterprises in the EU in 1999-2014. She noted the impact of monetary policy on corporate investment in the euro area and that the cash flow generated by corporate-held financial assets could have served as an internal source of investment financing that is heavily influenced by monetary policy.

However, a negative assessment of financialization has followers of heterodox economics (interventionism with views similar to Keynes) see a significant problem in it (Vercelli, 2013). Barradas (2016) reports that financialization has negative impacts on the real economy, economic agents and macroeconomic outcomes, arising from the strong growth of the financial sector. Tomaskovic-Devey, Lin and Meyers (2015) have a negative perception of financialization associated with a fear of over-investment in the financial activity, rather than in the production of goods and services. They believe that this leads to a reduction in overall economic growth and wider social inequalities. The view of the centrality of finance in the modern economy and the separation of finance from real economic output is also accepted by Hardt and Negri (2011). From their perspective financialization shifts the forms of governance from democracy to plutocracy and results in financial pressure of "parasitic" representatives of the financial sphere on legislation and law. Problems associated with the phenomenon of financialization are issues of information asymmetry and the complexity of financial instruments, which make it more difficult to assess the risks involved. Another problem is the real economy that is owned by a growing share of financial entities and the increasing amount of financialization assets in the economies (Wigan, 2009).

Many economists looked into the correlation between the development of the financial market and economic growth, wondering about the cause and the effect. They analyzed data at the level of countries, industries and companies (Beck, 2016; Guiso, 2003; King, 1993a, 1993b; Porta, 1996). Pagano (2014) notes that the impact of financial market development on economic growth exists up to a certain level of the credit to GDP indicator. Above this level not only does it have no positive effect, but also a negative effect can exist (Pagano, 2014). Pagano and Pica (Pagano, 2012), based on data from UNIDO (United Nations Industrial Development

Organization) on an annual added value of 28 industries and 63 countries covering the period 1970-2003, noted that there is evidence that the development of the financial market is beneficial for economic growth in non-OECD countries because it contributes to an increase in access to finance. Barradas (2018) based on an empirical reassessment of the finance-growth nexus by performing a panel data econometric analysis for all 28 European Union countries from 1990 to 2016, concluded that finance has been detrimental to economic growth in the EU countries. Cecchetti and Kharroubi (2012) studied the complex real effects of financial development and concluded that financial sector size has an inverted U-shaped effect on productivity growth. It means that there is a point where further enlargement of the financial system can reduce real growth. Furthermore, financial sector growth is found to be a drag on productivity growth. They underlined that the financial sector competes with the rest of the economy for scarce resources. Barradas (2020) does not find evidence on the finance-growth nexus for Portugal, except for the stock market capitalisation that seems to impact positively the economic growth. The estimation of non-linear models highlight the existence of a concave/convex quadratic relationship between financial variables/stock market capitalisation and Portuguese economic growth. According to Cecchetti and Kharroubi (2012), financial booms and more finance are generally not growth-enhancing. A summary of the literature review on defining and measuring financialization and its role in the economy is presented in Table 1.

Table 1: Summary of Literature Review

Author	Sample	Title	Source	Findings
King and Levine (1993a)	Cross-section data 80 countries for the period 1960-89	Finance and Growth: Schumpeter Might Be Right	The Quarterly Journal of Economics	The level of a country's financial development helps predict its rate of economic growth for the following 10 to 30 years.
Gilchrist and Himmelberg (1995)	A cash flow framework	Evidence on the role of cash flow for investment	Journal of Monetary Economics	The results clarify the role of cash flow in investment equations and provide support for the existence of a financial accelerator.
Beck, Levine and Loayza (2000)	Data for 63 countries over 1960-95	Finance and the sources of growth	Journal of Financial Economics	Main findings: (1) financial intermediaries exert a large, positive impact on total factor productivity growth, which feeds through to overall GDP growth and (2) the long-run links between financial intermediary development and both physical capital growth and private savings rates are tenuous.
Beck and Levine (2004)	Panel data set for the period 1976-98	Stock markets, banks, and growth: Panel evidence	Journal of Banking & Finance	Main findings: stock markets and banks positively influence economic growth and these findings are not due to potential biases induced by simultaneity, omitted variables or unobserved country-specific effects.
Palley (2007)	Data set of U.S., 1959-2005.	Financialization: What It Is and Why It Matters	The Levy Economics Institute Working Paper	Financialization operates through three different conduits: changes in the structure and operation of financial markets, changes in the behavior of nonfinancial corporations, and changes in economic policy.
Wigan, (2009)	Theoretical framework	Financialisation and Derivatives: Constructing an Artifice of Indifference	Competition & Change	Financialisation proceeds via the construction of indifference to the exigencies of 'real' economic competition.
Seccareccia (2012)	Canadian macroecinomic data from 1990–2008	Financialization and the transformation of commercial banking: understanding the recent Canadian experience before and during the international financial	Journal of Post Keynesian Economics	Highlights some of the important transformations in the role played by the banking sector in the economy.

		crisis		
Tomaskovic-Devey (2012)	Data set of U.S., 1998-2009	Income Dynamics, Economic Rents, and the Financialization of the U.S. Economy	American Sociological Review	The institutional and income dynamics are associated with the financialization of the U.S. economy, advancing a sociological explanation of income shifts into the finance sector.
Kim (2013)	Data set of U.S. output and household debt	Household debt, financialization, and macroeconomic performance in the United States, 1951-2009	Journal of Post Keynesian Economics	The authors found structural differences between earlier and later business cycles for the U.S. household sector and its relation to the macroeconomy.
Vercelli (2013)	Theoretical framework	Financialization in a Long-Run Perspective: An Evolutionary Approach	International Journal of Political Economy	This paper argues that there is a secular tendency toward financialization that is intrinsic in the development of market relations.
Adams and Glück (2015)	Daily returns and risk spillovers over the period 1994 to 2013	Financialization in commodity markets: A passing trend or the new normal?	Journal of Banking & Finance	Quantify the impact of financialization on the dependence structure between commodities and stocks
Tomaskovic-Devey, Lin and Meyers (2015)	Data set of U.S., 1970-2008	Did financialization reduce economic growth?	Socio-Economic Review	The declining value added produced by financialization was born most strikingly by labour and the state, while increasing value was channelled to corporate debt and equity holders.
Barradas (2016)	A systematic literature review	Evolution of the financial sector – three different stages: Repression, development and financialisation	Working paper DINÂMIA'CET	The large growth of the financial sector and its deleterious effects are commonly referred as financialisation… it is necessary to engage in definancialisation in order to re-establish a more supportive relationship between the financial sector and economic growth.
Malinowska (2016)	EU macroecinomic data in the 1999–2014 period	The Impact of the Monetary-fiscal Policy Mix and Financialisation on Fixed Asset Investment in the EU in 1999–2014	Argumenta Oeconomica Cracoviensia	Despite the detrimental effects of financialisation, the findings highlight that cash flows generated from the sector's financial assets might serve as an internal source of FAI funding that strongly correlates with monetary contractions.
Shkolnyk, Kozmenko, Kozmenko, Mershchii, (2019)	Panel data Ukraine Moldova, Georgia 2007-2017	The impact of the economy financialization on the level of economic development of the associate EU member	Economics and Sociology	The relationship between economic growth and indicators of financialization of the economies. The fixed-effect regression model, the statistical adequacy of which was confirmed by indicators (R squared coefficients, the Breusch-Pagan test). The examined indicators had a positive influence on economic growth.
Maxime Fajeau (2020)	Cross-country regressions	Too Much Finance or Too Many Weak Instruments?	International Economics	Financial depth tends to affect growth adversely, the relationship between finance and growth may not depend on the unconditional level of financial development but rather on the economy's general level of development.
Matei (2020)	Non-linear dynamic panel models; 11 EE Countries 1995-2016	Is financial development good for economic growth? Empirical insights from emerging European countries	Quantitative Finance and Economics	Financial development produces positive effects on economic growth only in the short-run horizon. Financial development exerts a positive effect on the economic activity until a certain threshold and after that, the link becomes negative).
Zhang, Zhou	Microfounded	Financial Development	The North	In the long run, the welfare maximizing level of

(2021)	model in a small open economy 52 countries 52 long periods US over 22 years short periods	and Economic Growth in a Microfounded Small Open Economy Model	American Journal of Economics and Finance	financial development is lower than the growth-maximizing level. In the short run, the price channel dominates the quantity-channel (through financial productivity. No country can be an island and it is vital to fight against financial instability with international cooperation.
Wen, Mahmood, Khalid, Zakari (2021)	System GMM estimation technique. Panel: 120 countries, 1997- 2017	The impact of financial development on economic indicators: a dynamic panel data analysis	Economic Research-Ekonomska Istraživanja,	Financial development is found to be positively associated with inflation and employment growth. There is need to reform and strengthen the supervision of financial intermediaries to ensure sound prudential lending practices. Credit needs to be allocated to highly productive firms.

Therefore, we hypothesize as follows:

H1: Change of financialization causes changes in the state of the economy.

As a measure of the state of the economy we use GDP per capita (Y); this variable reflects the general state of the economy and its sustainable development. According to UN Division for Sustainable Development GDP per capita is a very important measure for the economic and developmental aspects of sustainable development, including people's consumption patterns and the use of renewable re-sources. However, the United Nations system currently is developing transparent measurements of progress on sustainable development that go beyond GDP per capita, and that account for the social, economic and environmental dimensions of development (*United Nations, International Cooperation to Accelerate Sustainable Development in Countries and Related Domestic Policies*, 2020). GDP per capita is highly relevant for understanding current well-being, as individuals use their income to purchase all sorts of things that enhance their well-being (*United Nations Economic, Measuring Sustainable Development*, 2009).

Both variables selected to measure the financialization reflect a different aspect. Variable L is related to employment in the financial sector and variable A reflects changes in the size of the financial sector. A literature review suggests that there may be a relationship between financial sector size and sector employment (Cavusoglu et al., 2019; Ernst, 2019; Kaur et al., 2021). Based on the literature analysis, we assume that these variables can also influence each other. The mechanism of the impulse propagation between A and L is also considered in the study, since they carry different information. From the perspective of the production function of the financial sector, both variables represent different factors of the production involved in the production of the financial output. Thus, we also test:

H2: Financialization (A) is significantly responsive to changes in financialization (L)

H3: Financialization (L) is significantly responsive to changes in financialization (A)

To correctly verify the presented hypotheses, it is necessary to take a closer look at the selected key statistical variables and economic processes that took place in Latvia and certainly influenced the studied variables in the discussed period.

3. The evidence of financialization in Latvia

Latvia is a country of the former Soviet Union, with an economy which, starting from the early 1990s, has undergone important transformation and change, especially due to the transition to a market economy. In 2004 and 2014 it joined the EU and the Euro area respectively. The evolution and development of Latvia that started in the 90s is characterized by the following main features: first, the transition from a centrally planned to a market economy in Latvia, together with two other Baltic countries, was extremely fast compared to other former

republics of the Soviet Union. In 1992 Latvia exited the Russian ruble zone and joined the domestic monetary system. This was supported by the tight budget policy of the government, which led to budgets with a small deficit or even a surplus, and restricted lending to banks from the state bank by increasing interest rates on loans. Secondly, Latvia created its national financial market by the legal framework in Western Europe, faced with the strong development of the banking sector and the privatization of banks, as well as the need to respond to the internal banking crisis in 1994-1995(Rupeika-Apoga & Wendt, 2021). The development of the financial sector was marked by the liberalization of financial services, the cancellation of restrictions on currency exchange and administrative regulation of banks' interest rates, the liberalization of capital and current accounts and the opening of the market to foreign competition.

Thirdly, 1995 marked the beginning of a new era in the banking sector of Latvia, when some foreign banks opened their branches and others became shareholders of Latvian banks. Over the next five years, the assets of commercial banks grew by an average of 28%. The expansion of the activities of foreign banks in Latvia was accompanied by a sharp increase in the lending rate, banks were able to issue loans in larger amounts and attract domestic deposits. In the period between 2000 and 2004, loans to residents increased from 20% to 50% of GDP, with a rise in the loan to deposit ratio from 1,0 to 1,7, and about 40% of all bank loans financed with foreign capital (Bitans, 2012). Growth occurred in all categories of loans, but the main growth was due to mortgage loans: the share of mortgage loans in the total volume of loans for this period increased from 10.9% to 32.4%, as a result of which mortgage loans became the main category of loans.

Fourth, due to the historical and geopolitical situation in Latvia, the existing banking industry is unique, as it consists of banks pursuing two different business models: the domestic customer banking segment and the international customer banking segment. The domestic customer banking segment is dominated by subsidiaries of larger banking groups, mainly of Scandinavian origin. These banks are active in providing a wide range of general banking services to domestic businesses and domestic private individuals. The international customer banking segment consists of several independent banking groups, mainly of Latvian origin. These banks offer a wide range of services to international customers. In asset terms, both segments amount to approximately 50% of total assets.

The development of the financial sector of Latvia contributed to its role as a regional financial center of the Baltic States. However, when compared to the EU28 and leading European centers, financial deepening in Latvia is modest. This is not due to their limited access to finance, as it is usually the case in countries with limited financial deepening, but because Latvians choose not to run into excessive debt. For many years, the country was highly regarded by international ratings that assess the availability and affordability of finance (Doing Business and The Global Competitiveness Report) and the studies by Rupeika-Apoga & Solovjova (2016) show that finance is available and also affordable.

This process of evolution from a stage of financial repression to a stage of financial liberalization and deregulation that characterized the financial sector of Latvia happened in similar ways in many countries and was reported and described by Barradas (2016). He also reports the features of the following stage, the financialization stage and the negative effects of the excessive rise and deepening of the financial sector. Next, we describe the main aspects of the stage of financialization in Latvia.

The over availability of foreign capital, mainly from the rich countries of Northern Europe, has made the Latvian economy very vulnerable and dependent on international financial capital flows. However, their private sector debt, including non-financial institutions and households, is one of the smallest in Europe and far behind the

EU28 (see Figure A1[†]). This can be partly explained by the cultural characteristics of Latvians who do not like to be indebted, even if there is a wide offer of credit from commercial banks. Its public debt is also one of the lowest in Europe. This allows us to conclude that the level of financialization in terms of debt in Latvia, together with Estonia and especially Lithuania, is low.

As can be seen from Figure A2, the financial sector's assets exceed GDP and reached its highest value shortly after the last global financial crisis. This is explained by the sharp GDP decline in these years, stronger than the financial sector's asset growth. Later, we can observe a stabilization of the ratio that can be explained by a faster GDP growth compared with asset growth. Even if financial assets in Latvia have significantly increased since 1995, the financial sector is still very small compared to the EU25 average[‡].

As for the gross value added and income of "Financial and insurance activities" (Figure A3) to GDP, it is rather stable, fluctuating around 3.5% since 1995. However, it shows an increase from 2003 to 2008 followed by a sharp decrease in 2009/10, which can be explained by the huge losses that Latvian banks were suffering due to the global financial crisis. Although the average indicator over the past 14 years in Latvia is 3.9%, compared with 3.8% in Estonia and 2.2% in Lithuania, it is less than the value of 4.9% of the 28 EU countries, not to mention the leading countries like Luxembourg (24.2%) and Cyprus (8.4%).

From the 1990s until now, banks have played a major role in the financial market of Latvia with a market share in total assets close to 90%. The securities markets in the Baltic countries are very small, and when a company needs funding, its main source is the bank credit. According to Pagano (Pagano, 2014), the European banking sector remains very large compared with international peers (including total assets, loans and deposits). The level of financialization, measured by banking assets as a percentage of GDP in Latvia, lags significantly behind the average of European indicators (see Figure A4). That allows us to conclude that financial deepening in Latvia is modest.

Arcand, Berkes & Panizza (Arcand, 2015) found that the positive association between finance and growth decreased over time, with a negative and significant correlation between private credit to GDP and GDP growth when the credit-to-GDP ratio exceeds 100% of GDP. The analysis of the behavior of the credit to GDP ratio shows that it increased to a level of above 100% of GDP in 2009, but with the financial crisis it decreased and nowadays it is below 60% (see Figure A5). Looking at this ratio there is no evidence of excessive financial deepening in Latvia. Meanwhile, the number of deposits attracted was growing during the period under analysis, providing banks with cheap money (see Figure A6). Also, the average gap between new deposits and loans granted as a percentage of GDP in the EU28 is 55%, and in Latvia, it is much more narrow, only 11% for the analyzed period, which once again proves that Latvian banks with foreign capital had access to the financial resources of the parent banks on more favorable terms than direct borrowing on the domestic market.

Finally, the Latvian bank concentration ratio, measured as the share of assets of the five largest commercial banks in total bank assets was 74% in 2017, which represents an oligopoly, but it is smaller compared to Lithuania (99%) and Estonia (96%) (Laidroo et al., 2021). The Baltic countries are examples of a very high level of bank concentration in relation to the EU28 average (i.e. below 65%). Since the Latvian largest banks are mainly of Scandinavian origin, this makes the banking system dependent on foreign capital inflows and management.

[†] This and other figures also show progress in the variables of Lithuania and Estonia, the two other Baltic countries which are Latvia's neighbours and show many historical, economic, political and cultural similarities.
[‡] The countries with large financial sectors (Luxembourg, Malta and Ireland) were excluded from the EU28. Compared with these the financialization degree of Latvia is even more modest.

Barradas et al. (2018) found that the signs of financialization for example in the Portuguese economy are different from the processes that characterize more advanced economies. Latvia, a small and post-transition economy, also has its features. In short, the financial sector in Latvia, since early the 90s, has shown evidence of strong development. Yet, compared to EU28, the financial deepening in Latvia is still modest. Other features that characterize the Latvian financial sector are the key role played by banks (like Portugal and other Southern European economies) and the dependence of foreign capital flows. This dependence contributed to the evidence that, following the financial crisis, private sector debt as a percentage of GDP and the financial sector assets as a percentage of GDP follow a path different from the average EU28.

4. Data and Methods

4.1. Data presentation

As discussed above, we propose a model which consists of three variables:

- GDP per capita at constant (2016Q4) prices (Y); this variable reflects the general state of the economy.
- Share of employment in the financial sector of the economically active population (L); it represents a proxy of financialization.
- Financial sector real assets per capita at constant (2016Q4) prices (A); it represents a proxy of financialization.

These two measures of financialization (L) and (A) allow us to estimate the financialization from both the output and input sides of the economic process. The financial sector assets provide economic output, while employment in the financial sector is the labor input into this industry. They are both related to the population and measured in real terms, thus relating to the financial sector with the ultimate beneficiaries of the financialization process. The database consists of 76 quarterly observations, from 1999Q1 to 2017Q4. The original data was obtained from the Eurostat database (*Eurostat Database*), Central Statistical Bureau of Latvia (*Central Statistical Bureau database*) and the Bank of Latvia (*Bank of Latvia database*).

The three variables chosen for analysis are presented in Figure A7, in the Appendix. During the analyzed period the growth of the GDP per capita was positive, excluding the years of the 2008/09 crisis. The period from 1999 to 2007 was marked by buoyant growth of Latvia's economy and the banking sector, characterized by investment inflows, lending boom and very low exposure to non-performing loans in the loan portfolios. In 2006-2007 Latvia was actively working on the introduction of the euro and the reduction of high inflation[§.] Starting from the third quarter of 2008, the first signs of growing stress became apparent mainly as a result of the shrinking economic activity, drying-up lending and an ever-accelerating fall in real estate prices. In the second half of the year, access to loans deteriorated against the background of the collapse of Lehman Brothers and the subsequent liquidity squeeze and deterioration of the external economic environment. In Latvia the situation became complicated with the take-over of JSC Parex Banka in 2008 and the government turning to international donors for assistance. Only in 2012 was the situation considered to be back to normal and the financial sector real assets per capita (A) stabilized.

The number of employees in the financial sector was growing before the crisis with some fluctuations between 2002 and 2003. There is no logical explanation why 12,300 people worked in the financial sector in 2002Q1, 9,300 in 2002Q2 and 15,800 in[**] 2002Q3, as this is a stable period in the Latvian financial sector. In the authors'

[§] Latvia has set up a working group which published an anti-inflation plan in early March 2007.
[**] The ARDL model could be another choice, but the results obtained with the VAR model, since the degrees of freedom allow it, will provide more interesting information.

opinion, it can be explained by incorrect data representation, which was obtained from the Central Statistical Bureau of Latvia and is the only available recourse of such data in the period.

We also include dummy variables in the analysis: three seasonal dummies, EU dummy to capture the effects of the entry into the EU (since the second quarter of 2004), the FC dummy for financial crisis period (from 2008Q4 to 2010Q4, when GDP growth was negative) and the CR dummy for the period time when the euro was the official currency in Latvia (from 2014Q1 to 2017Q4).

4.1. Econometric methodology

We researched the links between financialization and the state of the economy, applying a standard Vector Auto-Regressive model (VAR). The choice of the research method was based on the literature review (Ederer, 2013; Narsimhulu, 2016). The VAR models are multi-equation models developed by Sims (1980), in which each variable is explained by its past values and by past values of other explanatory variables. The relationship between individual equations in the VAR model is only evident in the relationships between the random components of these equations. VAR models are usually utilized to create forecasts, to study relationships between variables, to test the general economic theory and to carry out multiplication analyzes and cointegration studies (Kusideł, 2000; Lütkepohl, 2013; Chamalwa, Bakari, 2016; Rossi, Wang, 2019).

First, we tested the stationarity of all variables and considered the possibility of cointegration with Engle-Granger and Johansen procedures. After that, we analyzed Granger-causalities between differentiated variables. Finally, we checked the optimal number of lags and estimated a VAR model with dummy variables, we analyzed impulse response functions and variance decomposition.

A stable VAR needs the variables to be stationary. To confirm the integration order of analyzed variables, we performed both ADF (with the trend and constant, with constant and without trend and constant) and KPSS tests. In the ADF we tested up to 10 lags, and in the KPSS test, we used 3 lags and considered seasonality in every test. The results, shown in Table 2, confirm that Y and L are most likely I(1), but their first differences[††] are I(0). The third variable, A, turns out to be I(2). Therefore, we consider its second difference in VAR model, which is a stationary variable.

Table 2. Results of the stationarity tests

	ADF, trend and constant	ADF, constant	ADF, without trend and constant	KPSS, trend and constant	KPSS, constant
Y	-2,16025	-1,06781	2,273955	0,195644**	1,53745***
L	-1,55189	-1,94318	0,300381	0,417905***	1,09108***
A	-1,53216	-1,98517	-0,227220	0,419421***	1,61105***
dY	-3,45227**	-3,48242***	-3,49485***	0,130029*	0,130974
dL	-2,87629	-2,63993*	-2,64489***	0,0823977	0,316057
dA	-3,45454**	-1,80456	-1,645109*	0,142235*	0,560056**
d^2A	-8,07544***	--8,13205***	-9,97245***	0,0523781	0,0520199

Source: The authors' calculations. *, **, *** highlight significance at 10%, 5%, 1%, respectively.

Further, the time series cannot be cointegrated, otherwise, VECM should be used. We performed Johansen and Engle-Granger cointegration tests. Both show that variables Y, L and dA are not cointegrated. Test results (Tables 3 and 4) allow us to use the standard VAR model.

[††] We highlight the first difference of a given variable X as dX.

Table 3. Results of the Johansen cointegration test

Rank	Eigenvalue	Trace test	p-value	Lmax test	p-value
0	0.20642	23.049	0.2517	16.415	0.2095
1	0.088675	6.6332	0.6259	6.5928	0.5463
2	0.00056889	0.040403	0.8407	0.040403	0.8407

Source: The authors' calculations

Table 4. Results of the Engle-Granger cointegration test – ADF for residuals

Estimated parameter	Test statistics	Asymptotic p-value
-0.00622929	-0.128774	0.9955

Source: The authors' calculations

5. Results and discussion

We began with a test of the optimal number of lags. With 76 observations, 3 variables in the system and 6 dummies, the maximum number of lags compatible with the number of degrees of freedom was 4. Therefore, we performed tests of the optimal lag structure. Likelihood test, Forecast prediction error and AIC indicate three lags and BIC and HQC indicate one lag, therefore we used three lags in the VAR model (see Table 5).

Table 5. Results of the optimal number of lags in the VAR model test

Lags	Loglikelihood	p(LR)	FPE	AIC	BIC	HQC
1	-658.764		71569.32	19.678982	20.642623*	20.061752*
2	-649.463	0.02879	71560.83	19.670375	20.923108	20.16798
3	-636.228	0.00171	61766.11*	19.549379*	21.091205	20.16181
4	-630.204	0.21059	71849.33	19.634402	21.465319	20.36167

Source: The authors' calculations

The Granger causality test, typically used in a VAR model framework, is a standard analysis technique for determining whether one - time series is useful in forecasting another. In the next step, we perform Granger causality tests for six pairs of endogenous variables. Table 6 presents the test statistics for these tests.

Table 6. VAR Granger Causality/Block Exogeneity Wald Tests

dY cause dL	dL cause dY	dY cause d^2A	d^2A cause dY	dL cause d^2A	d^2A cause dL
3.8109**	0.14089	3.2149**	0.60589	0.12201	0.10683

Source: The authors' calculations

The Granger causality test brought some information – there is only a sign of causality from dY to dL (significant at 5%) and from dY to d^2A (also significant at 5%). Other pairs do not show any significance of Granger

causality. This means that GDP per capita helps to predict employment in the financial sector and financial sector real assets per capita, but not vice versa, or the GDP per capita is a cause for the employment in the financial sector and financial sector real assets per capita in Latvia, in the sense of Granger. Therefore, based on Granger causality test results, we assume that the change in GDP per capita implies changes at the level of employment and in the value of assets in the financial sector. As discussed in the introduction, the relationship between finance and the state of the economy or economic growth does exist. Nevertheless, from both a theoretical and an empirical point of view, the dominant view of the causal relationship between the two indicators is still unclear. It is argued that finance plays an important role as a catalyst for economic development (Love, 2003; Beck, 2004; Gilchrist, 1995; (Merton, 1995; Levine, 2005). On the other hand, other scientists Barradas (2016), Tomaskovic-Devey, Lin and Meyers (2015) and Hardt and Negri (2011) reports that financialization has negative impacts on the real economy, arising from the strong growth of the financial sector. The Granger causality test shows that the state of the economy implies changes in the variables of financialization. We do not confirm any positive or negative impact of financialization on the Latvian economy.

As a result, we decided to estimate the VAR model with three lags for all variables and with 3 seasonal dummies, EU dummy, Financial Crisis dummy and the Euro area dummy. We also used robust standard errors. Figure A6 shows impulse response functions and Table 7 contains variance decomposition of all variables in the model[‡‡]. The Cholesky decomposition contains dY as a first variable, dL as a second and d^2A as a third. Table 6 contains the results of the autocorrelation tests. We conclude that there is a lack of autocorrelation in all equations.

Table 7. Ljung-Box autocorrelation test results

Equation 1 test statistic	p-value	Equation 2 test statistic	p-value	Equation 2 test statistic	p-value
0.346495	0.987	3.6062	0.462	0.35935	0.986

Source: The authors' calculations

As for the impulse analysis, it should be pointed out that:

1. The impulse impact on GDP per capita in Latvia (see Figure A8):
a.   from GDP per capita expires less than 10 quarters after the shock started;
b.   from employment in the financial sector starts to expire at around 10 quarters;
c.   from assets of the financial sector expires at around 10 quarters;

2. The impulse impact on financial sector employment (see Figure A8):
a.   from GDP per capita side expires after more than 10 quarters;
b.   from employment in the financial sector expires at around 10 quarters;
c.   from assets of the financial sector expires after more than 10 quarters;

3. The impulse impact on financial sector assets (see Figure A8):
a.   from GDP per capita starts to expire around 10 quarters after the shock starts;
b.   from employment in the financial sector expires before 10 quarters;
c.   from assets of the financial sector expires after 10 quarters.

If the Impulse Response Function (IRF) values are convergent, i.e. the impulse is not held indefinitely by variables but is suppressed after several periods, it means that the modelled system is stable and the variables that

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[‡‡] The estimation results are available to readers upon request.

make it stable are sturdy. Analyzing the charts (Figure A8), we note that for the longest period the impulse is maintained for the variable - employment in the financial sector caused by the disruption of GDP and assets in the financial sector; as well as an impulse on assets of financial sector caused by the disruption of GDP and financial sector assets.

The next step was to carry out the prediction error variance analysis. The variance decomposition indicates the amount of information each variable contributes to the other variables in the autoregression. It determines how much of the forecast error variance of each of the variables can be explained by exogenous shocks to the other variables. It shows what share of the explanation of variance of the prediction error of the variable under test is in other variables included in the model (see Table 8). According to the results presented below, the shares of error variance stabilize, in most cases, at around 10 quarters.

Table 8. Variance decomposition

Quarter	Standard error	dY	dL	d^2A
Decomposition of dY				
1	353.428	100	0	0
2	368.545	98.6131	0.3869	1
5	402.801	91.2563	2.0071	6.7366
10	405.001	90.6637	2.3025	7.0338
20	405.246	90.5822	2.3245	7.0933
Decomposition of dL				
1	0.001023	2.6168	97.3832	0
2	0.001197	7.2489	91.9587	0.7924
5	0.001339	12.2297	86.2726	1.4977
10	0.001384	13.3856	84.9381	1.6763
20	0.001389	13.5261	84.7628	1.7111
Decomposition of d^2A				
1	362.243	8.0442	1.0166	90.9391
2	462.482	4.9377	1.0209	94.0414
5	518.783	11.3387	1.6701	86.9911
10	538.708	11.3128	1.7306	86.9566
20	541.415	11.3295	1.7184	86.9521

Source: The authors' calculations

Table 8 also shows the decomposition of the error variance of the model equations, on the 20th quarter of the forecast horizon. It is as follows: the error variance of GDP per capita depends 90.6% on its values, around 2.3% on employment in the financial sector and about 7% on the assets of the financial sector. We found the weak influence of both financialization proxies on the GDP per capita forecast but comparing both proxies, the financial size proxy plays a more important role than the labor market proxy. That the error variance of the share of employment in the financial sector in the active population depends about 84.7% on its values is explained by 13.56% by GDP per capita, and the influence of financial assets is insignificant, only 1.7%. As for the financial sector assets, the error variance is explained in more than 86.95% by its values, around 11.3% by GDP per capita and only 1.7% by the share of financial sector employment in the active population.

Summarizing, we found that the variable financial sector assets is more responsive to changes in GDP per capita than financial sector employment. Also, employment in the financial sector reacts to GDP per capita to a greater extent than to assets in the financial sector. GDP per capita is the most responsive to changes in its values while

responding to changes in assets in the financial system to a greater extent than to changes in employment in the financial sector.

According to Pagano (Pagano, 2014), financial development beyond a certain point does not appear to contribute significantly to real economic activity. The finance has a positive impact on the economy in countries where financial development is at a relatively early stage when the financial deepening improves access to finance for local firms. However, reaching a certain point of the development, for instance when credit to the private sector grows above 100% of GDP (Arcand, 2015) or when financial development exceeds the growth of real-sector industries by 4.5% (Ductor, 2011), this correlation becomes negative. In theory, financial sector development has a positive and significant effect on SMEs' growth. Numerous papers found that a country's financial development significantly influences firm growth (Beck et al., 2008; Arellano et al., 2012), but the sign of this relationship is still inconclusive. Beck et al. (2008) found that financial sector development has a positive and significant effect on SMEs' growth. A high level of financial development facilitates firm growth by encouraging competition, supporting entrepreneurship, decreasing the cost of capital, and reallocating capital to high-growth industries. On the other hand, Arellano et al. (2012) found that in less financially developed economies (countries with low private credit to GDP ratios) from Europe, small firms grow faster than large firms. Also, on the particular case of transition economies from Central and Eastern Europe, a negative and statistically significant relationship between financial development and firm growth has been found (Anton, 2019). Empirical evidence in our study does not support that financialization is causing significant changes in the state of the economy of Latvia. The interpretation of this result is related to the degree of financial deepening in Latvia, it is not too excessive to have a negative effect, at the same time it is of such size that not to have a positive impact on the Latvian economy. It can be stated that Latvia has reached a balanced level of financialization.

It is also worth noting that during the global financial crisis of 2008-2009, problems with financial stability appeared. This is because investors were becoming skeptical of the fair value of the longer-term assets, prompting them to withdraw funds. At the height of the crisis, so many investors withdrew their funds from the financial markets that many financial institutions ran into serious difficulties, affecting the stability and sustainability of the economy (Gabbi, 2013). The crisis may stimulate the growth of phenomena related to the fragility of the financial sphere and the likelihood of crisis contagion, and thus may limit sustainable development.

The empirical results show that the actors of the economic process, like policymakers, in well-developed financial sectors, should focus mostly on the growth of the economy and identifying the sources of economic growth beyond the financial sector. Additionally, more research proves necessary in order to find other measures of financialization to assess the relationship between economic development and the financial sector.

6. Conclusions

We have studied the relationship between financialization and the state of the economy of a small and post-transition economy – Latvia - from 1999 to 2017. The empirical results indicate that both financialization proxies have an insignificant effect on the GDP per capita of Latvia. This means that we cannot confirm our hypothesis H1, according to which a change in financialization leads to changes in the state of the economy. This may indirectly reflect a healthy level of financialization for the Latvian economy.

We have not found clear evidence supporting the hypothesis on the finance-growth nexus stating that there is a positive association between finance and economic growth (Adams, 2015; Beck, 2000, 2004; Gilchrist, 1995; King, 1993a; Levine, 2005; Love, 2003; Merton, 1995). We also have not found a negative association between finance and the state of the economy (Barradas, 2018; Barradas, Lagoa, Leão, Mamede, 2018; Cecchetti, 2012; Hardt, 2011; Tomaskovic-Devey, 2015; Vercelli, 2013; Barradas, 2020).

Our interpretation is that Latvia has not reached the level of excessive financial deepening, the point beyond which the finance sector harms the economy. At the same time, the financial market is quite developed and a positive impact of finance on the economy has also not been confirmed - we found a weak influence of both financialization proxies on the GDP per capita forecast. Research results also show that GDP per capita in Latvia, during the analyzed period, affects the value of assets and employment in the financial sector in the Granger test sense and according to the VAR model. Based on the IRF analysis, we have noted that impulses caused by the variables GDP per capita, employment and assets in the financial sector were suppressed over about 10 quarters (2.5 years), which means that the modelled system is stable. We have also found that proxies of financialization (employment (2.3%) and assets in the financial sector (7%), in total about 9.3%, can be used to forecast the state of the economy in the long-time horizon. The employment in the financial sector responds more to changes in GDP per capita than to changes in assets of the financial sector (and this response is very small), allowing us to reject the H3 hypothesis. The same is true for the effect of the employment on the assets in the financial sector: it is possible to reject the H2 hypothesis that financialization (A) is significantly responsive to changes in financialization (L).

The main limitation of this research is the use of a restricted number of variables as proxies of the process of financialization. Further research on this topic could assess the financialization process using different variables (e.g. real interest rate, the size of domestic credit, number of financial institutions, or similar ones). Additionally, an interesting development to be made is to compare the process of financialization and its relationship with the growth of the economy in several post-transition countries. This comparison could help to clarify the causality mechanisms that are the main objective of this work.
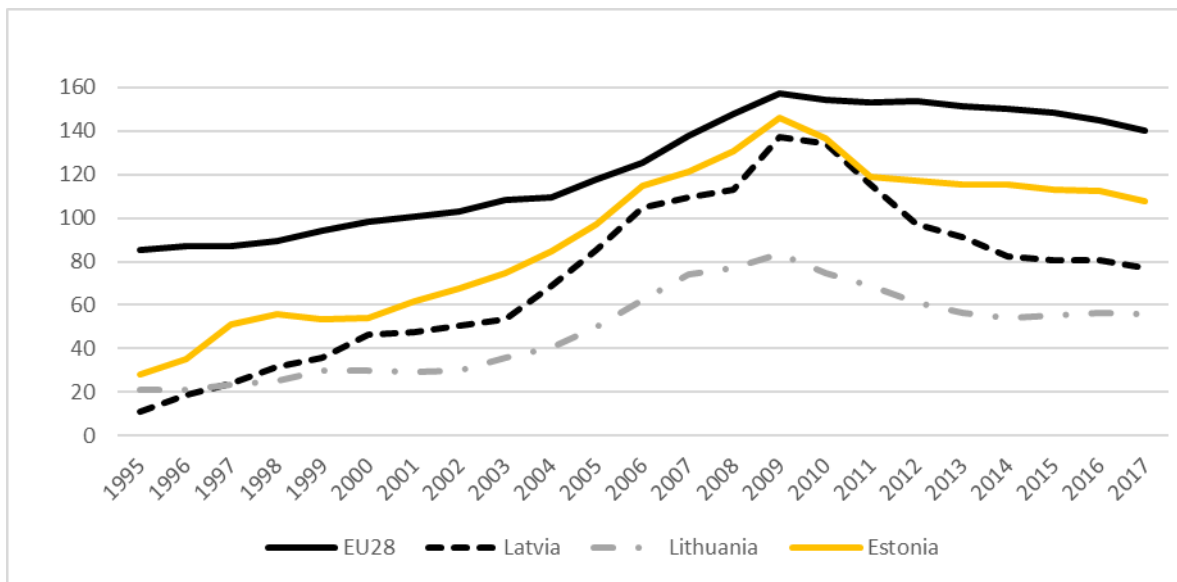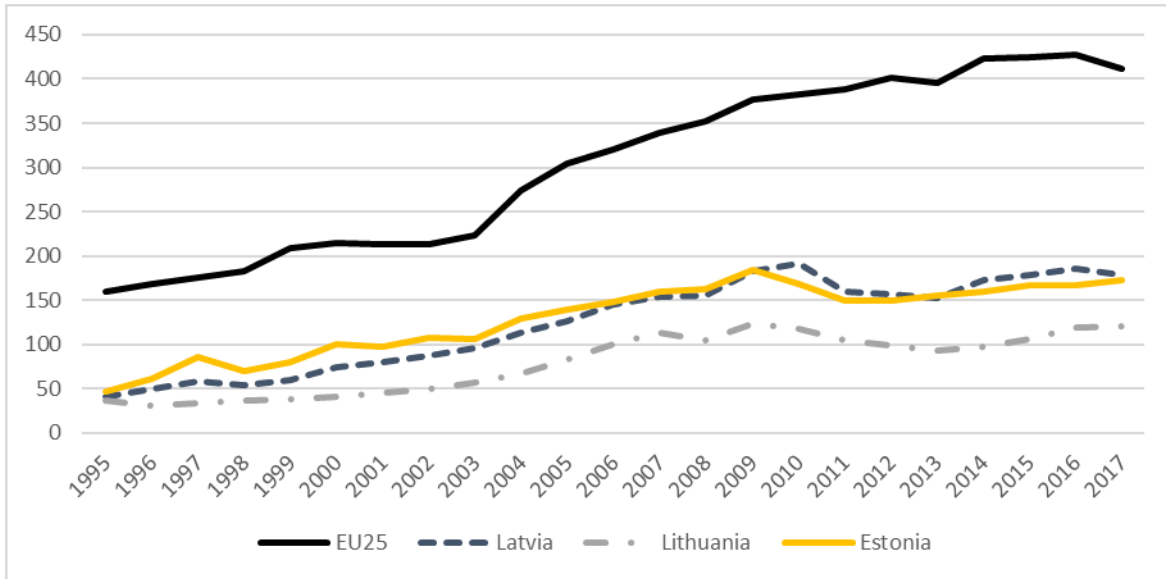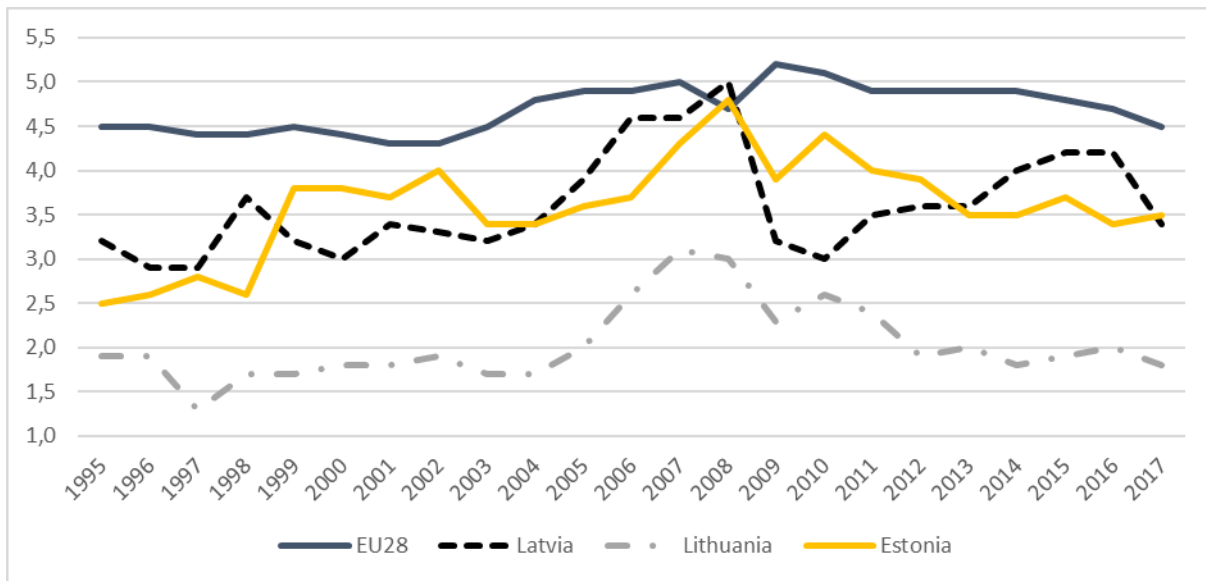
Appendix

Figure A1. Private sector debt as a percentage of GDP, %, 1995-2017

Source: The authors` calculations based on Eurostat data (*Eurostat Database*)
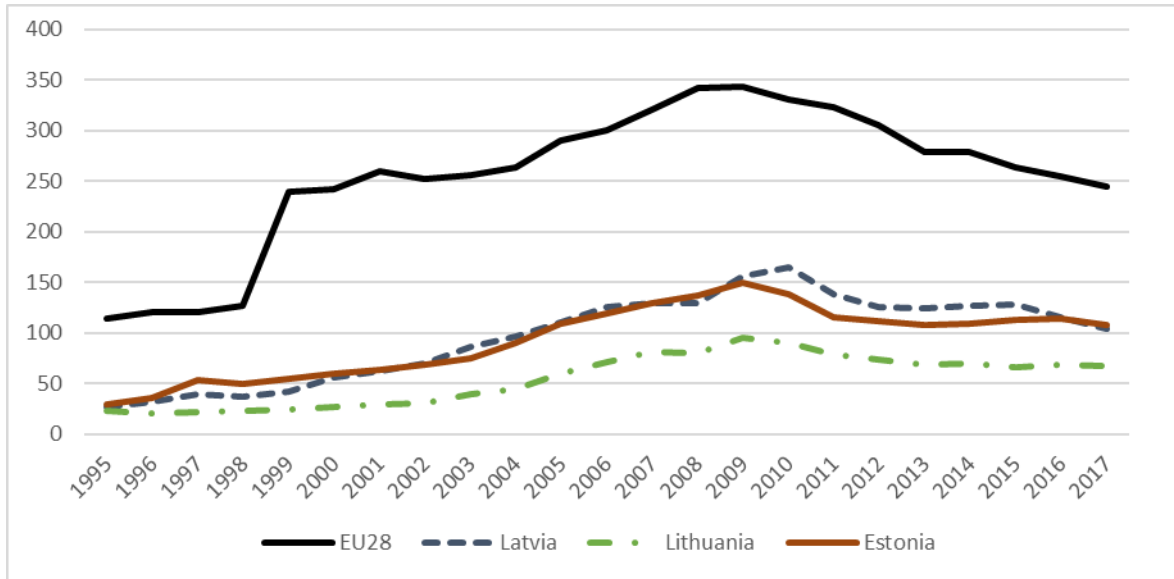
Figure A2. The ratio of the financial sector's assets as a percentage of GDP, %, 1995-2017

Source: The authors` calculations based on Eurostat data (*Eurostat Database*)
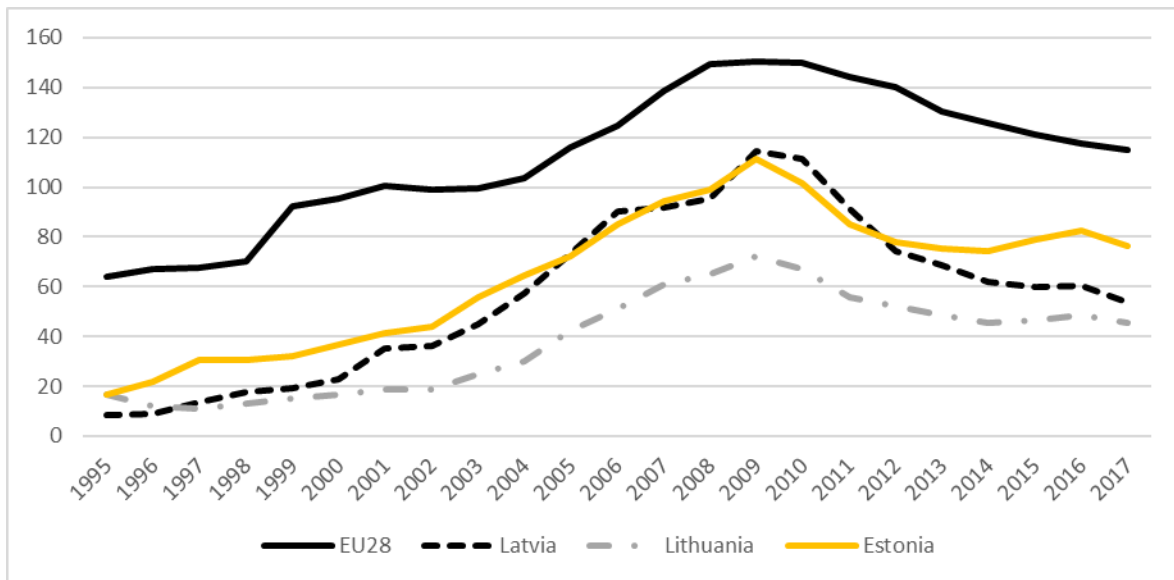

Figure A3. Gross value added and income of "Financial and insurance activities" in GDP (%), 1995-2017

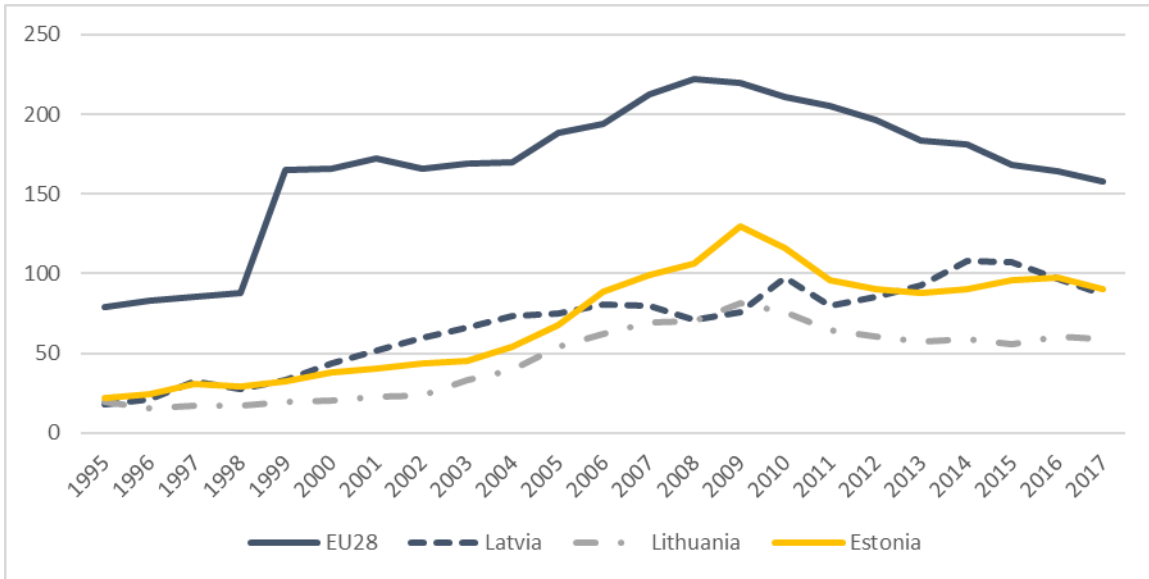*Source*: The authors` calculations based on Eurostat database (*Eurostat Database*)

Figure A4. The ratio of bank assets as a percentage of GDP, %, 1995-2017
Source: The authors` calculations based on Eurostat database (*Eurostat Database*).

Figure A5. The ratio of bank loans as a percentage of GDP, %, 1995-2017

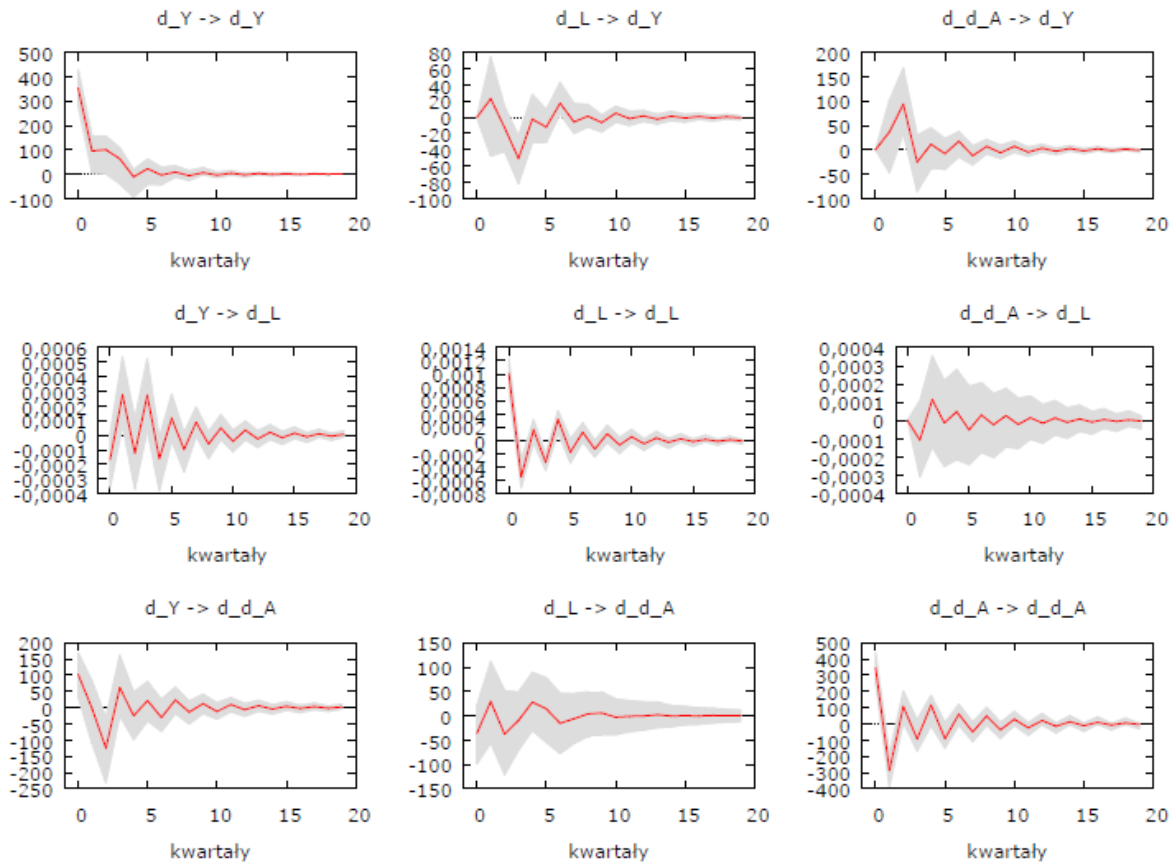Source: The authors` calculations based on Eurostat database (*Eurostat Database*).

Figure A6. The ratio of bank deposits as a percentage of GDP, %, 1995-2017

Source: The authors` calculations based on Eurostat database (*Eurostat Database*).
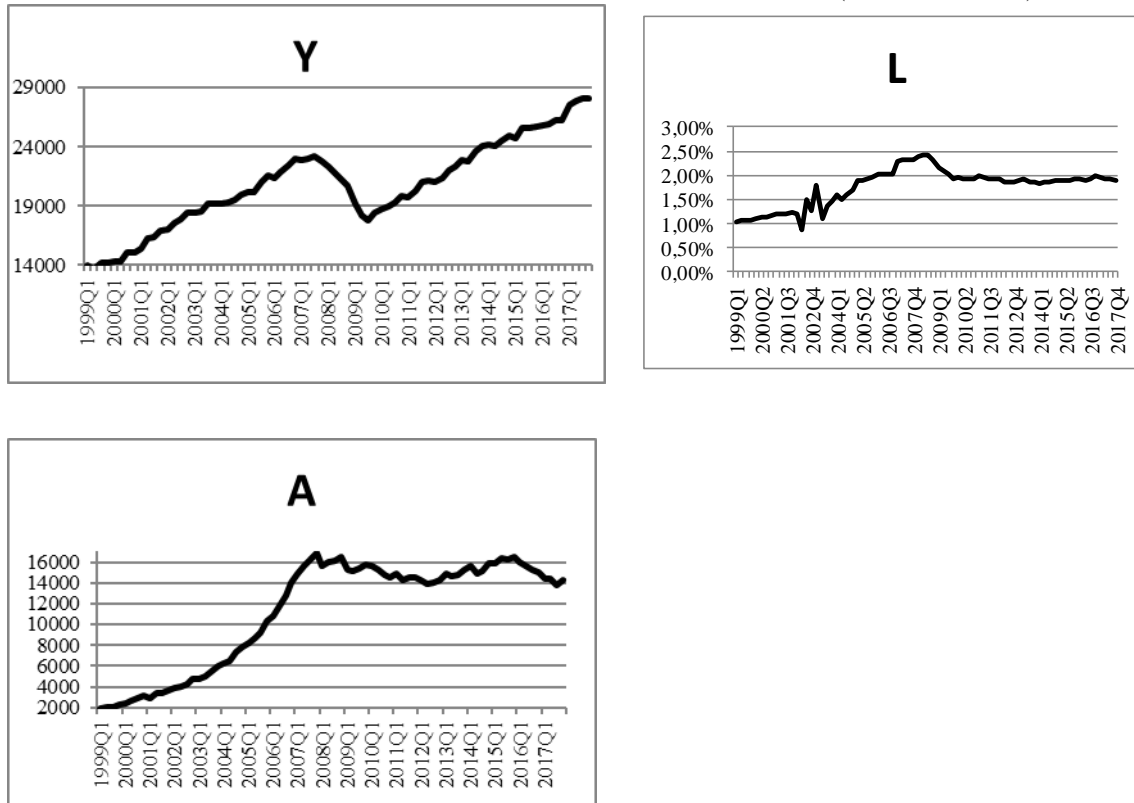
Figure A7. The time series of GDP per capita in constant (2016Q4) prices (Y), Share of employment in the financial sector in the active population (L) and MFI real assets per capita in constant (2016Q4) prices (A) from 1999 till 2017

Source: The authors' own calculations (*Central Statistical Bureau database*)

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Figure A8. Impulse response functions

-"kwartały" - [transl.] quarters

Source: The authors' calculations

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Data Availability Statement: More information and data can be found in the repository on Zenodo:
https://doi.org/10.5281/zenodo.5845662

Author Contributions: Conceptualization: *J.S, R.R.A., M.M., I.D.C, F.S.M.*; methodology: *J.S, R.R.A., M.M., I.D.C, F.S.M.*; data analysis: *J.S, R.R.A., M.M., I.D.C, F.S.M.*; writing—original draft preparation: *J.S, R.R.A., M.M., I.D.C, F.S.M.*, writing; review and editing: *J.S, R.R.A., M.M., I.D.C, F.S.M.*; visualization: *J.S, R.R.A., M.M., I.D.C, F.S.M*. All authors have read and agreed to the published version of the manuscript.

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