AN ALTERNATIVE VIEW ON CENTRAL BANK TARGETING IN TRANSITION ECONOMIES: THE ROLE OF THE FINANCIAL SECTOR

by

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Abstract

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The author argues that effect of monetary policy on real economy is too uncertain and lagged to use economic growth as direct target of monetary policy, while accepting price stability as a sole target will be costly. He suggests adopting financial system development as an intermediate target, since this sector is very important for economic growth, it is easy to control and monitor it. Special attention is paid to one particular feature of the financial sector: the role in transmission of monetary policy from the Central Bank to the real economy. Institutional settings, which determine the shape of the financial system and effectiveness of monetary policy are found. The author constructs index of predicted effectiveness of the monetary policy for 11 countries in Eastern Europe and traces positive correlation of this index with economic development that supports his hypothesis. This model will be especially important for transition economies, where the financial system is poorly developed and the authorities tend to implement financial repression.

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GLOSSARY

Financial sector – banking sector and security markets.

Financial repression – specific set of policies involving a variety of controls on the activities of the main financial institutions in an economy.

Instruments of monetary policy (or operating targets) – set of variables, which are under the most direct control of the Central Bank and will highly affect intermediate and ultimate targets.

Mechanism of monetary policy transmission – specific ways, through which money supply affects economic activity

Interest rate channel of the monetary policy transmission mechanism – channel, which affects cost of funds through changes in interest rate. Cost of funds in its turn will determine investment and saving decision and hence aggregate demand.

Exchange rate channel – changes in exchange rate market affects economic activity through relative price effect and cost of external debt.

Asset price channel – level of asset prices will affect economy through q-effect (market price of companies) and wealth of households.

Credit availability channel – monetary policy will affect amount of credits, available for borrowers; will act through moral hazard and adverse selection.

Chapter 1

INTRODUCTION

The transformation of post-socialist countries implies wide changes in institutional settings. The Central Bank and the financial sector of the economy are one of such institutions. The role and functions of these bodies underwent significant modifications during past years: transition countries started from one-tier financial system and try to achieve new level, which could be adequate for market economy. Although with different degree of success, transition economies managed to create and develop new financial markets and institutions, which didn't exist before, practice modern services and implement a market-based approach to monetary policy. As they develop further, transition countries of Eastern Europe will become more integrated with the rest of the world and particularly with the European Union. In light of these factors analysis of new institutions in transition economies becomes extremely important.

In my work I study the importance of the financial sector for monetary policy of the Central Bank and suggest using it as an intermediate target. In this paper I pay special attention to one particular feature of the financial sector: it's significant role in the transmission of monetary policy from the Central Bank to the real economy. I argue that if the financial sector stays rudimentary, authorities will be able to easily extract money from it and use it as a source of funds to finance budget deficit and make subsidies to state enterprises. But this situation will bear large costs for the economy and for the effectiveness of transmission mechanism of monetary policy specifically. The Central Bank is able to determine the shape of financial sector in many ways, both through direct and indirect regulations and it has to be aware of danger of overregulating financial sector to the level of financial repression, when it won't be able to function well and transmit monetary policy effectively and predictably. In my work I distinguish major factors, which will prevent the

financial sector from effective transmission of monetary policy. Further, I recognize the need for some kind of measure of monetary policy effectiveness. Some works on this topic were done for countries of European Union, but they can not be accepted completely, since they do not take into account specific features of the transition economies. Using the basic framework of these studies I build an index of likely effectiveness of monetary policy, which is applicable for transition economies.

The remainder of the paper provides the building blocks for my arguments. In Chapter 2 first of all I talk about traditional price-output Central Bank targeting, which is actually more theoretical now. Than I discuss necessity of new approach and suggest to use financial sector development as intermediate target. Importance of such targeting in transition economies is emphasized than. Special attention I pay to the role of financial sector in transmission mechanism of monetary policy. In Chapter 3 I overview theory of monetary policy transmission mechanism and analyze what factors will prevent financial system from efficient transmission of monetary policy. I argue that financial sector in transition economies will play much more broader role in transmission mechanism than traditionally accepted. In Chapter 4 I use indicators, determined previously to construct an index of likely effectiveness of monetary policy for 11 transition economies in Eastern European area and analyze what factors cause different results in index of monetary policy effectiveness.

Chapter 2

CENTRAL BANK TARGETING.

2.1. TRADITIONAL TARGETING OF CENTRAL BANK

Orthodox theory of the monetary policy states that the Central Bank should trace two main goals: minimize inflation rate and maximize aggregate output level (or sometimes minimize unemployment). In doing so, it faces certain trade-off, since disinflation is somewhat costly for output. Reasons for such trade-off are price-wage spiral, staggered price setting, credibility problems, adaptive expectations (Balls, 1991). Model of the utility function of the Central Bank is usually presented as having two components: inflation rate and GDP growth. The Central Bank tries to find optimal policy, which will create economic situation that stimulates output, but without high inflation rate.

The question, which remained open for a long time, is "what monetary policy can do and what it can not." Should the Central Bank set real economic outcomes, i.e. production, employment, trade as its targets or concentrate on nominal objectives, such as prices, exchange rate, performance of the financial sector? Economists tend to agree that monetary policy is unable to achieve real outcomes directly and even that setting real targets may not only improve, but actually worsen real performance (Tobin, 1983). The point is that aggregate output is primary determined by supply and productivity of labor and capital, which are not under direct control of the Central Bank. Besides that transmission of monetary policy is too lagged and uncertain. Shocks, coming both from demand and supply sides, will affect it. Demand side shocks can be of external and domestic nature: fiscal actions, shifts in desired investment, changes in consumption of durable goods. Supply side shocks affect prices directly: it can be increase in world prices (such as oil prices in 1970's), changes in technology, shifts in world trade, natural disaster. Next

factor is that effect of monetary actions may take long time, like 24 months or longer. Moreover, since various economic factors and actions of other authorities obscure effect of the Central Bank activity on aggregate output, the Central Bank has little incentives to set and pursue an output target.

In light of these arguments, Central Banks tended to select price stability as the sole objective of their policy. This can be seen from Table 1, where I present objectives of some Central Banks in transition countries.

Table 1. Objectives of the Monetary Policy in Selected Transition Countries.

Country	Legislated prime objectives
Bulgaria	Currency stability
Czech Republic	Currency stability
Hungary	Internal and external currency stability
Latvia	Price stability, facilitate circulation and allocation of assets
Lithuania	Currency stability, support policy of government
Poland	Price stability and banking sector stability
Slovenia	Currency stability
Slovak Republic	Currency stability

Source: data is taken from according websites of Central Banks

For detailed data source see Data Appendix

But there are costs of selecting only price stability as objective of monetary policy in transition economies. As was noted at the meeting of senior central bankers at Bank of International Settlements these costs are following: First of all, concentration of output on relatively narrow range of products combined with undeveloped financial sector will lead to high vulnerability to internal and external shocks. Second, if financial sector stays rudimentary, authorities may use monetary policy to credit selected privilege sectors of economy (Kamin, Turner, Van'tdack, 1997).

In this circumstances the Central Bank has to adopt one more intermediate target with three important features. First of all, it should be under direct control of the Central Bank. Second, results of Central Bank actions should be clearly monitored from this target. Third, intermediate target should be highly correlated with economic growth.

2.2. FINANCIAL SECTOR AS INTERMEDIATE TARGET.

Object that has all three features, especially crucial for transition economies and can be adopted as intermediate target, is development of the financial sector. In this case utility function of the CB will have two components: price stability and stability of the financial sector. Having monetary policy tightening, the Central Bank can achieve disinflation, while easing its policy it can promote growth of the financial sector. By coordinating its actions, the Central Bank can create conditions for economic growth.

Talking about three features, necessary for intermediate target, it should be noted that the first two arguments are quite obvious: financial system is highly influenced by the Central Bank either through direct control or indirect regulations, which determine the shape of the system; consequences of the Central Bank actions can be easily seen from the financial sector performance.

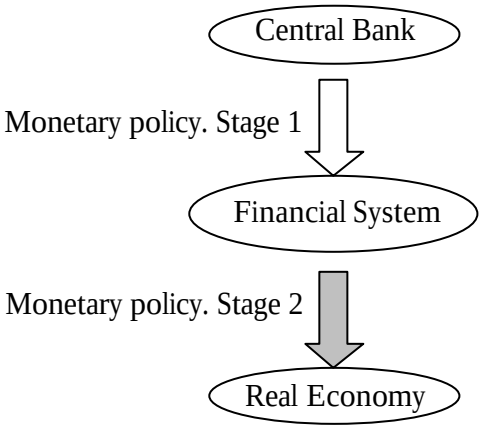
Third factor - importance of the financial sector for economic development, is much more interesting for discussion. I distinguish two important features of financial system: first, more traditional, as a channel of funds and facility, which reduces information, uncertainty and transaction costs; second is it's significant role in transmission mechanism of monetary policy.

There is no single opinion on the role of the financial sector for economic growth. Some economists do not believe that financial development is important for economic growth. Robinson (1952), states that the financial sector will adjust automatically to the real sector needs and will not play crucial role. Lucas (1988) argues that economists tend to overestimate the role of finance. Moreover, in their collection of essays such development economists as Chandavarkar (1992) and Stern (1989) neglect the financial

sector and do not mention it at all. But most economists tend to agree that financial system does play significant role in economic development. Bagehot (1873) and Hicks (1969) argue that financial system was crucial factor in industrial revolution in England. According to Schumpeter (1912), banks will identify the best enterprise with the most innovative products and thus will promote technological improvements. Levine (1997) analyzes existing theories and derives framework, which shows importance of the link between financial development and economic growth. Encompassing vast literature on this issue, he distinguishes five main features of the financial sector, which will be important for economic growth: financial system will reduce risk, allocate resources and acquire information, monitor managers and exert corporate controls, mobilize savings and facilitate exchange of goods and services.

In my work I want to emphasize second feature, importance of financial sector for the transmission of monetary policy. Financial sector stays in the middle between actions of the Central Bank and real economy. Degree of efficiency, with which economic agents will recognize monetary policy and react to it, will depend on how well financial sector functions. In Figure 1 I presented schematic relationships in transmission of monetary policy.

Figure 1. Interactions in Monetary Policy.



I distinguish two stages of the monetary policy transmission: stage 1, originating directly from the Central Bank and stage 2 – monetary actions, affected by the financial sector's transmission mechanism. The crucial point is

at what extend stage 2 will be different from stage1. If the financial system is undeveloped with high degree of government interventions, like in transition countries, then it might be unable to reproduce signals of monetary authority correctly, economic agents will not use all services they need and monetary policy will be transmitted with distortions. In this case monetary actions at stage 2 is different from what the Central Bank expects and final outcome may be difficult to predict accurately. This means inefficiency in the monetary policy, higher uncertainty, increased vulnerability to shocks and as a result general loses in the economy.

2.3. IMPORTANCE OF THE FINANCIAL SECTOR TARGETING IN TRANSITION ECONOMIES.

As I mentioned above, the question of the financial sector development will be especially important in the transition economies, where governments will highly regulate the financial sector, sometimes until the level of nearly collapse. Financial system will be repressed by high reserve requirements, interest rate ceiling and credit control, regulations in the foreign exchange markets, heavy taxation, government-directed credits to selected areas (Denizer, Desai, Gueoruiev, 1998).

Governments will be willing to adopt financial repression, explaining it by positive factors, that "optimal" financial repression might have. They argue that financial controls can prevent from the market failures, lower the cost of capital, improve quality of loans by selecting out risky projects (Denizer, Desai, Gueoruiev, 1998). More of it, it can promote export in some fields of economy and encourage flow of capital to the selected sectors (Stiglitz, 1989,1994).

In reality, development economists achieved consensus that financial repression is adopted in order to obtain resources to finance budget deficit. Usually, financial sector stays among the most state-controlled sectors with oligopolistic structure, selective credit schemes, obligatory holding of government bonds, suppressed security markets. This will allow transferring funds from financial system to public borrowers. The degree, to which

financial sector will be exposed to repression, depends on losses from direct fiscal instruments (Roubini, Sala-I-Martin, 1995). The funds, obtained in such way can be used to finance deficit or get subsidies for state enterprises.

Actually, financial repression will be costly for the economy, since savings will remain undeveloped, returns of the financial system will be low, financial institutions won't allocate resources efficiently, enterprises will be discouraged from investment. Moreover, due to repressed and undeveloped nature of the financial sector with many barriers to act freely, monetary policy of the the Central Bank may not be transmitted correctly, leading to unpredictable results and low efficiency of the monetary actions. These factors show that transition economies have to pay special attention to the development of the financial sector. Official adoption of the financial sector targeting will enforce authorities to develop it. In fact, such developing countries as India, Indonesia, Israel, Malaysia, Peru, Thailand, Venezuela and Korea accepted development of financial sector as an intermediate target.

In the next chapter I briefly describe the transmission mechanisms of the monetary policy and analyze which factors will prevent the financial sectors in transition economies from effective transmission of the Central Bank actions.

Chapter 3

THE ROLE OF THE FINANCIAL SECTOR IN TRANSMISSION OF THE MONETARY POLICY

3.1. TRANSMISSION CHANNELS OF MONETARY POLICY.

There are four basic channels in transmission mechanism of monetary policy, accepted in Keynesian macroeconomic teaching. The first one is direct interest rate effect. It affects the cost of funds, leading to changes in investment and savings and hence to changes in aggregate output. The second channel is through domestic asset prices, which include bonds, stock and real estate. The third channel is transmission of monetary policy through exchange rate, which affects relative prices. The fourth one is credit availability channel.

3.1.1. INTEREST RATE CHANNEL.

According to the interest rate channel, shift in a policy leads to a change in money supply, that in turn leads to changes in the market interest rate, holding money demand constant. Alterations in interest rate affect cost of credits, hence investment decision of enterprises and deposit rates, which will affect choice between consuming now and latter.

The essence of interest rate channel can be shown in following schematic way:

$M \nearrow \Rightarrow i_r \searrow \Rightarrow I \nearrow \Rightarrow Y \nearrow$

Expansionary monetary policy ($M\nearrow$) leads to a fall in real interest rates ($i_r\searrow$), which will lower cost of capital and increase investment ($I\nearrow$) and will finally cause rise in aggregate demand and output ($Y\nearrow$). (Mishkin, 1996)

3.1.2. EXCHANGE RATE CHANNEL.

This effect is especially important in transition economies, where stock markets are not very well developed. The exchange rate channel is closely tied with interest rate level. Here expansionary monetary policy pushes interest rates for domestic currency downward. As a result, depreciation of domestic currency appears (E↘), which will lead to two different effects. The first one is that depreciation will lead to relative price changes, making domestic goods cheaper relative to foreign goods, hence net exports will rise (NX↗), increasing aggregate output (Bryant, Hooper and Mann, 1993), (Taylor, 1993). Schematic presentation of this effect is following:

$$M \nearrow \Rightarrow I_r \searrow \Rightarrow E \searrow \Rightarrow NX \nearrow \Rightarrow Y \nearrow$$

Besides that, changes in exchange rate have balance-sheet effects. If domestic companies and households have foreign currency debt, than appreciation of currency leads to improvements in balance sheets of companies, which in turn lead to increase in aggregate demand. It is worth to mention that effects of relative prices and balance sheet effects act in different directions and hence bear a certain trade-off.

3.1.3. ASSET PRICE CHANNEL.

Monetary policy also affect asset prices: bonds, equities and real estate. There are two theories, which describe asset price channel: Tobin's q-theory and effect of wealth on consumption.

Tobin's theory (Tobin, 1969) states that relaxation of monetary policy increases demand for equities due to two reasons: first one is that public will have more money to spend on equities, second is that lower interest rates will make equities more attractive. As demand for equities rises, their price rise also (P↗), increasing market price of firms relative to replacement cost of their capital (q). Higher q will cause higher investment, hence aggregate output will rise.

$$M \nearrow \Rightarrow P_e \nearrow \Rightarrow q \nearrow \Rightarrow I \nearrow \Rightarrow Y \nearrow$$

An alternative theory is wealth effect on consumption (Modigliani, 1971). According to it, when stock prices increase, financial wealth of public that holds such equities will rise. As a result consumption rises leading to increase in output level.

$M \nearrow \Rightarrow P_e \nearrow \Rightarrow$ wealth $\nearrow \Rightarrow$ consumption $\nearrow \Rightarrow Y \nearrow$

3.1.4. CREDIT AVAILABILITY CHANNEL.

The volume of credits plays significant role in monetary policy. In response to increase in the cost of funds, banks will react not only through changes in interest rate, but also through amount of credits, they give out (Bernanke and Gertler, 1995), (Cecchetti, 1995). This credit rationing will affect first of all small business, since it is the most dependent on banks crediting. Schematically, the effect of monetary policy is following:

$M \nearrow \Rightarrow$ bank deposits $\nearrow \Rightarrow$ bank loans $\nearrow \Rightarrow I \nearrow \Rightarrow Y \nearrow$

Here expansionary monetary policy will increase bank reserves and deposits, hence will increase the quantity of loans available.

Additionally, credit rationing will react through balance-sheets effect of companies (Stiglitz and Weiss, 1981). This problem arises because of asymmetric information. If net worth of companies rises due to expansionary monetary policy, then adverse selection and moral hazard will be less, causing banks to lent more:

$M \nearrow \Rightarrow P_e \nearrow \Rightarrow$ adverse selection $\searrow \Rightarrow$ moral hazard $\searrow \Rightarrow$lending $\nearrow \Rightarrow I \nearrow \Rightarrow Y \nearrow$

3.2. FACTORS, INFLUENCING THE TRANSMISSION OF MONETARY POLICY.

Mostly, economists tend to associate development of the financial sector, especially banking industry, with only one channel of monetary policy–credit availability channel (Brunner and Meltzer, 1963, Bernanke and Blinder, 1992, Bernanke and Gertler, 1995). In this section I show that not only credit availability channel, but indeed all four channels will be affected by development of the financial sector. In my analysis I use some results worked out at the meeting of senior central bankers at the Bank of International Settlements in 1997 (Kamin, Turner, Van'tdack, 1997). I recognize three groups of factors, which determine both stance of the financial sector and effectiveness of transmission channels. The first one is direct interventions of government into financial sector, such as government imposed interest rate and credit controls, government-financed credits, etc. Second group includes factors, which determine the shape of the financial sector itself: structure, depth and health of the banks, terms of financial contracts, development of the security market. Third group incorporates other factors, such as importance of official and nonofficial offshore borrowing, exchange rate regime, historic sources of finance.

3.2.1. GOVERNMENT OWNERSHIP AND DIRECT INTERVENTIONS.

A) INTEREST RATE CONTROL.

This factor affects first of all interest rate channel. Holding interest rates somewhat rigid generally for all loans and deposits or for certain types of contracts, authorities can handily manage costs of funds. This will allow them to act in favor of the selected groups, but such controls will distort transmission channel of monetary policy. Banks will not be able to change their interest rates in full accordance to actions of the Central Bank, thus effect on real economy will be different. Besides this, commercial banks may not be willing to give credits, if existing controls are a barrier to profitable lending. Hence, credit availability channel will be distorted too.

B) LIMITS ON BANK LENDING AND DIRECTED CREDITS.

Credit ceiling, implemented in some cases, will influence transmission mechanism of the monetary policy through credit availability channel by limiting amount of funds, which could be lent to certain borrowers. Another important factor is credits, which are made to specific sectors or enterprises under pressure of authorities. Majority of such credits is given out to state enterprises and become bad, declining health of the banking sector. Besides that directed crediting cuts down funds, available for other borrowers, neglecting their profitability and in such way imposing opportunity cost for banks.

C) GOVERNMENT-FINANCED CREDIT TO SELECTED AREAS.

The government can provide lending through official investment funds, extrabudgetary funds or subsidies. In all cases economy will be financed by non-market based sources, which are not sensitive to changes in the monetary conditions. This will lead to worse responsiveness of economy to monetary policy due to obstacles in interest rate and credit availability channels.

D) STATE-OWNED BANKS.

Government easily manipulates state-owned banks and high share of such banks will lead to less effective monetary policy. State banks will give out credits to selected enterprises on favorable terms due to directions from authorities but not due to market forces. Additionally, state banks do not care much about profit maximization that will be reflected in interest rate level. Taking into account these factors, it can be concluded that state banks will not fully respond to the monetary policy actions. Specific enterprises will be financed anyway, creating misbalance in credit availability channel and interest rates will not be fully affected by monetary forces, that is interest rate channel will be distorted also.

3.2.2. Shape of the financial sector.

a) Depth and scope of services.

In economies with thin and undeveloped financial sector large share of investment comes from internal sources, making monetary policy less effective. Moreover, such financial sector itself will bare less predictable response to the monetary policy changes. Lending institutions may find it difficult to adjust their interest rates and other terms of crediting if they are thin and do not provide sufficient modern services. This factor may affect both interest rate and credit availability channels. Low participation of banks in foreign exchange market will cause exchange rate to move slowly and not to a full degree. Thus, it will diminish importance of the exchange rate channel in transmission of monetary policy.

b) Structure

In this issue several factors are of importance. First one is concentration of the financial sector. If there are large number of the financial institutions and relatively low costs to enter, market will be highly competitive and will quickly respond to the changes in the cost of funds. But when there is high concentration of the banking sector, possibility of oligopolistic behavior arises. Besides that the government can more easily control financial sector if there are few big banks, accounting for large amount of assets. Next factor is the share of foreign banks, which usually bring technological improvement and create competitive environment. One more time, large share of state banks means lower competitiveness and government-guided funding. These three factors will significantly influence interest rate and credit availability channels.

c) Health

The weaker financial sector is, the more unpredictable it be to changes in the monetary policy. Low returns, high share of bad credits indicate high cost of funds and volatility to shocks. This will make banks change supply of their loans in uncertain manner and even lead to such effects as a credit crunch. In this case credit availability channel will be highly obscured.

D) SECURITY MARKET.

Security market stance will affect first of all asset price channel. According to the q-theory, equity prices will rise if there is monetary ease. Enterprises will find their market price increased and will be able to expand output. This effect can take place even if banks react little to the policy changes. So, asset price channel will depend on how well security market is developed. If market capitalization is low and equities are not very liquid, firms wouldn't realize the opportunity of increased market price and will not be able to invest new funds, thus asset price channel will not play it's role.

E) TERMS OF FINANCIAL CONTRACTS.

Effectiveness of the interest rate channel depends on the speed with which cash flows will change due to policy changes, or how quickly new rates will transform to average rates. Three factors, which will be important here are maturity of contracts, adjustment of interest rates and indexation of principal. The shorter is maturity, the more frequently interest rates can be changed, and the more rapid effect of monetary policy will be. Next factor, adjustment of interest rates during contract life, has similar effect. The more frequently adjustment takes place, the faster cash flows will change. Indexation of principal is usually tied to some nominal value, such as price level or exchange rate. Movements in principal will indicate movements in real value of funds and will send clear signals of changes in policy of the Central Bank.

3.2.3. OTHER FACTORS.

A) EXCHANGE RATE REGIME.

Fixing their exchange rate, government substantially reduces ability of the monetary policy to act through exchange rate regime. With floating exchange rate, both aggregate demand and aggregate supply will change in line with exchange rate, since decision of consumers and producers will be affected by relative price effect. The more rigid exchange rate is, the less sensitive economy would be to monetary policy. Besides that, committing itself to hold exchange rate fixed, government will face with inability to hold monetary

policy freely, since any initial change in money supply will have to be offset latter in order to keep exchange rate fixed.

B) ABILITY TO BORROW FROM ABROAD.

Growing capital mobility allows enterprises to borrow from abroad and reduces their dependence on domestic money market. This leads to less effective monetary policy, since credit availability and interest rate channels will not play significant role for those firms, that have access to offshore borrowing. In reality only big companies will be able to borrow directly from abroad, so small firms and households still will be exposed to monetary policy alterations.

C) DOLLARIZATION.

In countries with history of high inflation rates, undeveloped financial intermediaries and low credibility in government policy, large amounts of funds are held in foreign cash (usually dollars). In such circumstances dependence on banking finance is significantly reduced because cash dollars are used as a unit of account, store of value and mean of transactions. Monetary policy will not have full effect, since households and firms can use other currency, in some extent neglecting actions of the Central Bank.

D) HISTORICAL SOURCES OF FINANCE.

The pattern of financing of households and firms plays significant role in effectiveness of monetary policy. As was previously mentioned, thin financial sector will mean high degree of self-finance, causing low sensitivity to monetary policy. In cases of high share of non-monetary payments and mutual arrears, enterprises substitute borrowing from banking sector to some kind of internal finance, making monetary actions ineffective. These factors will reduce importance of the interest rate and credit availability channels.

3.3. SUMMARY OF FACTORS

To summarize, I put the main factors, influencing transmission mechanism of monetary policy into one table (Table 2). In order to see what factors affect

specific channels of the monetary policy, I marked them. In support to my hypothesis, it can be seen that not only credit availability channel, but all channels depend on the stance of financial sector. As was predicted by theory, credit availability channel is the most sensitive to financial development (10 out of 13 factors will affect it). The most important factors are government limits on bank lending and directed credits, depth and health of the banking sector, established sources of finance.

Table2: Summary of Factors, Influencing the Transmission Mechanism of Monetary Policy.

	Interest rate channel	Asset price channel	Exchange rate channel	Credit availability channel
Interest rate control	✓			✓
Limits on bank lending and directed credits				✓
Government-finances credit to selected areas	✓			✓
State-owned banks	✓			✓
Depth and scope of financial services	✓	✓	✓	✓
Structure of banking sector	✓			✓
Health of banking sector				✓
Security market		✓		
Terms of financial contracts	✓			
Exchange rate regime			✓	
Ability to borrow from abroad	✓			✓
Dollarization				✓
Sources of finance	✓			✓

Second channel, significantly influenced by financial sector is interest rate channel. Factors, which can prevent interest rate from market clearing, are interest rate control, share of the state-owned banks, terms of the financial contracts, offshore borrowing. Depth and scope of services and development of security market will affect asset price channel. Exchange rate channel will depend on exchange rate regime and scope of foreign exchange services. The last channel may be especially important in transition economies, where security market is not well developed.

Chapter 4

INDEX OF EFFECTIVENESS OF THE MONETARY POLICY.

In previous section I determined major factors, which influence transmission mechanism of the monetary policy. The next task is to incorporate them into one aggregate index that will provide information for comparative analyses across selected transition economies.

4.1. METHODOLOGY

Methodology is similar to the one used by Cecchetti (1999) and Kashyap and Stein (1998) for their studies of the European Union. Both works are dedicated to changes in the prevalent economic relations due to creation of the European Monetary Union. Authors state that introduction of the euro will cause regime shifts and will change relationships between the actions of the monetary authority and effect on real economy. Further, they argue that this changes, similar in their fundamental nature to transition process, call for deep understanding of the transmission mechanism and role of the financial sector in it. Cecchetti and Kashyap and Stein first of all find factors, which will influence transmission mechanism and than on basis of this factors build index of likely effectiveness of the monetary policy. Kashyap and Stein (1997, 1998) determine four major factors that will affect effectiveness of the monetary policy: 1) importance of small banks, 2) bank health, 3) importance of small firms and 4) availability of non-bank finance. Each factor includes from four to seven indicators, which characterize tendencies in given issue. In his study of the monetary policy transmission mechanism Cecchetti follows work of Kashyap and Stein and uses next factors: 1) size and concentration of banking industry, 2) banking industry health and 3) importance of security markets. In both works index is calculated for countries-members of the European Union.

The procedure of rating is following. First of all, for every indicator countries obtain rating, which shows relative position of each country among others. Rating is from C to A with higher grade meaning better influence on the transmission mechanism of the monetary policy. Then, using rating for separate indicators and finding arithmetic average, authors get rating for whole factor. Finally, putting all factors rating into one table and calculating average, aggregate index of likely effectiveness of monetary policy is obtained.

Indicators, used by Cecchetti and Kashyap and Stein were selected for well-developed countries, which do not have all peculiarities and problems that transition countries have. That's why building index of the likely effectiveness of the monetary policy for transition economies it was necessary to include additional indicators, which are inherent to particular features of such economies. Factors, described in previous section, characterize transmission mechanism of the monetary policy in transition countries and will be used further for construction of index. Since it is not necessary and sometimes not possible due to statistical points to include all factors from previous chapter, I've selected the most representative and important issues and grouped them into five categories. My analyses cover 11 transition countries from Eastern Europe region and include following groups of factors: 1) depth of banking sector, 2) structure and 3) health of banking sector, 4) availability of non-bank borrowing and 5) importance of foreign currency market and offshore borrowing.

4.2. KEY GROUPS OF FACTORS

4.2.1. DEPTH OF THE BANKING SECTOR

First factor, depth of banking sector, includes three indicators: domestic credit as a percentage of GDP, coefficient of monetisation of the economy (ratio of broad money to GDP) and number of banks per million of people (Table 3). Development of all three factors will point at sound transmission mechanism of the monetary policy. As we can see, Czech Republic and Slovakia lead among selected countries in terms of providing credits to economy (almost 80% and 72% respectively), while Latvia, Russia and Slovenia have the most

number of banks (in average 11 per million of people). Taking into account all three indicators, it is possible to distinguish several groups of countries with respect to the depth of their banking sector. First one is Czech Republic, Slovakia, Hungary and Slovenia, each having A/B rating for the depth. Second group includes Latvia, Russia and Bulgaria (B rating). Poland, Ukraine, Lithuania and Belarus fall into the last category with rating below B.

Table 3: Depth of Banking Sector, by Country, 1998

	Domestic credit provided by banking sector (% of GDP)	Liquid liabilities, M3 (% of GDP)	Number of banks (per million of people)
Belarus	17,7	16,5	2,6
Bulgaria	30,0	33,6	4,6
Czech Republic	79,8	71,2	4,4
Hungary	49,1	41,9	4,2
Latvia	15,2	27,9	11,2
Lithuania	11,7	18,9	2,7
Poland	36,9	39,6	2,1
Russia	25,9	17,9	10,2
Slovak Republic	71,8	68,2	5,0
Slovenia	35,5	42,5	12,0
Ukraine	17,2	13,6	4,2

Source: World Bank (World Developing Indicators), IMF Staff Country Reports

For data source and definitions see Data Appendix

4.2.2. STRUCTURE OF THE BANKING SECTOR

Second factor is structure of the banking sector. I include here share of state banks, share of foreign banks and concentration ratio (Table 4). As was shown previously, high degree of state presence in the bank system will lead to more easier controlled banking sector, lower incentives for effective performance, directed credits. We can see that Belarus, Bulgaria and Czech

Republic all have high presence of state banks, well above 50 percent of all banking sector. Czech Republic, having intensive presence of state-owned banks, at the same time has pretty high share of foreign banks - almost one

Table 4: Structure of Banking Sector, by Country, 1998

	Share of state banks (% of total assets of all banks	Share of foreign banks (% of total assets of all banks)	Concentration ratio (number of banks, possessing 75 % of all assets)
Belarus	69,0	4,8	8
Bulgaria	59,5	8,0	7
Czech Republic	66,0	24,9	9
Hungary	33,0	40,0	10
Latvia	8,5	84,5	8
Lithuania	45,0	13,2	4
Poland	48,0	16,2	14
Russia	46,0	13,6	20
Slovak Republic	49,0	29,0	8
Slovenia	37,0	12,0	5
Ukraine	47,0	2,4	10

Source: IMF Staff Country Reports

For detailed data source and definitions see Data Appendix

fourth. Foreign banks will positively influence banking sector, bringing modern services and creating comparative environment. Latvia and Slovak Republic are two other countries with developed foreign banking – they have 84,5% and 29% of foreign banks respectively. Concentration ratio will be negatively correlated with effectiveness of the monetary policy. Here it is the number of banks, which poses 75% of the market. This measure is not accurate, but still can show major trends. According to it, Russia has the most diversified market – 20 banks, followed by Poland – 14 banks. The rest of the

countries have pretty homogeneous structure: around 8 banks and Lithuania outlying with 4 banks, which have 75% of the market. Aggregating, Hungary and Latvia have the most favourable structure and obtained A/B. Poland, Slovenia and Russia are not much behind and have B/A rating. Slovak Republic obtained B while other countries fall below B.

4.2.3. HEALTH OF THE BANKING SECTOR

Group, which denotes health of the banking sector, includes return on assets, provisions on bad loans and interest rate spread (Table 5). According to theory, weak financial system will bring unpredictable outcomes and distortions in transaction mechanism, so that positive returns on assets and low share of bad loans will mean better transmission mechanism. ROA were the highest in Hungary, Poland, Slovenia and Belarus (the last case should be taken with criticism, since statistical data are not reliable), first two countries are close to 2% of returns to total assets, last two – around 1,6%. Bulgaria, Lithuania, Russia and Ukraine have ROA between zero and 1 percent and three countries – Czech Republic, Latvia and Slovak Republic suffered from losses in 1998. Level of provisions was the highest in Bulgaria, Czech Republic and Slovakia – around 14 – 18 %. Other countries fall into range between 3 and 9 percent and Slovenia has smallest amount of provisions on bad loans – 0,8% of total assets. Interest rate spread is the good measure of effectiveness of banking sector, with small spread pointing at well functioning system and wide spread at non-effective performance with high costs. In Bulgaria and Ukraine this spread was the most wide: 37 and 31 percent respectively. Belarus and Russia had 15% spread, all other countries had interest rate spread below 10 percent point, mostly around 5%. As a result Hungary and Poland have the healthier banking sector with A rating. Belarus and two Baltic States obtained B and others fall below B.

Table 5: Health of the Banking System, by Country, 1998

	Interest rate spread (lending minus deposit rate percentage points)	ROA (% of returns to total assets)	Provisions (% of provisions to total assets)
Belarus	16,2	1,68	9,1
Bulgaria	37,1	0,99	14,1
Czech Republic	5,5	-0,23	16,5
Hungary	3,2	2,00	3,5
Latvia	9,4	-1,66	2,7
Lithuania	6,5	0,80	5,6
Poland	5,6	1.90	4,8
Russia	15,3	0,20	9,0
Slovak Republic	5,2	-0,90	18,5
Slovenia	6,8	1,60	0,8
Ukraine	30,9	0,58	8,0

Source: World Bank (World Developing Indicators), IMF Staff Country Reports

For detailed data source and definitions see Data Appendix

4.2.4. IMPORTANCE OF NON-BANK BORROWING

Fourth factor is importance of non-bank funding in economy. It has following indicators: market capitalization, degree of subsidies and share of barter and other non-monetary payments (Table 6). Market capitalization is taken as a proxy for security market development. Mature security market will enable firms to use q-effect, thus making asset price channel of monetary policy effective. Hungary and Russia are among leaders in market capitalization: 33 and 29 percent respectively, followed by Czech Republic and Slovenia, each having 25%. Subsidies reflect share of government-financed credit to selected areas and will diminish effectiveness of monetary policy. Subsidies are most widespread in Czech Republic, Latvia and Russia,

all more then 10% of total expenditures. In some transition countries non-monetary payments have got wide spread, that lead to low sensitivity of real economy to monetary actions and hence ineffective monetary policy. Russia and Ukraine have more than 50 % of barter share in sales, they are followed by Slovenia, Belarus and Slovak Republic. In aggregate, Hungary has A rating, Slovenia follows with A/B. Poland and Bulgaria has got B/A.

Table 6: Importance of Non-bank Funding, by Country, 1998

	Market capitalization of listed companies (% of GDP)	Subsidies (% of total expenditures)	Percentage of sales accounted for by more than 10% of barter
Belarus	-=-	7.10	36,8
Bulgaria	5	4,08	10,4
Czech Republic	25	17,30	8,2
Hungary	33	4,20	1,6
Latvia	6	12,80	8,1
Lithuania	18	2,10	7,2
Poland	9	4,50	12,6
Russia	29	11,60	52,5
Slovak Republic	9	8,00	30,2
Slovenia	25	3,44	45,6
Ukraine	2	11,00	50,0

Source: World Bank (World Developing Indicators), EBRD

For detailed data source and definitions see Data Appendix

4.2.5. EXTERNAL FUNDING

As measures of external funding, I take exchange rate regime, dollarization and offshore borrowing (Table 7). As was described above, floating exchange rate regime will make possible relative price effect and will allow government to act more freely. With respect to exchange rate regime all countries fall into

two categories. Belarus, Bulgaria, Latvia and Lithuania have fixed exchange rate. All other countries have floating exchange rate regime. Through process of dollarization foreign cash currency will have higher influence in expense of domestic banking sector, lowering effectiveness of monetary policy. Level of dollarization is the highest in Belarus, Latvia, Slovenia and Slovak Republic (between 40 and 60%). Offshore borrowing will reduce dependence of companies on domestic funding and will make them less sensitive to monetary policy. Hungary gets the most funding from abroad – 13,35% of GNP. Bulgaria, Czech Republic and Slovak Republic have about 4%, other countries have mainly around 1% and lower. Poland has the highest rating in this category – A/B. Czech Republic and Ukraine follow it (B/A). Hungary, Slovenia and Russia obtained B, other countries below B.

Table 7: Measures of External Funding, by Country, 1998

	Exchange rate regime (I – fixed e.r., III – managed floating e.r.)	Dollarization (% of liabilities in foreign currency to total liabilities)	Offshore borrowing (% of GNP)
Belarus	I	58,0	0,10
Bulgaria	I	39,2	4,36
Czech Republic	III	18,2	4,11
Hungary	III	15,9	13,35
Latvia	I	63,0	0,56
Lithuania	I	36,3	0,62
Poland	III	18,5	1,78
Russia	III	37,5	0,40
Slovak Republic	III	43,0	4,07
Slovenia	III	46,0	1,60
Ukraine	III	39,6	0,88

Source: Wold Bank (World Developing Indicators), IMF Staff Country Reports

For detailed data source and definitions see Data Appendix

4.3. AGGREGATE INDEX

Having estimated rating of countries for individual factors, in Table 8 I put them together and calculate index of likely effectiveness of monetary policy with respect to development of financial sector. Columns 2 to 6 are based on Tables 3 – 7 respectively. Aggregating, I get predicted effectiveness of monetary policy, which is shown in last column and than compare results with economic growth in given countries.

Table 7: Effectiveness of the Monetary Policy, by Country, 1998

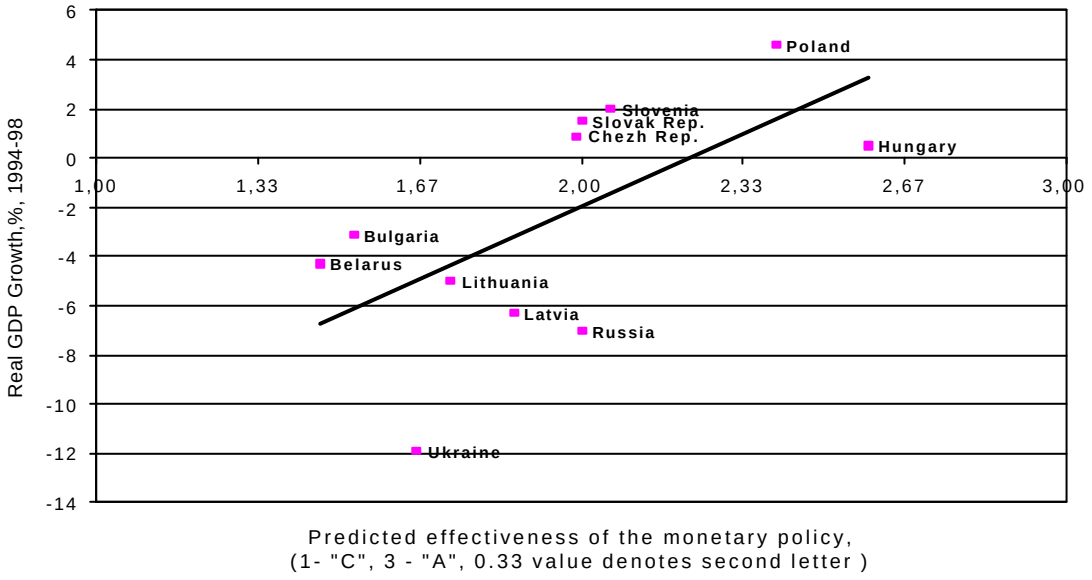
	Depth of banking sector	Structure of banking sector	Health of banking sector	Non-bank funding	Offshore borrowing	**Effectiveness of monetary policy**
	(Table 3)	(Table 4)	(Table 5)	(Table 6)	(Table 7)	
Belarus	C	C/B	B	C/B	C/B	**C/B**
Bulgaria	B	C	C/B	B	C/B	**B/C**
Czech Republic	A/B	B/C	B/C	B/C	B/A	**B**
Hungary	A/B	A/B	A	A/B	B	**A/B**
Latvia	B	A/B	B	C/B	C/B	**B**
Lithuania	C	B/C	B	B/A	B/C	**B/C**
Poland	B/C	B/A	A	B/A	A/B	**B/A**
Russia	B	B/A	B/C	B	B	**B**
Slovak Republic	A/B	B	C/B	B/A	B/C	**B**
Slovenia	B/A	B/A	B/C	B	B	**B**
Ukraine	C/B	B/C	B/C	C/B	C/B	**B/C**

As can be seen, Hungary and Poland are among leaders in effectiveness of monetary policy. Hungary ended up with A/B rating, while Poland with B/A. We can expect that in these countries monetary policy will be transmitted by financial sector with the least distortions. Economic agents will get clear

signals about actions of monetary authority, they will be able to use more complete scope of services, financial institutions will react to changes in monetary conditions in predicted way and in a full scale. It should be mentioned that in both countries banking sector was the most healthier among selected transition economies. They had ROA approximately 2%, small share of bad credits. Low spread in interest rate, retraced in Hungary and Poland, points at effectiveness of banking system, stability and acceptable costs of operations. At the same time monetization of economy was not the highest: about 40% of GDP, comparing to 70% in Czech Republic and Slovakia. Presence of state banks was significant (33% in Hungary and 48% in Poland), but Hungary also has high share of foreign banks – 40%. In both countries banking sector was pretty competitive with low concentration ratio. Government subsidies didn't account for large share of government spending (about 4%) and such ways of financing as barter and foreign cash (dollarization) did not play significant role. Next large group of countries with B rating includes Czech Republic, Slovak Republic, Slovenia, Russia Federation and Latvia. Czech Republic has the highest level of monetization – 71%, but other factors show at some ineffectiveness of financial system. So, state has pretty large share in banking sector – 66%. Subsidies constitute significant share in total spending – 17%. Provisions are 16,5% of total assets; this high share might be partially explained by directed credits, which often cause bad loans to occur. Among positive sides – high market capitalization (25% of GDP), low dollarization level (20%). Slovak Republic is another country with high monetization of economy but it suffers from the same problems as Czech Republic dose: almost 50% of state banks, large amount of provisions, negative ROA plus undeveloped security market and intensive use of foreign currency. Group of countries with a lowest predicted effectiveness of monetary policy includes Lithuania, Ukraine, Bulgaria and Belarus. All countries except Ukraine have fixed exchange rate that puts obstacles to well functioning of exchange rate channel. State owned banks accounted from 50 to 70 % of all banking system, monetization was not sufficient – 13–33 %, ROA was positive, but moderate.

Finally, I try to check the relationship between predicted index of effectiveness of the monetary policy and effect on real sector of economy. The best way to do it is to build VAR econometric models, with several equations for every country, showing dynamic reaction of output and inflation on changes in monetary policy, such as interest rate. This modeling is very involving and I didn't do it at the moment. Instead, I show correlation between index of effectiveness of monetary policy and real GDP growth, which is simple and rather reliable approximation. In Figure 2 real GDP growth is plotted at vertical axes and index of predicted effectiveness of monetary policy on the horizontal axes. As can be seen, correlation is positive, showing that countries with more effective transmission mechanism of monetary policy did grow faster.

Figure 2. Correlation Between Predicted Effectiveness of the Monetary Policy and Real GDP Growth, by Country.



Source: For GDP Growth - IMF Staff Country Reports

CONCLUSIONS.

Transition economies are in the process of global institutional changes. Monetary policy and financial system, considered in my work, are such institutional settings, which are being reformed and need close attention and research. Concluding, I would like to emphasize the following facts and findings, which are presented in this paper:

First of all, targets of monetary policy, which reflect priorities of the officials, will in high degree determine path of economic development. Choosing price stability as a sole objective will bear some losses and inefficiency. Financial system development can be accepted as another intermediate target. Following arguments in support of this decision should be stressed: 1) financial sector is under direct control of Central Bank; 2) it's performance can be easily and quickly monitored; 3) financial sector is highly correlated with economic growth and will significantly determine effectiveness of monetary policy. This sector of economy is especially crucial for transition countries, where financial markets are undeveloped historically, due to soviet past, and are suppressed now – as a mean to get cheap funding for budget deficit and subsidies for state enterprises. Official adoption of financial sector as intermediate target will discipline authorities and enforce them to develop it.

Second, effectiveness of transmission mechanism of monetary policy is very important factor, which influences economic growth. As I mentioned above, transition economies will tend to have undeveloped financial system and this will be negatively reflected on transmission of monetary policy. In countries with poorly developed and highly controlled financial markets actions of Central Bank may not be transmitted in expected and clear way. Monetary authority will not be able to predict effect of its measures in full degree, economic agents won't get distinct signals about monetary policy and not all instruments of the financial markets will be available for them. This will lead to uncertainty, vulnerability to shocks and economic losses.

Third, in transition economies financial sector will plays larger role in transmission of monetary policy than in developed countries. According to most works about developed economies, financial sector significantly influences credit availability channel of monetary policy. As this paper shows, transition countries have specific features in the shape of financial sector and due to these features not only credit availability channel, but also other channels such as interest rate, asset prices and exchange rate will be under direct influence of the financial sector. I distinguish three groups of factors, inherent to transition economies, that affect transmission of monetary policy. The first one is direct interventions of government into financial sector: interest rate control, limits on bank lending and directed credits, presence of state in bank industry. Second group includes factors, which determine the shape of the financial sector itself: structure, depth and health of the banks, terms of financial contracts, development of the security market. Third group incorporates such factors as importance of offshore borrowing, dollarization, exchange rate regime, historic sources of finance.

Fourth, on the base of these factors I construct index of predicted effectiveness of monetary policy. Methodology is the same as in works of Cecchetti and Kashyap and Stein for European Union, but index is extended in order to incorporate specific features, relevant for transition economies. The study is done for 11 transition countries in Eastern Europe. Factors, that determine effectiveness of the monetary policy, are grouped into five categories: 1) depth of banking sector; 2) structure of banking sector; 3) health of banking sector; 4) measures of non-bank funding; 5) importance of foreign currency and offshore borrowing. This index allows to trace the influence of different variables on effectiveness of monetary policy and provides information for cross-country analysis. The main weaknesses of this index are the following: First of all, rating is based on comparison of performance in selected transition countries, i.e. countries obtain their rating with respect to performance of others but not with respect to certain optimal value. This means that high rating implies good standing among the sample, but not good absolute standing. The problem is that for some variables such optimal value

can be found, but for some can not. Way out is to compare transition economies with highly developed countries, for instance with USA or countries of EU. Second imperfection is that calculating index of predicted effectiveness of monetary policy, different factors are assumed to have equal impact and during aggregation of index, factors are just arithmetically averaged, despite the fact that the magnitude of their influence will be different. Determining at least approximate value of such differences is a difficult task and is out of scope of this paper.

Finally, the index of likely effectiveness of monetary policy is compared with economic growth in those countries and shows positive correlation, i.e. countries with more effective transmission mechanism of monetary policy did grow faster. It should be mentioned that this method is not very correct. In order to check effectiveness of monetary policy it is needed to build VAR models and find dynamic influence of monetary actions (for instance interest rate changes) on such variables as inflation or output. Due to time and data constraints I left it for further analysis. Nevertheless, accepting this simple approximation, it can be seen that performance of financial sector does influence economic growth through transmission mechanism of monetary actions and Central Bank should develop financial sector, adopting it as intermediate target of it's policy.

Concluding, I would like to say that the main purpose of this paper is to draw attention to the importance of financial sector in transition economies, where it is tended to be suppressed; determine factors, which influence the shape of financial system and effectiveness of monetary policy and provide information for cross-country analysis. This research raises large number of questions and unfortunately does not give all answers here, but provides directions for further work.

DATA APPENDIX

DATA FOR TABLE 1 (OBJECTIVES OF THE MONETARY POLICY IN SELECTED TRANSITION COUNTRIES).

Information about Central Bank objectives is taken from the following websites:

Bulgaria: www.bnb.bg

Czech Republic: www.cnb.cz

Hungary: www.mnb.hu

Latvia: www.bank.lv

Lithuania: www.lbank.lt

Poland: www.nbp.pl

Slovenia: www.bsi.si

Slovak Republic: www.nbs.sk

DATA FOR TABLE 3 (DEPTH OF THE BANKING SECTOR).

Domestic credit provided by banking sector, as a percentage of GDP.

Includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net. The banking sector includes monetary authorities, deposit money banks, and other banking institutions, such as savings and mortgage loan institutions and building and loan associations.

All countries: *Financial Depth and Efficiency*, World Development Indicators, World Bank www.worldbank.org

Liquid liabilities–broad money or M3, as a percentage of GDP.

M3 is the sum of currency and deposits in the central bank (M0), transferable deposits and electronic currency (M1), time and saving deposits (M2), travelers checks, foreign currency time deposits, commercial paper, shares of mutual funds held by residents.

All countries: *Financial Depth and Efficiency*, World Development Indicators, World Bank www.worldbank.org

Number of banks

Number of banking institutions per million of countries residents.

Data from IMF Staff Country Reports:

Belarus–*Recent Economic Development*, IMF Staff Country Report # 99/143

Bulgaria–*Recent Economic Development and Statistical Appendix* IMF Staff Country Reports # 99/26

Czech Republic–*Selected Issues* IMF Staff Country Report # 99/90

Hungary–*Selected Issues* IMF Staff Country Report # 97/103

Latvia–*Selected Issues and Statistical Appendix* IMF Staff Country Report # 99/99

Lithuania–*Selected Issues and Statistical Appendix* IMF Staff Country Report # 99/96

Republic of Poland–*Selected Issues* IMF Staff Country Report # 99/32

Russian Federation–*Recent Economic Developments* IMF Staff Country Report # 99/100

Slovak Republic–*Selected Issues* IMF Staff Country Reports # 99/160

Slovenia - *Selected Issues* IMF Staff Country Report # 00/41

Ukraine–*Recent Economic Developments* IMF Staff Country Report, 1999

DATA FOR TABLE 4 (STRUCTURE OF THE BANKING SECTOR).

Share of state banks

Assets of the state banks as a percentage of total banks assets. State banks – banks with more than 50% of state ownership.

For all countries data from IMF Staff Country Reports, different issues, the same as for number of banks, Table 3.

Share of foreign banks

Assets of the foreign banks as a percentage of total banks assets. Foreign banks–banks with more than 50% of foreign ownership.

For all countries data from IMF Staff Country Reports, different issues, the same as for number of banks, Table 3.

Concentration ratio

Number of banks, accounting for 75 % of total banks assets.

For all countries data from IMF Staff Country Reports, different issues, the same as for number of banks, Table 3.

DATA FOR TABLE 5 (HEALTH OF THE BANKIG SECTOR).

Interest rate spread

Interest rate charged by banks on loans to prime customers minus the interest rate paid by commercial banks for demand, time, or saving deposits.

For all countries: *Financial Depth and Efficiency*, World Development Indicators, World Bank www.worldbank.org

Returns on assets

Average pre-tax returns as a percentage of total assets.

For all countries data from IMF Staff Country Reports, different issues, the same as for number of banks, Table 3.

Provisions

Provisions for loan losses as a percentage of total assets.

For all countries data from IMF Staff Country Reports, different issues, the same as for number of banks, Table 3.

DATA FOR TABLE 6 (IMPORTANCE OF NON-BANK FUNDING).

Market capitalization of listed companies, % of GDP

Market capitalization (also known as market value) is the share price times the number of shares outstanding. Listed domestic companies is the number of domestically incorporated companies listed on the country's stock exchanges at the end of the year.

For all countries data from *World Development Indicators*, 1999, World Bank CD ROM

Subsidies, as a percentage of all expenditures

Subsidies and other current transfers include all unrequited, nonrepayable transfers on current account to private and public enterprises, and the cost of covering the cash operating deficits of departmental enterprise sales to the public. Data are shown for central government only.

For all countries data from *World Development Indicators*, 1999, World Bank CD ROM

Barter - here approximated as percentage of sales accounted for by more than 10% of barter

Exchange of goods and services, which do not involve money transactions, but indeed non-monetary payments - direct exchange of goods.

For all countries data from EBRD enterprise survey, 1999, www.ebrd.org

DATA FOR TABLE 7 (EXTERNAL FUNDING).

Exchange rate regime

According to IMF classification: I - Pegged currency; II – Flexibility limited in terms of a single currency or cooperative arrangements; III – Other managed floating; IV– Independent floating

For all countries data from IMF Staff Country Reports, different issues, the same as for number of banks, Table 3.

Dollarization

Ratio of deposits, denominated on foreign currency to total deposits, proxy for cash dollarization.

For all countries data from IMF Staff Country Reports, different issues, the same as for number of banks, Table 3.

Offshore borrowing, % of GDP

Private nonguaranteed external debt comprises long-term external obligations of private debtors that are not guaranteed for repayment by a public entity.

For all countries data from *World Development Indicators*, 1999, World Bank CD ROM

DATA FOR FIGURE 2 (CORRELATION BETWEEN PREDICTED EFFECTIVENESS OF MONETARY POLICY AND REAL GDP GROWTH).

Real GDP growth, %, 1994-98, average

For all countries data from IMF Staff Country Reports, different issues, the same as for number of banks, Table 3.

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