Lorenzo Bini Smaghi: Monetary policy transmission in a changing financial system – lessons from the recent past, thoughts about the future

Speech by Mr Lorenzo Bini Smaghi, Member of the Executive Board of the European Central Bank, at the Barclays Global Inflation Conference, New York City, 14 June 2010.

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Introduction

It is a great pleasure for me to participate in this conference.

Since the crisis erupted, in mid-2007, central banks throughout the world have conducted their monetary policies using new instruments and techniques. Are these changes temporary, and linked to the effects of the financial crisis? Or do they mark more lasting changes in the transmission mechanism of monetary policy? These are important questions to understand the role of central banks in the current crisis and in the future.

The simple answer is that monetary policy operates through financial markets, markets that have changed substantially over the last decade. Monetary policy cannot be implemented without taking these changes into account. However, since central banks have to be accountable, they need to explain how they reflect these changes in their monetary policy operations without changing their underlying objective.

I will try to address this issue by dividing my remarks today into three main parts. First, I will review trend developments in financial intermediation and single out a recurring theme in the evolution of the financial markets over the last 30 years: the rise of securitisation and collateralised finance. I will then consider the consequences of this innovation for the transmission of monetary policy in the post-crisis world. I will start by looking at the money markets and turn to the wider financial system, including the shadow banking sector. Looking forward, the main sources of collateralisation will be an issue to consider if the present trend towards downscaling the creation of private asset-backed securities continues. Public debt instruments are likely to play an important role. This will lead us to reflect on the role of central banking at a time of high public debt.

1. The rise of collateral

The financial system has undergone profound changes over the past few decades. Markets have grown significantly; competition has intensified. These are well-known phenomena. I would like to focus on the consequence of this, namely that the core of financial intermediation has moved from depository institutions – commercial banks – to a hybrid aggregate of institutions and functions, which is broadly referred to as the *shadow banking system*. The rise of the shadow banks, their ups and their downs, are inseparably connected with a key financial innovation of the last 30 years: securitisation.

The emergence of a shadow banking system is not a new phenomenon. What was new over recent decades was the scale of its activities, which is closely related to the rapid expansion of securitisation. The securitisation of previously illiquid items in banks' balance sheets gave perhaps the strongest boost to the financial sector. Securitisation allows traditional banking assets to be transformed into tradable instruments, thus creating tradable assets. It acts as a multiplier of negotiable financial claims or, more simply, a multiplier of finance.

Why was securitisation so essential to the expansion of shadow banks? The short answer to this question is that shadow banking serves as an intermediary for wholesale finance. In this segment of the financial system, lenders have large – and lumpy – financial resources to place with intermediaries for short periods of time, with no protection from formal deposit insurance mechanisms. This lack of formal insurance – since deposits are too large to be eligible for protection under national laws – calls for an informal or – I should rather say – market-based system of protection. This is precisely what the securitisation of assets can do: it can give financial intermediaries enough tradable securities to pledge as collateral for the large – lumpy – loans that they receive in the wholesale shadow-banking segment of their activities.

The run-up to the crisis clearly showed that shadow banking and securitisation are not only interrelated but also that they interact. The shift in banks' funding away from traditional and stable sources – such as retail deposits – to wholesale funding was as much a by-product of securitisation as a source of its potentially unlimited expansion. It was a by-product of securitisation because in order to finance the large increase in their securitisation business the banking system had to draw on a larger pool of financial resources than retail deposits could offer. But that shift also caused, independently, an increase in securitisation because the lending of large sums to shadow banks needed – and needs – marketable collateral. In its essence, this lending is a large-value deposit which has to be secured by collateral. So, securitisation received a formidable boost as banks used it to generate the securities which were required to finance its overall business.

Data confirm this close association between shadow banking, collateral and repo markets. A large portion of the financing of the shadow banking system takes the form of repurchase agreements (repos), which work much like deposits. The wholesale lender deposits a large sum with the shadow bank for a very short term, perhaps overnight. As this callable claim cannot be covered by formal deposit insurance, it needs to be protected by collateral. So, technically, the transaction involves the purchase of some securitised assets from the shadow bank in exchange for cash and a promise by the bank to repurchase the securities at the stated price at some future date, perhaps on the day thereafter.

Data on activity in the repo market are limited. But we know the volumes are large. The business model of the hedge fund industry relies on financing their highly-leveraged activities via the repo market. Repo activity will therefore exceed their already substantial leverage positions. Moreover, as reflected in the recent analysis of Gorton and Metrick (2009),[1] information can also be gleaned from the balance sheets of broker dealers and investment banks. For example, approximately 80% of the balance sheet of investment banks such as Lehman Brothers and Bear Stearns in 2007 – that is, before the crisis – was funded by volatile, short-term instruments. It was this balance sheet structure that, in the end, made these two banks extraordinarily vulnerable to a sudden withdrawal of liquidity in the wholesale funding market and which ultimately led to their demise. Note that more than one-third of this short-term debt was collateralised, that is acquired in the repo market.

To sum up, we have seen the relentless rise of collateralised finance. Any reflections on the future of the monetary policy transmission mechanism have to start from there.

2. Collateralisation and the money market

The crisis that started in August 2007 has highlighted the key role of collateralised finance in two ways: first, as a vehicle of distress; second, as a possible instrument of repair.

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[1] See: G.B. Gorton and A. Metrick (2009), "Securitized Banking and the Run on Repo," Yale ICF Working Paper No. 09-14.

During the crisis, and notably after the collapse of Lehman, money market spreads in the euro area surged to unprecedented levels. When I say "money market spreads", I mean the spreads of unsecured money market rates as well as certain repo rates (over OIS rates). Indeed, repo rate spreads depend on the quality of the underlying collateral. For example, single-A private paper repo spreads showed a pattern similar to the spreads of unsecured money market rates in late 2008 and early 2009. However, triple-A government bond repos appeared to be relatively unaffected by the worsening crisis, at least in Europe. In addition, collateral haircuts, which in many cases were very low before the crisis, increased and varied greatly across asset classes and types of borrowing institution. Of course, money market spreads were generally wider for transactions with longer maturities and significant parts of the term money market dried up completely.

Again, we see the power of collateral in today's financial world. The presence or absence of collateral in money market transactions, and the quality of the collateral used to secure these transactions determine whether the very first step of the transmission mechanism works. The collateral influences the scale of market spreads over and above the overnight rate at which the central bank lends to banks. And money market spreads play an important role in the smooth transmission of monetary policy to the broad economy.

Early on in the crisis the value of collateral deteriorated so dramatically that even the primary unsecured form of lending – interbank lending – ceased to function. Precautionary hoarding of liquidity brought about a complete seizure of many segments of the market for credit. At the same time, panic sales of assets made market liquidity disappear. Market liquidity is high when traders can easily find a price, and that price is very close to what every other trader pays for the same asset at the same time. In early October 2008 the market simply couldn't find a value for many of those securities that had been so highly priced only a few weeks before. While available collateral was sharply down-priced, the economy-wide equity capital, which is largely valued by the market, evaporated in a matter of hours. Equity capital is what backs up unsecured money market transactions. This partly explains why the unsecured market seized up alongside the repo market.

While collateralised finance can accelerate a generalised loss of confidence, it provides the guardians of stability with one more instrument of defence. In late 2008 the ECB increased its collateralised lending to compensate for the withdrawal of private lending in inter-bank transactions. To ease banks' liquidity and balance sheet constraints, in particular, we have broadened the list of assets that we consider eligible as collateral in our refinancing operations. This has liquified a large fraction of our counterparties' assets, which had become illiquid in the tense market conditions following the failure of Lehman. This intervention served to shore up savers' confidence in the viability of the financial sector.

Our enhanced credit support measures were taken to preserve the integrity of the transmission mechanism of monetary policy at a time when banks showed a tendency to withdraw in a disorderly way from their intermediation function. A functioning transmission mechanism is the pre-condition for the central bank to be able to accomplish its mandate of maintaining price stability in the medium term.

The same policy intention underlies our *Securities Markets Programme*, which we started on 10 May this year. We intervene in euro area public and private debt securities markets in order to ensure depth and liquidity in those market segments which have proved dysfunctional. As government securities are the basis for pricing all private debt instruments, our action in the sovereign bond markets aims to create the orderly conditions necessary for lenders to provide a steady flow of credit to the private economy.

Overall, through its enhanced credit support measures, the ECB has replaced ill-functioning segments of the financial market and acted as an "intermediary" between banks with a liquidity deficit and banks with a liquidity surplus. At the same time, and with a slightly longer-term perspective, the measures have contributed to a more stable situation in various segments of the financial markets during the crisis. For example, easier access to central

bank refinancing meant that banks could refinance their money market activities more easily if needed. This, in turn, has reduced the risk of lending out liquidity in the money market and thereby lowered the liquidity risk premia.[2]

In crisis times, banks the world over learnt what Japanese banks learnt back in the 1990s: that they could manage their liquidity requirements – perhaps more comfortably and at lower cost – through central bank intermediation rather than via their traditional money market activities. Central banks – for their part – have seen that their collateralised lending has made them key market makers at a time when markets were disappearing.

3. The role of central banks in money markets

In light of all these developments we may well ask whether the new market-making role of central banks will continue. If central banks intermediate large volumes in normal times, they may not need to change their operational framework substantially when a liquidity crisis suddenly hits. Larger intermediation could anchor expectations and make market dynamics less subject to threshold effects. Does this suggest a new steady state – beyond the setbacks and progress of the current crisis – in which central banks will become a larger counterparty to the financial system as a whole?

It is too early to say. Nevertheless, let me share with you some preliminary thoughts on the future role of central bank intermediation. Let me say up front that central bank intermediation involves subtle trade-offs. Let me list some of them.

First, the larger the intermediation offered by the central bank, the smaller, ceteris paribus, the incentives are for banks to reduce liquidity risk (for example, to reduce the maturity mismatch of assets and liabilities). After all, they can turn to the central bank if they need to. Of course, while central bank intermediation increases the incentives for banks to take liquidity risk, it also increases the liquidity insurance available to banks. That is, as long as a bank does not adjust its balance sheet when the central bank offers more intermediation, its net liquidity risk exposure may in fact decrease due to the increased liquidity risk insurance provided by the central bank. But which effect is stronger: the incentive or the insurance effect?

Second, larger central bank intermediation can crowd out market activities. This might be perceived as a cost-reducing development by private banks. If the central bank lends larger volumes in longer-term operations, this might provide a boost to private lending at the same maturities: some banks might consider offering funds in the term money market only if they themselves can refinance such activities by participating in longer-term central bank operations. This may make term money markets more liquid in the end. However, this is not what the Japanese authorities observed in the first half of this decade.

To sum up, the extent to which the central bank uses collateralised lending to intermediate between banks has proved helpful in restoring confidence and “real money” financial flows in the underlying asset markets – the markets in which the collateral is priced. This has repaired links in the early stages of the transmission channel, the viability of which depends on those collateral prices. These links would have been brutally and perhaps irrevocably severed, if private arbitrage had been the only force of market motion, as in normal times. But increased intermediation has an impact on the liquidity risk exposure of banks, on their ability to carry out maturity transformation, as well as on the liquidity of specific money market segments. Whether the impact is positive or negative is hard to say. But moral hazard – which is the pitfall of any such type of thinking – makes conditions (and behaviours)

[2] The significant increase in activity in the primary market for covered bonds – which the ECB started purchasing in July 2009 in the context of the covered bond purchase programme – is an example of how these measures have stabilised financial markets.

change in response to central bank actions. As was the case at the start of the rational expectations revolution in macroeconomics, a prudent central bank needs to internalise the private sector's response to its own actions.

4. Collateralised finance and the transmission of monetary policy

The shift of gravity in the financial sector away from traditional commercial banking and towards shadow banking affects the channels of transmission for monetary policy in different ways.

In some respects the transmission mechanism is weakened through the loss of control over some financial aggregates – such as credit formation – and the declining coherence between credit and money. In a world of shadow banks the money multiplier might become a will-o'-the-wisp which central banks find difficult to use as a steady instrument of policy. The reserve basis – which in the inverted-pyramid representation of the financial system sustains the creation of total leverage in the economy – becomes an even thinner support for finance. As the famous "conundrum" episode has demonstrated, a central bank's intention to impose limits on credit can be resisted and offset by an endogenous expansion in leverage. While the base of the pyramid remains narrow, growing leverage can still expand the whole edifice of finance.

Regulation is an answer to the weakening of central bank controls over the size of finance. It will be especially important to extend regulatory oversight to those market segments that, before the crisis, had escaped the attention of regulators. The prime focus of attention here will be – once again – the shadow banking system. Here, of course, there is an issue of relative scale. If we want central bank control over leverage to be stronger in the future, shadow banks need to be part of what we consider "banks" *tout court*. In fact, by 2007 the size of the official and shadow banking systems, measured by the total amount of assets, had become essentially the same.[3]

But there is also an issue of quality – or, if you prefer, of composition – of finance. Due to the increased risk aversion resulting from the financial crisis, collateralised lending is bound to increase in the future, even in markets where traditionally unsecured lending was the most important source of finance (e.g., the euro area interbank market). As a consequence, the demand for securitised assets – of the type that shadow banks have learned to create in the past – is set to increase further in the future, as institutions demand such types of debt to use as collateral. To put it in a nutshell, we will continue to need the functions, the financial products and the expertise that the shadow banks have been offering. But, we need to make sure that these activities are performed in a non-disruptive way.

The new financial landscape can also reinforce the effectiveness of monetary policy. I already mentioned that most of the funding of financial institutions – whether banks, broker-dealers, hedge funds or shadow banks – is short-term. In other words, a key function of the financial system is *maturity transformation*. When a central bank takes decisions on the policy rates, it directly affects the marginal price of leverage for these financial institutions.[4] As a result, the behaviour of financial intermediaries – which, by their nature, have high levels of leverage – can be strongly influenced by even small changes in short-term rates.[5] In

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[3] See Figure 3.1 of T. Adrian and H.S. Shin (2009), "Financial intermediaries and monetary economics," *Handbook of Monetary Economics*, forthcoming.

[4] See: T. Adrian and H.S. Shin (2009), "Financial intermediaries and monetary economics," *Handbook of Monetary Economics*, forthcoming.

[5] See: R.G. Rajan (2005), "Has financial development made the world riskier?" Proceedings of the FRB Kansas City Jackson Hole symposium "The Greenspan years: Lessons for the future"; and F. Allen and D. Gale (2007), *Understanding financial crises*, Oxford University Press.

other words, short-term interest rates are important *in and of themselves*, not only because they influence longer-term rates and other asset prices via expectations of future short-term rates, but also because they change the liquidity conditions faced by a large portion of leveraged institutions.

A number of empirical studies have explored this issue. In line with the assumption that lower short-term interest rates reduce the cost of leverage and thus encourage an expansion of intra-financial sector transactions, these studies find that money market activity, particularly in the secured segment, expands when monetary policy is accommodative. For example, Adrian and Shin (2008) demonstrate that the balance sheets of US broker/dealers expand when monetary policy is accommodative.[6] Similar evidence is provided for the US repo market by Gorton and Metrick (2009), who found that activity started to increase significantly from 2001 – that is, at a time when monetary policy in the US was relatively loose following the bursting of the dot-com bubble.[7] Acharya and Schnabl (2010) provide similar evidence related to the asset-backed commercial paper (ABCP) market.[8]

In summary, if the process that has been set in motion under the aegis of the G20 has the potential to place a whole new segment of finance under regulatory scrutiny and oversight, the new collateral-based finance can give a central bank stronger influence over financial and macroeconomic conditions more broadly.

5. Monetary policy in a high-debt environment

I mentioned earlier that collateral is likely to play a growing role in the functioning of capital markets. Demand for collateral is thus likely to increase. But, given the collapse of securitisation activity during the crisis, we could imagine that the current decline in the creation of securitised assets might become a permanent feature of the new landscape. There will be fewer ABSs created out of bank books.

Sovereign debt will certainly be widespread. It will probably replace ABSs in the collateralisation of secured lending. Unlike in the past, the risk characteristics of this type of debt instrument will be more graduated than was considered possible only few years ago. The risk associated with what used to be considered risk-free assets is something new in financial markets.

What type of risk will be incorporated in the market returns on sovereign debt? For people of my generation, Sargent and Wallace provided the traditional answer: in a game of chicken between an irresponsible and institutionally strong fiscal authority on the one hand and a committed but unrealistic central bank on the other, the former is bound to win. Inflation will be the outcome. Knowing this, investors will demand high returns on government debt to offset higher expected inflation. So the game ends before it has even started.

In the new world, the Sargent and Wallace story has lost some of its descriptive and predictive power. The fiscal authority is confronting a strong player with institutional backing. And certainly in Europe's Monetary Union, the central bank is as strong and institutionally established as the fiscal authority. If the fiscal side does not adjust, inflation risk mutates into liquidity risk. In the most severe cases, if the fiscal adjustment is delayed, liquidity risk turns into solvency risk As you know, markets have learned to become more discriminating with regard to fiscal solvency than they have been for decades. Countries with comparatively

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6 See: T. Adrian and H.S. Shin (2008), "Liquidity and Leverage," FRB New York Staff Report no. 328.

7 See: G.B. Gorton and A. Metrick (2009), "Haircuts," NBER Working Paper No. 15273.

8 See: V.V. Acharya and P. Schnabl (2010), "Do Global Banks Spread Global Imbalances? The Case of Asset-Backed Commercial Paper During the Financial Crisis of 2007–09," paper presented at the 10th Jacques Polak Annual Research Conference, 5–6 November 2009.

better managed public finances will pay lower risk premia, and therefore lower interest rates, which, in turn, will help them to keep budget deficits and the stocks of national debt under control. Countries with larger budget deficits and higher stocks of national debt, on the other hand, will face higher risk premia, and therefore higher interest rates, which, in turn, will affect their ability to control the dynamics of their public finances.

How will a central bank committed to price stability and endowed with the constitutional guarantees necessary to enforce a price stability-oriented policy pursue its mandate in a high-debt / high-risk environment?

Sovereign securities have traditionally been the prime form of collateral for central bank credit. In the future, given the greater importance of this type of debt instrument in the total portfolio of the economy – to which I was referring before – this primary role is unlikely to diminish. So, a central bank will continue to emphasise strongly the maintenance of orderly market conditions for this type of instrument. The ECB's Securities Markets Programme has demonstrated how critical it is for a central bank to safeguard the functioning of this segment of the market.

1. At the same time, we have to recognise that, when executing lending policy, a central bank functions much like a private financial intermediary. Of course, a central bank loan creates money, which is not the case for private loans. But the lending side of the operation is essentially the same. The granting of private credit is accompanied by restrictions imposed on the borrower which limit its ability to take risks that might endanger the value of the loan. Likewise, when a central bank provides credit against collateral, it must follow up with a frequent re-evaluation of the credit conditions so as to safeguard its funds and make sure its commitment is not abused. Also, by the very act of declaring an asset eligible for monetary policy operations, a central bank has to be aware that it might affect its price. This argues in favor of a graduated system of collateral valuation, in which haircuts reflect the underlying fair value along a continuous scale, possibly with less threshold discontinuity than at present. These are issues for further analysis.

2. In any case, while central banks will be called upon to support market functioning in liquidity crises when the integrity of the transmission mechanism is threatened, they cannot be asked to rescue insolvent issuers – whether private or public institutions. In line with this principle, the SMP is meant to repair the integrity of the transmission mechanism, not to finance public debt.

Conclusions

Let me briefly summarise the thrust of my message. Central banks have provided exceptional support in exceptional circumstances. Now, they need to apply the Lucas critique to their own actions. They need to try and work out what the implications of their actions will be for financial markets in the future. Unless new regulations and a material extension of oversight to the new world of financial intermediation – which the crisis has exposed – are applied in earnest, central bank activism risks fuelling moral hazard in the long run.

Provided that financial regulation covers the full breadth and width of financial intermediation, then the new world will likely be one in which the transmission of monetary policy will be stronger, not weaker. Risk aversion will call for more collateralisation. The move away from unsecured to collateralised lending could make overall lending more sensitive to fluctuations in the value of collateral. As monetary policy influences the terms on which these trades are made, its effectiveness will increase.

Sovereign debts instruments are likely to continue playing an important role as collateral – both in private lending and in central bank refinancing operations. Central banks should be flexible enough to adapt their instruments to changes to the financial environment. But they

have to remain inflexible in their overall strategy. In a changing financial environment the only way to maintain credibility is to safeguard the ultimate objective, which is price stability.

Thank you for your attention.