Monetary Transmission Mechanisms in Transition Economies

Maruška Čenić*

Abstract

This paper gives a historical and theoretical overview of the different channels of monetary transmission mechanisms in order to provide the necessary background required for the illustration of cross-country transmission mechanism differences. The specific details of transmission mechanisms of monetary policy in emerging economies are discussed in more detail in order to emphasize the relative importance of different transmission channels on the behavior of monetary policy, often aimed at different monetary targets. The paper encompasses the similarities and differences between monetary transmission in selected emerging economies with special reference to Croatia and in doing so, it addresses challenges that the central banks of transitional economies face in the context of different policies used.

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* *Maruška Čenić, The Institute of Economics, Zagreb, Croatia.*

1 Introduction

The history of the debate concerning the impacts of the monetary policy on the economy is certainly very long. Views diverge even about the transmission process in individual industrialized nations, the subject of decades of theoretical and empirical research; the process in developing countries is even more uncertain. As more central banks of Central and Eastern Europe (CEE) move towards inflation targeting and prepare themselves for the entrance in the European Monetary Union (EMU), the knowledge of monetary policy transmission mechanisms becomes crucial for the appropriate design and implementation of the monetary policy.

The aim of this poster is to summarize the particular issues differentiating the analysis of monetary transmission in Central and Eastern Europe from the same analytical framework applied to developed economies. By doing so, the poster identifies specific aspects and questions regarding monetary transmission mechanisms that are relatively unexplored and need to be addressed in order to enhance the transmission process.

The poster starts with the categorization of channels of monetary transmission. Than the poster describes the transition economies framework in greater detail. A special paragraph is dedicated to alternative views in monetary transmission. Finally, the poster explains the differences between the existing analytical framework applied to developed economies and economies in transition by emphasizing important stylized facts and their particular influence on each transmission channel.

2 Monetary Transmission Channels

There are many categorizations of monetary transmission channels in the existing literature. Each channel that is specified in this poster has been subject to extensive academic debate. In this poster the approach given by De Bondt (De Bondt, 2000) is followed.

This categorization divides monetary transmission mechanism into five different channels as illustrated in Figure 1 presented in the poster. For the sake of simplicity, Figure 1 ignores the feedback mechanisms from real economy to monetary policy, the fact that different channels of transmission can be closely interrelated and the fact that different countries have a different mix of channels.

The first monetary transmission channel is called *direct monetary transmission*. An increase in money supply results in surplus of cash balances and over time in an expansion in aggregate spending. Direct transmission could also be viewed as a part of real balances effect which connects the monetary with the commodity sector (Handa, 2000).

The second group of monetary transmission channels consists of *interest rate channels*. The monetary authorities are able to directly control official interest rates, determining the money market rates, which in return affect aggregate spending by increasing or decreasing investment and consumption expenditures. Lower interest rates lead to lower cost of capital, especially important for investment decisions. Substitution effect favors current consumption over savings if interest rates decline while income effect affects disposable income and thus spending trough the influence of interest rates on net wealth.

The first two channels have been thoroughly discussed in the literature over the years and their exact specification differs between different schools of economic thought.

Apart from the changes in money and interest rates, monetary policy decisions are transmitted into the real sector via *asset price channels* where asset prices are divided into exchange rate, equity (stock and bond) prices and real estate prices. Exchange rate channel during a monetary expansion leads to a decrease of domestic interest rates (relative to the foreign ones) followed by currency depreciation. This causes a rise in net exports and hence output. Tobin's q and wealth effects are important for other asset prices channels. Tobin's q is defined as market value of the firm divided by the replacement cost of capital. Expansive monetary policy can raise the equity price, making Tobin's q of firms higher and cost of new capital relatively cheaper and thus boosting investment spending. The framework of Tobin's q can also be applied straightforwardly to other assets such as land and houses. The wealth effect implies that changes in monetary policy stance can affect the above mentioned asset prices, thus raising wealth of economic agents holding specific assets, which will in turn increase spending possibilities.

Relatively more recent channel discussed in the literature is called the *credit channel*. It focuses on financial market imperfections, namely asymmetric information phenomena, as an essential factor of propagation and amplification of initial monetary policy shocks. Frictions on credit markets create imperfect substitutability between different sources of financing. The coast spread between self-financing and credit, called the external finance

premium (EFP), reflects the cost due to financial imperfections. The higher the EFP, the lower the investment and consumption spending.

Bank lending channel supposes that monetary tightening which drains deposits from the banking system has a direct effect on banks loan supply. Apart from being forced to cut their loans supply, banks generally increase their lending rate which in turn raises EFP and slashes output. Increase in lending rates is a way in which banks try to compensate for borrowers inclination to exhibit stronger adverse selection and moral hazard behavior during monetary contraction. Balance sheet channel looks at credit channel of monetary transmission from a borrowers' perspective. Monetary policy expansion for example, strengthens borrowers' net worth by a rise in equity, house and land prices or by a rise in firms' cash flow caused by a decline in nominal interest rates. EFP declines at this point because higher net worth reduces opportunistic behavior by borrowers so that banks are willing to lower lending rates, thus affecting aggregate spending decisions.

The fifth and the last monetary transmission channel distinguished relates to expectations and uncertainty. The impact of monetary policy depends on the extent to which they have been anticipated by economic agents. Unanticipated changes will have relatively strong effects. Monetary authorities' control over monetary conditions is determined by their ability to influence market expectations, and in particular, inflationary expectations. The formation of expectations crucially depends on policy credibility, which takes a long time to build.

3 Monetary Transmission in Transition Countries; the Basic Framework

From the break-up of communist block in early 1990s until the present, Central and Eastern Europe countries have undergone a full spectrum of monetary policy setups, including different nominal anchors and balances between rules and discretion that have been introduced across the region. This was done in the specific transition environment characterized with many structural changes along with the building of market economy institutions, the creation of two-tier banking system, gradual adoption of prudential standards and turbulent political processes. So when we place categorization of transmission mechanisms of monetary policy described above in a transitional context, the uncertainty about how this context will affect transmission process increases, while conclusions drown from comparing industrialized with CEE countries have to be taken

with much caution. The transitional framework differs so much that some of the channels specified in Figure 1 presented in the poster are probably still precluded from existence. Following this line of discussion the logical question follows: Are monetary transmission channels the same for industrialized and transition economies and if no, how different are they? Is the standard transmission mechanism analysis able to give satisfying answers that can be used as guidelines for effective conduct of monetary policy in transition economies and what are some of the special conditions shared across the region that could undermine or prevent effective monetary policy transmission? The following section of this poster will try to address theese issues.

4 Treatment of the Money Supply Variable

The debate on how exactly money affects the economy is as old as the history of economic thought. Without getting into complexities of the issue, I will address only small part of academic discussion that revolves around the issue of endogeneity of money. The mainstream economics tries to investigate the effects of money on the economy partially trough the analysis of monetary transmission channels, whereby taking Figure 1 or some similar categorization of monetary transmission channels as granted. Under existing monetary transmission mechanism theory, supply of money is thus considered exogenous, under direct control of central bank and the posited arrow of causation goes from central banks' induced changes in the money base, to changes in intermediate variables such as interest rates, credit or exchange rate to changes in prices, output, employment or wages. Even the name "monetary transmission mechanisms" seem to reflect the exogenous money supply (Moore, 2001; Dow, 1996). This theoretical approach is the result of an even more fundamental issue: neoclassical omission to integrate money in a satisfactory way into general equilibrium analysis. The comparative statics applied to general equilibrium system starts the analysis with real exchange economy into which money is introduced as separable variable (Dow, 1996). One of the propositions brought in order to reexamine this linear, one-way transmission process is that the supply of money could be endogenously credit driven or that they can depend much upon the way we treat investment and savings functions, instead of being exogenous (Moore, 2001).

Since, virtually every analysis on monetary transmission conducted so far in CEE, including Croatia, was exercised according to neoclassical methodology, resulting with little or ambiguous proof of existence of any effective channel of monetary transmission,

having methodological alternatives in this case could be useful, by providing additional methods to answer many unanswered questions.

Claiming (as in case of many studies done in CEE) that as we move trough time and business cycles, the robustness of models will increase, provides no real comfort, since the same methodology cannot often provide a clear answer in developed economies where shortness of time series is not an issue.

5 The Causes of Differences in Monetary Transmission Between Developed and Transition Economies

Some authors like Ganev et al. (Ganev et al., 2002) claim that after more than a decade of reforms, the environment in which monetary policy was conducted was far from even approximating neoclassical conditions. So with respect to formal analysis of monetary transmission in CEE countries two important observations need to be emphasized.

The first is that some specific constraints may render traditional policy tools applied in CEE less effective than a neoclassical environment would suggest. During transition, the institutions which are important for monetary transmission are underdeveloped by definition, while processes like budgetary deficits, the collapse of the financial system, euroization, and inflationary expectations linked to exchange rate movements could hamper the transmission process if they were at times dominant.

The second observation is that transition is a very dynamic phenomenon, subject to constant qualitative changes resulting in structural breaks in the time series, making available data unreliable. This occurrence could in turn undermine the efficiency of analysis conducted under any methodological approach, not just the neoclassical one.

In the next section, the poster discusses in greater detail some factors that might influence the monetary transmission process.

5.1 Euroisation, Currency and Asset Substitution

Available empirical evidence implies that the both currency substitution and unofficial euroisation in CEE countries are rather high (Feige, 2002; Aarle and Budina, 1995; Piontkivsky, 2003).

The higher the level of currency substitution in a country, the less effective the traditional set of monetary policy tools at the disposal of respective central bank. Actions of the monetary authorities pertaining to money market interest rates, reserve requirements and refinancing may in turn have negligible effect on inflation and output in comparison with the actions aimed at influencing the behavior of agents with the respect to currency structure of their assets.

Asset substitution phenomenon can drastically affect the real estate price if the exchange rate were to change, thus resulting in uncontrolled shocks to asset channel of monetary transmission.

Broader phenomenon encompassing both currency and asset substitution is known as euroisation. Unofficial euroisation is important phenomenon for most of the CEE countries; with the highest in Croatia, followed by Romania, Ukraine and Russia (Billmeier and Bonato, 2002; Piontkivsky, 2003).

The transmission process mechanism in a eurised system will depend not only on the substitutability between domestic and Euro assets, but also on substitutability between domestic Euro and foreign Euro assets, considered as less than perfect in transition economies due to the higher risk associated with uncertainty. The lower the substitution between domestic Euro and foreign Euro assets, the less the monetary transmission channel will resemble that of a non-eurised economy and monetary transmission process will therefore have less predictable and effective results (BIS Policy Papers, 1998). Besides affecting the efficacy and predictability of the monetary transmission process, high level of euroisation can determine the choice of a monetary target (Piontkivsky, 2003), thus limiting the decision freedom of central bank and can also as has happened in the Croatian case, create balance sheet mismatches and credit quality shocks (Kraft, 2002) and domestic demand shocks (BIS Policy Paper, 1998). Also, when domestic residents are net debtors to the rest of the world, as is the case in many emerging countries, a large appreciation of exchange rate may lead to improved balance-sheet positions that could give rise to expansion of domestic demand which is larger than the

relative price effect of appreciation that would tend to reduce domestic demand for relatively more expensive domestic goods (BIS Policy papers, 1998).

5.1.1 Effects on Monetary Transmission Channels

Given the relatively high levels of unofficial euroisation in CEE economies one would expect a great exchange rate pass-trough on prices. However, previous studies have not shown such a relationship (Darvas, 2001). Studies focusing on determining whether exchange channel could affect real sector variables trough monetary transmission channels still need to be done.

Considering Croatia's record of extensive level of euroisation (Croatian economy is the most euroised economy amongst CEE countries), one could expect an even greater exchange rate pass-trough on prices and output. Especially since the estimates obtained from study done by Friege (Freige, 2002) show higher level of both currency substitution and unofficial euroisation for Croatia than for Argentina (country known for its chronic lack of confidence in monetary authorities) which originated before Croatia attained its monetary independence.

However, existing studies (Kraft, 2002; Billmeier and Bonato, 2002) show no evidence of exchange rate pass-trough on consumer prices and only a small exchange rate pass-trough on producer price, thus implying an ineffective exchange rate channel in Croatia.

Finally, sudden Kuna depreciation would worsen banks leverage ratios if positions are held unheadged, and would also raise the level of credit defaults due to the foreign currency indexation of extended credit and pronounced moral hazard and adverse selection problems, which the banks would offset by raising lending rates and credit supply cut, thus affecting aggregate spending and output trough credit channel of monetary transmission.

Overall, there has been very little interest in academia to investigate euroisation in greater detail, currency and asset substitution phenomenon and especially how they can affect monetary transmission process and even alter its results.

5.2 Inflation and Inflation Expectations

Many emerging countries suffered or are still suffering from high inflation. In many cases, when experiencing high and variable inflation, exchange rate changes were viewed as a signal of future price movements, thus linking exchange rate movements with inflationary expectation trough indexation of wages, rents and prices. In such a potentially volatile environment, even minor changes in monetary policy stance that would affect exchange rate might in turn produce real effects that are opposite to those conventionally expected by monetary authorities. A loosening in monetary policy trough exchange rate depreciation, if it prompts concerns of a new surge in inflation, may lead to sharp increases in prices, all but the very short-term interest rates, decline in equity prices and hence output reduction. So in these countries loosening of monetary policy, followed by mutually-reinforcing surges in inflation expectations and exchange rate depreciation can have contractionary effect, not expansionary, which would seem more logical on first sight (BIS Policy Papers, 1998; Lang and Krznar, 2004). Not only can these situations produce aggregate demand shocks, they might also result in significant aggregate supply shocks. For example, a loosening of the monetary policy trough or followed by depreciation of the exchange rate can result in supply-side shock trough an increase in domestic currency import costs and hence induce firms to raise their domestic producer prices even in absence of any expansion of aggregate demand. On the other hand, wages and prices could move even before movements in import costs find their way trough the cost structure, affecting aggregate demand and finally output. Obviously, inflation expectations have to be kept in mind while deciding on monetary policy actions.

5.2.1 Effects on Monetary Transmission Channels

Firstly, when inflation is high and variable, the level of real interest rates becomes very uncertain, thus diminishing the importance of interest rate channel in monetary transmission mechanism. Also, if inflation expectations are high and volatile, it might be difficult to identify which part of interest rate reflects the real interest rate (thus affecting interest rate channel) and which part is the inflation risk premium. Furthermore, in a highly inflationary environment, the maturity of financial instruments shrinks and long-term, non-indexed assets disappear. In this context, asset prices channels of monetary transmission become much less important. Thirdly, both reductions in banks deposits and

desire by banks to match asset-liabilities maturity, severely restricts the role of credit channel in financing consumption and investments.

While examining inflationary expectations one must remember that every country is a separate case. Most of the CEE countries have successfully managed to stabilize inflation. Those who moved to inflationary targeting are probably managing to eliminate inflationary expectations from the minds of economic agents. Those who experienced high inflation in the past and are still trying to regain the credibility of central banks policies by choosing a nominal exchange rate anchor or target some other monetary variable probably might have latent expectations still in place. The exact timing of the transition from latter to former is still not clear (BIS Policy Paper, 1998). Inflationary expectations, working trough expectations channel can have a drastic impact on certainty of monetary transmission of the country in question. Giving general definitions and conclusions about expectations channel of monetary policy transmission is an ungrateful task, since every country has its own, somewhat specific, expectations models according to which economic agents base their behavior on. That could also explain why academic research in this field is very scarce.

5.3 Financial Market Development

One of the single biggest challenges for CEE countries is the development of financial markets. Vast academic research that has been done in this area often highlights significant differences between industrialized countries financial markets as opposed to transition countries (Piontkovsky, 2003). Financial and real estate market responses to monetary policy are likely to be particularly uncertain in emerging markets economies, where financial markets tend to be shallower and less competitive. Shallow financial markets result in higher transaction costs and bid-ask spreads, thus making the cost of debt and equity for the firms significantly higher. In addition, small group of players can often move the market. Market participants may have less experience in pricing assets correctly and less access to timely and accurate information on firms seeking financing (BIS Policy Papers, 1998). Lack of transparency in transition economies which are bank oriented might especially hurt bank lending relationships, since borrowing is very difficult to monitor in such a context. The resulting moral hazard and adverse selection behaviors give rise to financial accelerator mechanism, that in theory runs trough the credit channel of monetary transmission (Bernanke, 1995) which can in turn cause

asymmetric effects of monetary policy transmission over the business cycle and across different groups of lenders and borrowers.

5.3.1 Effects on Monetary Transmission Channels

Underdeveloped financial market of a country reduces the degree of freedom that its central bank has at its disposal. In that case, monetary authorities cannot than use asset price channels (wealth channel and Tobins q effect) which assume economies accustomed to direct capital financing, because in transition economies this channel is still precluded from existence. Since firms generally borrow from banks, not from financial markets, while households do not typically invest their savings in financial market instruments, monetary impulses can not be transferred to prices or real variables trough asset prices channel. On the other hand, credit channels in transition economies should, following this line of reasoning, be amplified because asymmetric information phenomenon is probably more pronounced and harder to control. Financial sector structural problems can have strong influence on the interest rate levels in the economy, with Croatia as a perfect example (Lang and Krznar, 2004). Not only do interest rate deformations prevent us from knowing much about monetary policy stance, but also such deformations preclude interest channels of monetary transmission from working at all. Ganev et al. (2002) also point out that in situations where financial market is illiquid, constant large deficits (often run by governments in emerging economies) could in turn result in interest rate hikes that would leave monetary authorities with no real control over interest rate pass-trough on private investments.

BIS study concludes that even if the channels of monetary transmission are stable and well understood, the great volatility of financial market conjoined with macroeconomic performance volatility may loosen the linkage between monetary policy impulses and future economic outcomes.

6 Conclusion

Emerging market specificities greatly condition the analysis of monetary transmission mechanism process. The differences between industrialized economies and emerging economies are at times so great that the same monetary policy actions can result in completely different economic outcomes. Constant changes in the economic structure and greater macroeconomic volatility make the mix of transmission channels changeable

and uncertain, while specific condition that exist in emerging economies greatly affect the workings of the individual channels.

Therefore, it is clear that any dogmatism concerning how monetary policy works would be misplaced. The channels of monetary transmission continue to evolve, in case of transition economies, in unexpected ways. Policy-makers need to keep alert to these changes, while researchers should continue their line of inquiry in the direction of many complex factors influencing the effectiveness of monetary policy transmission.

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