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**Challenges for monetary policy in the financial crisis**

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## 1 Introduction

Ladies and gentlemen,

I am very honoured to have been invited once more to hold a policy session at the Konstanz Seminar on Monetary Theory and Policy. I not only enjoy the beautiful surroundings of the Isle of Reichenau and Lake Constance, I am also looking forward to productive discussions. The financial crisis may dominate the discussions of this year's conference as a matter of course. My contribution will not be an exception in this respect as I shall be commenting on the challenges to monetary policy in the financial crisis. In particular, I shall be raising the questions of whether we are currently experiencing changes in the transmission process of monetary policy and of the longer-term lessons that we should draw from the financial crisis.

## 2 The transmission process of monetary policy in the euro area

When thinking about the longer-term lessons for monetary policy to be drawn from the financial crisis, we very quickly hit upon a topic that has always been a key point of interest to all central bankers and, by extension, the subject of decades of theoretical and empirical research: the monetary policy transmission process. Understanding this is a prerequisite for the design of monetary policy since the transmission process describes how monetary impulses are transmitted to the real sector – that is how they influence economic activity and finally inflation. For the following it is helpful to decompose the transmission process into a stylised way so that it can be conceived as consisting of different channels, through which monetary impulses are transmitted to the real economy. As the world is always in a state of flux, the relative importance and the composition of these channels do, however, vary to some extent. Consequently, as technological progress and constant change are key characteristics of modern economies, the whole transmission mechanism may be evolving over time. The constant evaluation of how monetary (and other) impulses transmit into inflation rates remains one of the key tasks of monetary policy.

Before turning to specific questions concerning the transmission process that have arisen especially during the financial crisis, I would like to make some more general remarks on whether and how the transmission process could have changed throughout the past two decades *before the crisis*. Prominent candidates for driving forces behind such a potential change are globalisation, the creation of EMU and financial development. As I have already mentioned, the literature is ample and monetary transmission has been discussed and analyzed in detail before. Therefore, it is not my intention to deliver a comprehensive overview of this strand of research. Instead, I will outline some driving forces that could have changed specific transmission channels, such as the exchange-rate, the interest-rate and the credit channel in the euro area. In doing so, I shall provide examples of the dependency of the

monetary transmission on structural change and point out some identification problems that arise.

## 2.1 Exchange rate channel

Concerning the exchange rate channel, there are theoretical arguments for its strength having either increased or decreased in recent years. On the one hand, the creation of the single currency has led to a weaker exchange rate channel of monetary policy in euro area countries because nominal exchange rate changes within the euro area have simply disappeared. On the other hand, the increase in international trade and integration on a global scale has heightened the relative importance of the exchange rate, which, in turn, has fostered the role of the exchange rate in the transmission mechanism.

A priori the net effect is open and can only be determined empirically. However, the evidence is mixed. For example, there is some evidence that the exchange rate channel may have become more powerful in the monetary union.<sup>1</sup> However, there is also some evidence that removing the exchange-rate risk for intra euro area trade combined with a stronger monetary policy commitment to stabilising inflation and output may have led to aggregate economic activity and inflation becoming more muted in their response to monetary policy shocks.

## 2.2 Interest rate channel

Theoretical considerations as well as empirical results point mainly to a stronger and faster pass-through from policy rates to other interest rates due to increased competition among different financial market segments and an ongoing consolidation process in the banking system. Both results in a closer link between different interest rates and thereby increase

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<sup>1</sup> See Boivin, Giannoni, Mojon, “How Has the Euro Changed the Monetary Transmission?”, NBER Working Paper No W14190.

the speed at which changes in monetary policy rates are transmitted to other financial variables and to the real economy. Moreover, the deepening of financial markets we have witnessed in the period before the financial crisis is likely to have enhanced the role of expectations. This has led to monetary policy impulses spreading more rapidly from the money market to other market segments of the financial system.

However, there is also an ongoing debate on whether international financial integration could have eroded the influence of monetary policy on national long-term interest rates. Indeed, at a first glance, the high degree of synchronisation between movements in long-term nominal interest rates across key industrial countries in recent years supports this hypothesis. However, this co-movement in long-term interest rates might also be the outcome of global shocks which affect different countries in much the same way and, therefore, prompting similar national monetary policy responses. In this case, the co-movement in national long-term interest rates does not necessarily imply that central banks no longer exert an influence on their domestic long-term rates.

### **2.3 Credit channel**

The credit channel consists of several sub-channels with the bank lending channel and the balance sheet channel probably being the ones that have been most analyzed. Whereas the bank lending channel concentrates on the supply of bank loans, the balance sheet channel looks at the effects of monetary policy on the overall supply of funds via borrowers' net worth.

As concerns the bank lending channel, a number of studies document that financial innovation – such as securitisation or credit derivatives – have led to banks becoming more flexible in reacting to monetary policy. More specifically, they may have become able to better iso-

late their loan costumers from restrictive monetary policy impulses.<sup>2</sup> Consequently, financial developments may have made the bank lending channel less important. However, to the extent that credit protection through credit derivatives is associated with an increase in bank credit supply the importance of the bank lending channel has not necessarily changed.<sup>3</sup> For example, the possibility of transferring credit risk may not result in reducing risk from a specific activity (such as lending) may increase that activity. In such a case, monetary policy would still operate through a bank lending channel as capital requirements would still be effective.

According to the balance sheet channel, possible interest rate changes influence the creditworthiness of borrowers via the evaluation of their assets. Creditworthiness, in turn, influences the premium that borrowers have to pay for external financing, and, thus, economic activity. While the analysis of the balance sheet channel was originally applied to non-financial institutions, the deepening of financial markets, along with financial innovations, has presumably extended its importance to the household sector as well as to the banking sector. With respect to the household sector, financial liberalisation and innovation have generally facilitated borrowers' access to standardised credit and thereby heightened the importance of asset prices in the households' balance sheet. Consequently, households, too, have become more sensitive to interest rate and asset price volatility. It should be clear by now that the credit channel, in particular, is not only complex but also sensitive to changes in the financial sphere.

## 2.4 Methodological issues

At this point, I would like to draw your attention to two methodological issues. When discussing the likely effects of individual channels, it should be kept in mind that the empirical identi-

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<sup>2</sup> See for example Altunbas, Gambacorta and Marques-Ibanez (2007), "Securitisation and the Bank Lending Channel", ECB Working Paper No. 838.

fication of changes regarding a particular transmission channel has to deal with at least the following two fundamental problems: First, it may be technically very demanding. Challenges are posed not only by the empirical identification of the transmission channel which is of interest. Isolating the driving factors of specific channels from other potential influences is usually a difficult task, too. Second, findings about the change of an individual channel do not allow any conclusions to be drawn about a likely change in the overall effectiveness of monetary policy, as causes and effects might interact and either reinforce or weaken each other. Therefore, it is reasonable to complement the partial approach by considering the transmission process as a whole. This is because only a macroeconomic perspective allows conclusions to be drawn about the potential overall changes in the monetary transmission process in the euro area.

### **3 The financial crisis and changes in monetary policy transmission**

But let me now turn to the current financial crisis and its potential implications for monetary policy transmission. The shocks we have experienced during the financial crisis have not only caused the deepest global recession since World War II but also severely harmed the interbank market. It is evident that in the short-term the monetary policy transmission process is being affected by these events. More specifically, two questions arise:

- “How does the transmission process work in times of financial turmoil like those we are currently observing?”
- “Will the transmission process change in the long-run as a result of the financial crisis – and if so, how?”

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<sup>3</sup> See for example Hirtle (2007), “Credit Derivatives and Bank Credit Supply”, Federal Reserve Bank of New York Staff Report No 276.

### 3.1 Current changes

There are two reasons why it is important for us to carefully observe changes in monetary transmission resulting from the financial crisis. The first reason is that such observations might teach us new details and characteristics of the transmission process in general, as the financial crisis is providing us with a rich and interesting database. However, insights of that kind will be of more use to us in the long-run. What is most important at present is to observe the functioning of the credit lending and interest rate channels. That is, to what extent and under what conditions banks lend to non-financial institutions and whether they pass on the enhanced terms of financing which they have been given by a looser monetary policy.

#### *Credit channel*

When we try to detect changes in the lending behaviour of banks using the available data on credit contracts, we are confronted with the technical problem of separating credit supply from credit demand. In this respect, the Eurosystem's Bank Lending Survey (BLS), which was introduced six years ago, is a very helpful tool because it provides qualitative information on the lending behaviour of the surveyed banks. It has proved to be very valuable in the current financial crisis because it supplies us with some information that can be used to judge whether the euro area economy is facing a credit crunch or not.

The results of the BLS for Germany show that credit standards for loans to enterprises and, to a lesser extent, also loans to households, have been tightened on average by the surveyed institutions since the outbreak of the financial crisis in summer 2007. There was a marked tightening in the credit standard for loans to enterprises, however, in the third quarter of 2008, after the collapse of Lehman Brothers.

According to the surveyed institutions, refinancing costs and balance sheet constraints have been playing a major role in developments in credit standards since the beginning of the financial crisis. However, in the two most recent survey rounds, in which there was a very

marked tightening of credit standards, additional factors were in play: the impact of the deterioration in the general economic situation and the increasing importance of industry or firm-specific developments.

#### *Interest rate channel*

In order to examine the extent to which financial institutions have passed on their lower short-term refinancing costs in the current situation, the Deutsche Bundesbank has analysed financial institutions' short-term interest rates for corporate and housing loans.<sup>4</sup> The reason for focusing solely on the short-term interest rate is that the longer-term refinancing behaviour of financial institutions may have changed markedly in the course of the financial crisis. Consequently, conventional measures for long-term refinancing conditions that have been used in the past may no longer be suitable.

Comparing the development in the three-month money market rate (EURIBOR) from the end of September 2008 until the end of March this year with changes in short-term bank lending rates, we find that financial institutions have passed on roughly 80% of their refinancing advantage to borrowers from the corporate sector and around 60% to house owners. Moreover, up to now, this analysis gives no evidence that the interest rate pass-through since fall 2008 is happening more hesitantly than in the period before the crisis.

### **3.2 Long-run changes**

As concerns possible long-run changes to the transmission process, it is certainly much too early to draw firm conclusions. Hence, please allow me to share some of my thoughts on this issue with you. Most obviously, we might see a reversal of some of the changes in the transmission process that took place in the period before the financial crisis. For example, insofar as the importance of securitisation in banks' financing declines, changes in the transmission process triggered by securitisation will go partly into reverse. In addition to this,

the financial crisis has drawn the attention of researchers and policymakers to a new aspect of the transmission process that might have been neglected in the past: that is the dealing with risk.

In this context, a debate on a possibly new channel of monetary policy – known as the risk-taking channel – has evolved, based on a paper by Borio and Zhu<sup>5</sup>, published in 2008.<sup>6</sup> The risk-taking channel tries to capture the consequences of risk for the monetary policy transmission process by linking two possible perspectives in our financial system: The perspective of financial institutions (finance perspective), which emphasises the measurement and evaluation of risk. And the perspective of financial regulators and central banks (economics perspective), which focuses on the financing conditions in an economy.

As the mechanisms through which monetary policy might influence market participants' risk-taking are complex, at least three dimensions have been attributed to the risk-taking channel. The *first dimension* is closely connected to the balance sheet channel which I mentioned earlier. It takes into account the fact that monetary policy might influence the evaluation of collateral, asset prices and cash flows, thereby changing risk behaviour in an economy. According to the *second dimension*, risk-taking by market participants is influenced via their target returns. More specifically, in the case of rigid nominal target returns, a tight monetary policy can induce a wedge between nominal returns that are achievable in the financial markets and the nominal target returns of market participants. This – in combination with an ample range of investment possibilities – might trigger a “search for yield process”: market participants invest in riskier assets in order to achieve satisfying returns. Finally, the *third dimension* of the risk-taking channel links the communication of monetary policy to higher risk-taking. This link can either work through the desired effect of good monetary pol-

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<sup>4</sup> Deutsche Bundesbank, Monthly Report, May 2009.

<sup>5</sup> See Borio, Zhu (2008), “Capital regulation, risk-taking and monetary policy: a missing link in the transmission mechanism?”, BIS, Working Papers No 268.

<sup>6</sup> The existence of a risk-taking channel was first discussed several years ago by Borio and Lowe (2002), and Rajan (2005).

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icy communication, which is known as the “transparency effect” as enhanced transparency might reduce the uncertainty about future monetary policy and through this the risk-premia. Or – and this is the case that monetary policy should wish to avoid – market participants might increase their risk-taking if they take into account the fact that monetary policy will be relaxed in the case of decreasing asset prices in a financial downturn. In this case – the so-called insurance effect – market participants are implicitly insured against downside risks and therefore tend to take excessive risk. Hence, we have to deal with a classic moral hazard problem. The questions that follow on from these rather theoretical considerations are “What empirical evidence do we have on this transmission channel?” and “What lessons should monetary policy draw from its existence?”

### *Empirical evidence*

Some observations seem to confirm the existence of the risk-taking channel. The economic boom that began in 2002 was characterised by the coexistence of low monetary policy rates, very high asset prices and unusually low short-term risk perception. This suggests that the first dimension of the risk-taking channel was at work. In addition, a comprehensive “search for yield” process could also be observed in this market environment – that is the risk-taking channel worked via its second dimension of rigid nominal target returns. Concerning the third dimension of the risk-taking channel, simple observation is not very helpful because it requires the empirical identification of the two effects. While the transparency effects is difficult to isolate from other effects which are at work, there is, however, some empirical evidence for the insurance effect.<sup>7</sup>

Apart from this, empirical research on the risk-taking channel is in its early stage and is consequently rather thin on the ground. Therefore, we do not yet have firm empirical evidence for the existence and the relative importance of the risk-taking channel. However, recent ECB research shows for the euro area that low interest rates soften bank lending standards.

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<sup>7</sup> See for example, BIS 77<sup>th</sup> Annual Report (2007).

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As loan characteristics are typically not adjusted for increased risk, banks tend to have a lower risk aversion when low interest rates prevail for a long time.<sup>8</sup> Two further research papers that are worth to be mentioned have found evidence of a risk-taking channel for Spain and Bolivia, using *ex ante* and *ex post* loan characteristics to model risk-taking.<sup>9 10</sup>

#### 4 Longer-term lessons for monetary policy

Although, there is a strong need for further research at the risk-taking channel so that the right lessons for monetary policy can be drawn, there are some considerations that we can already take into account. In particular, the notion we obtain from the risk-taking channel about the way monetary policy can influence market participants' risk perception supports the call for a more symmetric monetary policy across asset price cycles. Such a more symmetric approach would treat boom and bust episodes not as isolated events but would try to look through the financial cycle. To be more specific, a more symmetric policy would also realise implicit risks in times when money and credit growth is dynamic, asset prices go up and risk perceptions decline, possibly creating a need to act despite current inflation rates being sufficiently low. This, however, does not mean that monetary policy should downgrade the price stability objective for the sake of other objectives. Rather, it means that central banks should take a longer-term perspective which takes due account of the future inflationary consequences of such unfavourable developments.

Here, the Eurosystem's monetary policy strategy already possesses such a stabilising element, in the shape of its monetary analysis, which is especially suited to analysing long-term

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<sup>8</sup> See Maddaloni, Peydró-Alcalde, Scopel (2008), "Does Monetary Policy Affect Bank Credit Standards?", *mimeo*.

<sup>9</sup> See Jiménez et al. (2007) "Hazardous Times for Monetary Policy: What do Twenty-Three Million Bank Loans Say About the Effects of Monetary Policy on Credit Risk?", CEPR Discussion Paper 6514.

<sup>10</sup> See Ionnadou et al. (2009), "Monetary Policy, Risk-Taking, and Pricing: Evidence from a Quasi-Natural Experiment", CentER Discussion Paper, 2009-31 S pp. 1-45.

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developments. The recent financial turmoil has shown that the often-criticised monetary and credit analysis has a valuable role to play in monetary policy analysis.

## 5 Conclusion

Ladies and gentlemen,

Today, I have spoken about the challenges that the financial crisis is posing for monetary policy in terms of the transmission process. Of course, this is not the only challenge which monetary policy is facing at present. It is, however, a very crucial one, as we should study the transmission process in order to learn from the current financial crisis. Research in this field of monetary policy is still in its infancy. Nevertheless, there are very promising research papers that have already pointed out some key questions. As we are dealing with a very interesting field of research, I am sure that more work on this topic will follow.

Thank you very much for your attention.

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