

## **Does financial sector development affect economic growth in transition countries?**

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### **1 Introduction**

Differences in annual growth rates, which may seem to be small and without significance, lead into vast disparities in the level of health among countries. During last decade, there has been a great deal of interest in the link between financial sector and economic growth. The birth of endogenous growth theory in the last half of 1980s introduced a suitable background for theories. Economists have also been keen to study the reasons behind exceptionally high growth rates in the USA during the 1990s. In spite of numerous studies, the question of causality between financial sector development and economic growth is not yet settled as the results of the earlier papers have varied to large extent.

This paper examines empirically whether the development in the banking sector has accelerated economic growth in transition economies. The growth performance has varied a lot among the transition countries and there are already numerous studies analysing the determinants of economic growth in these countries (De Melo et al. 1996, Havrylyshyn et al. 1998, 2000, Berg et al. 1999). However, to our knowledge the only study that tests the relation between financial markets and economic growth in transition countries is Drakos's (2002) paper that studies the effects of market structure of banking sector on economic performance. It is thus important to test how other kind of financial financial sector development has effected economic growth in these countries. The question has also some policy implications for transition countries where financial sectors are still undeveloped.

We measure the development in the banking sector by the margin between lending and deposit interest rates and by the proportion of non-performing loans in the economy. These variables have not been used earlier to measure the efficiency of banking sector. In line with nu-

merous earlier studies our third variable for financial sector development is the amount of bank credit allocated to private sector. The study uses an unbalanced panel data from 25 transition countries covering the period 1993-2000 and to analyse the finance-growth nexus we use fixed effects panel model.

Our findings support the view that financial sector development accelerates economic growth. The interest rate margin is significantly and negatively related to economic growth. This finding is parallel with theory, which suggests that economic growth will get faster when transaction costs get lower and bigger share of savings is channelled into investments. This is also an important policy implication since banking sector reforms and the interest rate margin are negatively correlated.<sup>2</sup> The amount of non-performing loans is also negatively related to growth rate. As the non-performing loans describe the amount and quality of information that banking sector has collected and analysed, this result is in line with theoretical models, which indicate that the information that banking sector produces is positively linked to productivity of investments. The third variable, the amount of credit, is, to our surprise, negatively related to economic growth. This is contrary to many earlier results and can reflect the numerous banking crises transition countries have been into. It also confirms our thoughts about the difference between the qualitative and quantitative development of financial sector. Even though this result suggests that the quantitative development has been harmful for economic growth in transition countries, our results show that qualitative development is important for economic growth.

The rest of the paper is organised as follows: In section II we make a short presentation of earlier theoretical and empirical research work done in the area. Section III presents the data used in this study and section IV summarises the results. Overall conclusions follow in section IV.

## **2 Earlier literature**

### **2.1 Theoretical background**

There are both theoretical and empirical evidence suggesting that the development of financial sector accelerates economic growth. Bagehot discussed relationship between financial sector development and economic growth already in the 19<sup>th</sup> century. Schumpeter (1934) stressed the role of banking sector as a financier of productive investments and in that way, as an accelerator of economic growth. Most of the relevant theoretical models have been, however, developed after the

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born of endogenous growth theory. Basic AK-model developed from endogenous growth theory finds three ways by which the development of financial sector can affect economic growth. First, it can increase the productivity of investments. Secondly, more efficient financial sector reduces transaction costs and thus widens the share of savings channelled to productive investments. Thirdly, the financial sector development can affect saving rate, either upwards or downwards (Pagan, 1993.).

Greenwood and Jovanovic (1990), Levine (1991), Bencivenga and Smith (1991) as well as Saint-Paul (1992) have constructed theoretical models in which an efficient financial market improves the quality of investments and thus accelerates economic growth. In the model of Greenwood and Jovanovic (1990) financial intermediaries' prime task is to channel funds to the most profitable investments with the help of collected and analysed information. Higher rate of return to be earned on capital promotes growth and economic growth in turn provides the means to implement costly financial structures.

Financial sector also improves liquidity of investments. In the model of Levine (1991), the stock markets improve firm efficiency because they eliminate the premature liquidation of firm capital. In the case of liquidity shocks, the investor can sell the shares to another agent. The stock markets influence growth also by increasing the fraction of resources allocated to firms by allowing agents to diversify productivity risk and thus encouraging risk-averse investors to invest more in firms. Both of these ways accelerate the economic growth. In the model constructed by Bencivenga and Smith (1991), the financial sector increases liquidity of investments and decreases the premature withdrawals of investors, which are harmful to economic development. If the financial markets work properly, investments to the non-liquid objects, which are more productive to the economy, increases.

The outcomes of investments are uncertain and bank is needed to diversify the risks. According to Saint-Paul's (1992) model, productivity growth must be achieved through a greater division of labor and specialisation of enterprises. The greater specialisation, however, causes a greater risk. The role of financial intermediate is to support enterprises in specialisation by permitting investors to hedge by holding a diversified portfolio. Without working financial sector, specialising would be too risky for an individual investor and efficiency improving projects would be left without financing.

Savings are not completely allocated to investments because a part of them is consumed in transaction costs. Blackburn and Hung (1996) have found two-way causal relationship between growth and financial development. Without intermediates every single investor should individually monitor a project and the costs of monitoring would duplicate. If the financial sector,

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<sup>2</sup> Correlation rate between the banking reform index of EBRD and interest rate margin is  $-0.57$ .

however, is developed, the monitoring task can be delegated to an intermediary. In this case, transition costs are reduced and bigger share of savings can be allocated to investments that produce new designs. This accelerates economic growth. Blackburn and Hung also show how a country can be trapped in a vicious circle of low economic growth and low financial development. This happens if the initial technical development in the country is very low and the expected flow of new designs remains low. In this case the monitoring costs remain too high for financial intermediation to be organised and economic growth remains low. Harrison (1999) argues in his paper that economic growth increases banks' activity and profits and promotes entry of more banks. This entry shortens the average distance between banks and clients and thus lowers transition costs.

According to endogenous growth theory, the higher the saving rate the higher economic growth. It is known, that development of financial sector can affect the saving rate at least by three ways. First, by reducing idiosyncratic risks finance markets might lower the level of precautionary saving by households and thus the growth rate (Tsuru 2000). Second, a reduction in rate-of-return risks by portfolio diversification can have ambiguous effects on saving (Tsuru 2000). Thirdly, by lowering liquidity constraints the development in financial sector may lower saving rate. Jappelli and Pagano (1994) have developed a model in which younger generation borrow much more if the liquidity constraints are absent when consumer credit and mortgage markets are liberalised.

## **2.2 Empirical studies**

There is a vast number of empirical studies committed about the relationship between the financial sector development and economic growth (Levine 1997, Thiel 2001). Goldsmith's work (1969) provided first evidence that financial development accelerates economic growth. However, the measure (deposits/GDP) he used for financial sector development was very simplified and the direction of the causality was not assessed. King and Levine (1993) researched cross-country data of 80 countries. They measured the financial sector development by four measures: The first measure describes the amount of liquid liabilities divided by GDP. Second tells the importance of commercial banks in relation to central bank when allocating credit. Third variable equals the ratio of credit allocated to private enterprises to total domestic credit and fourth variable equals credit to private sector divided by GDP. After controlling other factors effecting economic growth, King and Levine found a strong positive relation between each of the financial development indicators with economic growth. Levine and Zervos (1996, 1998) researched in addition to banking sector also the role of stock markets by cross-country analysis. They found out that stock market liquidity and bank

development are robustly correlated with economic growth. However, the variables measuring the financial sector development and thus the research of causality in these studies were strongly criticised by Rajan and Zingales (1998). They argued, that both the growth of financial sector and economic growth can be driven by a common variable such as the saving rate. The amount of credit and size of stock market may also predict economic growth because financial markets anticipate future growth. Rajan and Zingales researched if the enterprises that need external financing develop faster in the countries where financial sector is well-developed. Their study also supported the hypothesis that the causality runs from financial development to economic growth.

As we have seen, research work committed by using cross-sectional data tend to find a causal relationship from financial sector development to economic growth. However, the cross-country regression have been criticised because of its tendency of not taking into account large differences between countries (Arestis & Demetriades 1997, Neusser & Kugler 1998). Also the instability of long time series may weaken the reliability of results (Quah 1993). Quite often economists have also been sceptical about the ability of cross-country regressions to explain the direction of causality. Rousseau and Wachtel argue (2000) that often components, even pre-determined, measuring financial sector development, remain correlated with the contemporaneous measures. In addition, GDP growth rates tend to be serially correlated and for these reasons, cross-country analysis do not remove all doubt of direction of causality according to Rousseau and Wachtel.

In recent years, several studies have used time-series modelling framework. Results from these studies are not so unanimous about the role of financial sector development in economic growth. Demetriades and Hussein (1996) found that half of countries exhibited two-way effects between economic growth and financial sector, and in rest of countries the relation ran from economic growth to financial development. Also Arestis ja Demetriades (1997) found out that the long-run causality between financial sector and economic growth may vary across countries. Shan, Morris and Sun (2001) found same kind of evidence when using causality procedure. Rousseau and Wachtel (1998) researched data from 5 present OECD countries at the time of fast industrialisation (1871-1929). They found strong evidence of one-way causality from finance to growth. On the other hand, Neusser and Kugler (1998) studied OECD countries during 1960-1993 and could not find strong evidence that development in financial sector would affect economic growth. Beck, Levine and Loayza (2000) found in their dynamic panel analysis that banks exert a strong causal impact on economic growth. Also Leahy et al. (2001) identified a positive and generally significant relationship between financial development ant the level of investment. When added to result that investment contributes directly to economic activity and growth (Bassanini et al. 2001), the authors see financial development as having a role in the growth process. Rousseau and Wachtel (2001) have studied how inflation affects the finance-growth nexus. They argue that the information about

investment projects becomes more uncertain in an inflationary environment and thus makes financial intermediation more difficult. High inflation can also repress financial intermediation by eroding the usefulness of money assets. In their empirical research it is shown that when inflation exceeds the 15 to 25 % range, financial deepening ceases to increase economic growth. Their results are relevant also for transition countries, where inflation rates were extremely high especially in the beginning of the transition process.

As we have seen, the findings of numerous cross country studies that financial development accelerates economic growth have been severely threatened by time-series models, some of which have found two-way or even reverse causality. Also the size of data seems to have affected the results. Papers, which use large data consisting of both rich and poor countries, normally find causal relationship from financial market development to economic growth. But on the other hand, economists who have empirically researched smaller groups of relatively homogenous countries have got results that are quite the opposite. Most of the studies have used the size of the financial sector as a measure of its development. However, that measure can be criticised because the amount of credits do not necessarily tell about the effectiveness of financial sector. It is possible, for example, that the quality of credit stock is inversely related to its size and thus the size of the banking sector can also be a misleading variable when studying the nexus between financial development and economic growth. The amount of credit can grow when banks allocate more credits if faster economic growth is expected. However, most of the studies indicate that the size of financial sector can affect economic growth. The reason for this could be that in high-income countries not only the size of the financial sector is normally larger than in low- or in middle-income countries but also the efficiency of the financial sector is higher. In this case, the size of the financial sector is correlated with its efficiency and both are correlated with level of income. But when we study countries, which are quite similar in their income level, the efficiency of the sector is forgotten and only the size is measured. These studies have not found causality running from financial sector to economic growth and the size of the financial sector does not seem to affect economic growth. In this study we have tried to avoid this problem by using new variables to measure financial sector development.

### **3 Data**

We analyse the link between banking sector development and economic growth in a panel of 25 transition countries. Data has been collected for period 1993-2000. The short period of time is unfortunate but can not be avoided when researching economies in transition. Unfortunately due to

lack of information the equity or debt markets can not be analysed. On the other hand, they are not that significant channels of financing in transition countries. Thus, the overall picture of the relation between development in financial sector and economic growth in transition countries should not be seriously disturbed.

We measure economic development by the annual real GDP growth rate. The development of financial sector is a complex concept to be to be measured. As we have mentioned earlier, most of the earlier studies measure the development by using a variable that measures the size of the financial sector. However, the size does not necessarily tell about the effectiveness of the sector, and mere growth of financial sector can not be necessarily considered as development. And as we have also earlier noted, the size of the financial sector may be correlated with the economic growth due to same factors underlying behind both of them.

In this study, we want to think the development be more qualitative than quantitative phenomenon and we use two new variables to measure banking sector development. These variables are closely linked to the theoretical models presented above. Our first variable, INT, measures the difference between deposit and lending rates in the bank market. We think that the margin is a good estimator for efficiency in the banking sector as it describes the transaction costs in the sector. When the margin decreases due to a decrease in transaction costs, the share of savings going to investments increases. As we can think economic growth to be positively linked to the amount of investments, the decrease in transaction costs accelerates economic growth. This variable is thereby closely linked to the theoretical models of Blackburn and Hung (1996) and Harrison et al. (1999). To the best of our knowledge, this variable has never been empirically tested before. We use the interest rate margins from the Transition Reports published by the EBRD.<sup>3</sup>

Our second variable is linked to the theoretical model of Greenwood and Jovanovic (1990) as it measures the amount and quality of information that banking sector produces. To measure the validity of the information, we have a variable NP which tells the amount of non-performing loans as a percentage of all loans. This variable is able to tell us how an efficient banking sector, which has been capable to evaluate investment projects, affects economic growth. We do not know any study using this variable either. The data is derived from the Transition Reports of the EBRD.

We use also the third variable, familiar from earlier studies. This variable measures the size of the banking sector like most of the earlier studies have done. CREDIT equals the claims on the private sector by deposit money banks divided by GDP. The data is based on the IMF's In-

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<sup>3</sup> Unfortunately, deposit and lending rates are not for similar period for each country. But the overall size of the margin should not be affected so much by the lending/deposit periods and as the differences in margins between and within countries are big, a small error in the margins should not disturb the results. The IMF has also reported lending and deposit rates but unfortunately this information is not available for all transition countries. When tested, the results stay the same if I use the IMF data.

ternational Financial Statistics cd-rom. Unlike many studies, which use ratio of broad money to GDP as an empirical proxy of financial sector development, CREDIT excludes credits by development banks as well as loans to the government and public enterprises. However, for the reasons we have already mentioned earlier, this variable as a measure of financial development can be strongly criticised.

To control the other factors behind the economic growth we have different control variables. The reform index, RI, consists of five indices published by the EBRD. The indices are measuring large scale and small scale privatisation, price liberalisation, forex and trade liberalisation as well as competition policy. For each country, we have taken a simple average of these indices. The bigger the index is for a country, the more advanced the country is in regard to the reforms in these five areas. Due to the character of the reforms that their positive effects on economy can be seen with a lag of one or two years, we also use one-year-lagged reform index in this study. Inflation is measured by the consumer price index. The effects of inflation and reforms on economic growth have been found significant already in the earlier analysis of economic growth in transition countries (De Melo et al. 1996, Havrylyshyn et al. 1998, Berg et al. 1999).

In addition to macroeconomic variables and variables describing progress made in regards to structural reforms, it has been found that the initial conditions at the beginning of transition have also been important for the later economic development. (De Melo et al. 1996, Havrylyshyn et al. 1998, 2000). However, in this work we do not use the initial conditions as control variables due to our research period, which does not start until 1993.

**Table 1. Summary statistics 1993-2000.**

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Obs
INT	22,25	11,30	400,00	-21,40	43,65	177
INT*	15,55	10,60	74,20	-0,30	13,18	163
NP	19,77	15,20	92,30	0,20	15,49	149
CREDIT	0,18	0,13	0,80	0,00	0,15	167
RI	2,68	2,87	3,80	1,00	0,71	200
INF	416,20	20,00	10896,00	-7,60	1532,18	200
GDP growth	0,29	2,70	17,60	-31,20	7,91	200

Notes: INT = Difference between lending and deposit interest rates as percentage points. NP = The amount of non-performing loans as a percentage of GDP. CREDIT = Ratio of bank credit to private sector to GDP. RI = Reform index. INF = Annual consumer price index as percentages. GDP growth = Real GDP growth rate.

\*) When 14 outliers removed from the data

## 4 Estimation results

To analyse the finance-growth nexus, we use fixed effects panel model. This selection is reasonable when our data consists of the whole population of transition economies. Wachtel (2001) criticises the use of country fixed effects when researching causality between financial sector development and economic growth. In his view, the fixed effects dominate the equation as the differences between countries in finance ratios are more important than differences over time. However, in the transition economies, this is normally not the case. The banking sector in these countries has developed quickly and thus also the variables differ considerably in time.

The results from panel estimations are presented in Table 2. As we can see, the financial sector development when measured by interest rate margin or by the amount of non-performing loans exerts a positive impact on economic growth. The results have also significant policy implications. Out of the control variables, reform index seems to have always a positive sign as expected although in two out of five regressions RI is not statistically significant. Inflation affects GDP growth negatively, just as expected. In all but one regression, inflation is significantly related to the growth.

In the first regression, the margin between deposit and lending rates is negatively and statistically significantly related to the economic growth when control variables, inflation and reform index, are included to the model. This means that the smaller the interest margin the faster the economic growth. The result is in line with the theories presented earlier. Theories of Blackburn and Hung as well as the one of Harrison et al. support the result particularly well. When the banking sector is more efficient, transaction costs decrease and the margin between lending and deposit rates gets smaller. This increases the share of savings allocated to investments and according to endogenous growth theory it leads to faster economic growth.

The result is significant also economically. If, for example, Bulgaria's average interest margin had been at the average of the transition countries (23 percentage points) instead of actual 51 percentage points during the period 1993-2000, Bulgaria's annual GDP growth would have been 1.2 percentage points higher. In two extreme cases, the average interest margin in Estonia has been 4.1 percentage points and in Tajikistan 74.7 percentage points. According to the results, the GDP of Estonia has grown 3 percentage points faster annually than the GDP of Tajikistan due to the difference in interest margins.

When we take the logarithms of interest rate margins the results remain quite the same. INT is still statistically significant as are RI and INF whose coefficients also remain un-

changed. Now, Bulgaria's GDP would have grown 1.4 percentage points faster annually. When taking the logarithms we lose five negative observations out of data.

The data includes a few interest margin observations that differ considerably from other data. In the 5<sup>th</sup> regression we leave these 14 outliers out.<sup>4</sup> Now, the average interest margin is 15.4 percentage points in the data. This causes some changes to results. The reform index and inflation are no longer statistically significant and the coefficient of reform index is remarkably lower. On the other hand, the coefficient of interest rate margin is now even higher and it is statistically significant. This means, that the effect of financial development on economic growth increases. For example, Georgia, which now has the highest average margin (34,5 percentage points) would have grown annually 4.6 percentage points faster if its interest margin had been on the average level of the data according to the results.

In the second regression we see that also the amount of non-performing loans is negatively connected to the economic growth. This outcome supports the theoretical model of Greenwood and Jovanovic, which indicates that efficient banking sector can choose the most productive investment projects and thus improve the effectiveness of the economy. Also these results are economically significant. If, for example, Romania's average share of non-performing loans of all loans had been the average of the transition countries (19,8 %) instead of actual 37 % during the period 1993-2000, Romania's annual GDP growth would have been 1.9 percentage points higher.

The amount of credits allocated to the private sector is negatively associated with the economic growth. The result differs from the earlier results. Even though the papers which have studied small groups of countries of approximately same income level have not found causality from financial sector to economic growth, none of them have reported results, which indicate quantitative financial sector development to be harmful for economy. If we think about the reasons behind the negative coefficient of CREDIT we find out that the negative coefficient may be due to numerous banking crisis in the transition countries in 1990s. So, the growth in the amount of credits have rarely been sustainable in transition economies and due to lack of capable banking supervision the crisis have been quite severe.

Overall, the results support the banking sector reforms and the development of the sector is found to be useful for the economy. Although the amount of credit is negatively linked to GDP growth it does not necessarily mean that quantitative development would be harmful. Reason for the result may be numerous banking crises in transition economies.

When we look at the individual dummies for each country we notice that they are statistically significant in the 3<sup>rd</sup> regression. We can thus notice that Wachtel's (2001) argument about

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<sup>4</sup> Removed observations are Azerbaijan 1993-1994, Bulgaria 1996, Russia 1995-1996, Tajikistan 1995-2000, Turkmenistan 1993-1995

the relatively stable level of monetarisation and of amount of credit in one country to be true also in the case of transition economies. The individual dummies seem to be significant also for major part

**Table 2. Development in financial sector and growth: fixed effects panel regressions**

Regressors	(1)	(2)	(3)	(4)	(5)
RI <sub>t</sub>	6.1436 (0.003)	3.9476 (0.148)	7.3848 (0.000)	4.7192 (0.023)	2.4926 (0.165)
INF	-0.0008 (0.096)	-0.0033 (0.000)	-0.0007 (0.099)	-0.0008 (0.070)	0.0010 (0.162)
INT	-0.0424 (0.000)				-0.238 (0.000)
LogINT				-4.8230 (0.006)	
NP		-0.1109 (0.072)			
CREDIT			-14.136 (0.038)		
n	25	22	22	25	24
Number of observations	177	149	167	172	163
R <sup>2</sup>	0.48	0.49	0.49	0.50	0.50
WALD 1	43.73 (0.000)	42.86 (0.000)	38.08 (0.000)	30.39 (0.000)	73.40 (0.000)
WALD 2	36.65 (0.062)	9.252 (0.992)	29.77 (0.124)	310.2 (0.000)	191.4 (0.000)
AR (1)	2.099 (0.036)	1.857 (0.063)	0.8284 (0.407)	2.058 (0.040)	1.693 (0.091)
Albania	-10.40*	0.43	-13.17***	-1.78	2.28
Bulgaria	-14.75***	-9.35	-18.21***	-6.45	-0.78
Croatia	-14.90**	-6.23	-14.15**	-11.78	-1.19
Czech Rep.	-20.01***	-10.43	-16.68**	-8.18	-6.06
Estonia	-16.14**	-8.71	-17.75***	-7.26	-3.24
FYR Maced.	-16.05***	-7.09	-16.05***	-9.98	-2.14
Hungary	-18.00**	-9.34	-18.95***	-7.71	-4.35
Latvia	-16.63***	-7.61	-19.05***	-9.31	-2.78
Lithuania	-18.53***	-8.90	-21.30***	-7.33	-3.52
Poland	-15.45**	-5.91	-17.52***	-5.72	-1.91
Romania	-14.77***	-6.20	-21.73***	-9.18	-1.13
Slovakia	-17.43**	-6.56	-17.30***	-6.42	-3.70
Slovenia	-14.46**	-7.12	-14.40**	-0.97	-1.87
Armenia	-9.75*	-1.52	-11.65**	-2.75	3.01
Azerb.	-12.34***	-7.56	-15.93***	-0.73	2.41
Belarus	-8.55**	-3.03	-10.21***	0.69	4.08
Georgia	-8.98	-3.12	-15.05***	-8.34	7.51
Kazak.	-16.40***	-9.49	-18.48***	-2.45	-4.17
Kyrgystan	-12.33*	-8.00	-18.69***	-11.73	3.54
Moldova	-20.08***	-14.03*	-24.12***	-6.33*	-7.76
Russia	-15.48**	-9.43	-22.33***	-3.32	-0.40
Tajikistan	-9.74**			2.19	
Turkmenistan	-7.19**			-11.84*	-3.92
Ukraine	-18.33***	-5.91	-21.88***	-3.07	0.92
Uzbekistan	-11.70**				

P-values in parentheses.

For individual coefficients: \* indicates significance at the 10 percent level, \*\* at the 5 % level, and the \*\*\* at 1 % level.

of countries in the 1<sup>st</sup> regression. However, the significances are lower in the other regressions and in the 4<sup>th</sup> and 5<sup>th</sup> regressions, where the interest rate margin also is studied, the dummies lose statistical significance.

## Conclusions

This paper examined the link between banking sector development and economic growth in transition economies. We used fixed effects panel model and data from 25 transition countries in 1993-2000. We used three variables to measure financial sector development. To avoid the problem that the size of the sector is not necessarily a valid measure of financial sector development, we have two variables closely linked to the theoretical models. Both the interest rate margin and the amount of non-performing loans are negatively and significantly associated with economic growth. The results are consistent with theoretical models, which say that efficiency of banking sector is important for economic growth. Lower margin reflects lowered transaction costs and increases investments in the economy. Smaller amount of non-performing loans refer to more efficient banking sector that improves the productivity of investments. The results are also important in regards to policy implications. As we have seen earlier, the results are economically significant as the economic development can be considerably intensified if the financial sector efficiency is improved.

Our last variable, the amount of bank credit allocated to private sector, is negatively associated with economic growth in transition countries. This outcome is contrary to earlier outcomes and probably reflects numerous banking crises in the transition economies during the research period. However, when interpreting this result we must bear in mind that the size of the financial sector is not a valid variable to measure the development of financial sector. The size of the sector can grow due to policy changes or due to anticipation of economic growth without any changes in the efficiency of the financial sector.

Overall, our results are in line with theoretical models which indicate that financial sector development can accelerate economic growth by raising the share of savings channelled to investments or by improving the productivity of investments or by affecting saving rate. It would be also useful to see empirically how investments, productivity and saving rate are affected by the development of financial sector. However, due to data limitations, we could not yet answer to that question.

We have not conducted an analysis about the relation between equity market development and economic growth. In the future work, it would be useful to test the relationship between equity market and economic growth in transition countries. Overall, the equity and debt markets in

transition economies are far from well-developed and financing is very much done by banking sector.

Due to the small number of countries and shortness of studied period it would be interesting to expand this study to cover more countries. Then we could supplement the earlier papers that have almost forgotten to study how qualitative development of financial sector affects economic growth. We may then be able to give more common policy recommendations to countries and not be limited in transition countries, which are, however, quite a limited section of countries.

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## Appendix 1. List of the Countries

Albania	Georgia	Romania
Armenia	Hungary	Russia
Azerbaijan	Kazakhstan	Slovak Rep
Belarus	Kyrgyzstan	Slovenia
Bulgaria	Latvia	Tajikistan <sup>2</sup>
Croatia	Lithuania	Turkmenistan <sup>1</sup>
Czech Rep.	Moldova	Ukraine
Estonia	Poland	Uzbekistan <sup>1</sup>
FYR Macedonia		

<sup>1</sup>) Turkmenistan and Uzbekistan are included only in the first, fourth and fifth model due to lack of data.

<sup>2</sup>) Tajikistan is only included in the first and fourth models due to lack of data.