

Monetary Policy and Financial Markets

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Introduction

Today marks the twentieth anniversary of the Swiss Society for Financial Market Research. I am honored to be able to address you on this occasion. As a central banker and as a former market participant, it is a special privilege to talk to you about how monetary policy and financial markets relate to each other. But before I begin, let me extend my congratulations and best wishes. I trust that the efforts of the society will continue to foster our understanding of financial markets for many years to come.

Monetary policy and financial markets are intrinsically linked. Central banks conduct monetary policy by directly and indirectly influencing financial market prices. Since financial market participants seek to extract profits from buying and selling securities, markets inevitably pay close attention to both words and deeds of central banks. The relationship between monetary policy and financial markets is by no means a one way street, however. Financial market prices reflect the expectations of market participants about future economic and monetary developments. These expectations, in turn, provide valuable information for central banks in determining the optimal future course of monetary policy.

In today's remarks, I will begin by discussing how monetary policy influences various financial market prices. My point of departure will be the monetary policy instrument, which is typically a short-term interest rate. In light of the close links between monetary policy and financial markets, I will then explain the benefits of central bank transparency. My comments will end with a note of caution concerning the information value of financial market prices in a world of increasingly market oriented and transparent central banks.

1. How does monetary policy affect financial markets?

Monetary policy is aimed at preserving price stability. In some countries, central banks operate under mandates that refer to additional objectives such as full employment, maximum sustainable growth, stable interest rates or stable exchange rates. To meet their objectives, central banks intervene in financial markets. It is through the financial markets that monetary policy affects the real economy. In other words, financial markets are the connecting link in the transmission mechanism between monetary policy and the real economy. I will focus on the first part of the transmission mechanism only, i.e. the transmission from the monetary policy instrument to financial markets.

Monetary policy affects financial markets through various channels. However, the transmission process from monetary policy to financial markets and finally to the real economy has a single source: the monetary policy instrument. Typically, the monetary policy instrument is a financial market price which is directly set or closely controlled by the central bank. For most central banks with floating exchange rates today, the monetary policy instrument is a short-term interest rate. Under fixed exchange rate regimes, a particular exchange rate serves as the instrument. Under monetary targeting regimes, the instrument is typically the quantity of central bank money in the banking system.¹

The Swiss National Bank (SNB) has used all of the above-mentioned instruments in its recent history. During the Bretton Woods period of fixed exchange rates, the SNB intervened in foreign exchange markets to keep exchange rates stable. After the collapse of the Bretton Woods system in the early 1970s until 1999, the SNB adopted a monetary targeting strategy. During this period, the SNB used the level of bank reserves as operational target. From 1978 to 1979, the SNB temporarily abandoned the strategy of targeting bank reserves in favour of targeting the exchange rate. Since the introduction of the new monetary policy framework in 2000, the SNB has used the three month CHF Libor as its operational target.²

The precise sequence of the monetary transmission mechanism depends on the instrument which is used. I will assume that the monetary policy instrument is a short-term interest rate. This reflects common practice for central banks with floating exchange rates.

Bond prices and the exchange rate

Short-term interest rates alone have only limited direct effects on the economy. Interest rates which determine savings and investment decisions and therefore have a stronger impact on the economy typically have longer maturities. In order to impact the economy, monetary policy impulses must therefore first be transmitted from the money market to the capital market. The money market and the capital market are linked by expectations. Neglecting transaction costs and risk premiums, the expectations theory of the term structure views the long-term interest rate as an average of the short-term interest rates expected to prevail until the maturity of the respective bond. Although current short-term

¹ Since the quantity of money is directly related to its price, using the quantity of money as the instrument is fundamentally equivalent to using a short-term interest rate.

² See Rich (2000) for an overview of the SNB's experience in monetary targeting since 1974 and the reasons for the transition to a new strategy in 2000.

interest rates have some effect on longer-term bond yields, the expectations theory of the term structure tells us that it is primarily *expected* future short-term interest rates which determine bond yields. In practice, due to uncertainty about the future evolution of short-term interest rates and due to time-varying risk premiums, the longer the maturity, the weaker the link between current short-term rates and long-term rates. Therefore, in practice, a central bank would often find it difficult to guide longer-term interest rates to a level commensurate with what it considers to be the optimal monetary policy stance.

Assuming a flexible exchange rate regime, the exchange rate is arguably the quickest transmission channel for monetary policy, particularly in open economies. Exchange rate movements rapidly affect prices (via import prices) and subsequently demand (by boosting imports and slowing down exports, or vice versa). In theory, monetary policy impacts exchange rates via the yield curve and from there via interest rate parity relations. To be more precise, it is the yield curve of both the home and the foreign country, and thus the monetary policies of both the home and the foreign country which affect the exchange rate between two currencies. In practice, exchange rate movements often deviate significantly from what interest rate differentials would suggest. In light of the practical uncertainties about the effects of monetary policy on exchange rates, the exchange rate transmission channel for monetary policy is also not easily exploitable.

Other assets

Apart from bonds and exchange rates, monetary policy also affects the stock market. The relationship between monetary policy and stock prices is complex, because stocks are influenced by monetary policy through several channels. First, if stocks are priced using the dividend discount model, then monetary policy affects stock prices via the interest rate which is used to discount future dividends. Interest rates may also affect the value of domestic assets of a company, and the exchange rate affects the value of its foreign assets and foreign profits. In addition, monetary policy influences the financing cost of a company as well as the availability of loans. Moreover, the medium-term effects of monetary policy on the real economy can influence a firm's profits.

Monetary policy can also affect commodity prices. Expansionary or restrictive monetary policy supports or weakens real activity in the medium run and can thus influence the demand and the price for commodities. Obviously, this dynamic can only occur in economies large enough to impact the global demand for commodities. In addition,

monetary policy can affect some commodities to the extent that their prices may reflect a change in inflation expectations.

Last, but not least, monetary policy affects housing prices. In general, the transmission from monetary policy to housing prices tends to be stickier than is the case for other financial market prices. This is because real estate is not a standardised good which is traded on organised markets. Nonetheless, at least in theory, the transmission from monetary policy to housing prices is relatively straightforward: Real estate, like a long-dated bond, has a very long maturity, as the yield it returns, namely housing, will accumulate for several decades. Monetary policy affects the discount rate which must be used to discount future yields. Apart from that, the medium-term real effects of monetary policy may affect demand, rental prices and thus house prices.

An important determinant for the price of all long-dated assets is the risk premium. One of the risks compensated for by the risk premium is purchasing power risk, i.e. the risk arising from the uncertain purchasing power of future expected proceeds from an asset. Since it is monetary policy which ultimately determines the purchasing power of money, monetary policy affects the perceived purchasing power risk. A further risk compensated by the risk premium derives from the expected volatility of an asset price during its lifespan. As monetary policy affects asset prices, it can also impact the expected volatility of asset prices and, in turn, again affect the risk premium.

The link between the monetary policy instrument and any one financial market price is subtle and variable. Central banks would face an exceedingly difficult task if they had to rely on a single price to transmit monetary policy impulses to the real economy. The fact that monetary policy works simultaneously through several financial market prices reinforces the precision and the impact of monetary policy.

So far, I have tried to outline how monetary policy impulses are transmitted to financial markets. The monetary policy instrument itself, typically a short-term interest rate, has only a limited impact on the real economy. Monetary policy works through its aggregate impact on financial markets. Monetary policy impacts financial markets mainly through expectations. Indeed, Michael Woodford (2004, p.16) argues that «for not only do expectations about policy matter, but, at least under current conditions, very little else matters». Expectations influence financial markets in two ways: first, directly via the yield curve, i.e. through expectations about the future evolution of the monetary policy instrument, and second, indirectly, via the expected effect of monetary policy on the real economy, which then feeds back to financial market prices. In practice, it is difficult to

distinguish between direct and indirect effects. Arguably, bond prices and exchange rates are mostly affected directly via the expectations hypothesis of the term structure and interest rate parity relations, while the effects on other assets are likely to be more indirect. Let me give an example: Imagine a central bank which eases its monetary policy stance by lowering expectations about the future path of short-term interest rates. Lower expected short-term rates will directly affect bond prices and the exchange rate. They will also increase other asset prices by lowering the discount rate to be applied when discounting future proceeds. The indirect effects due to higher expected demand will raise stock and housing prices and further contribute to the total impact of monetary policy.

2. The role of transparency and credibility in monetary policy

The previous example illustrates that monetary policy primarily works through expectations about future changes in short-term interest rates. It is therefore useful to think of any interest rate decision as «the first step along a path», as Alan Blinder put it (1998). In other words, it is not so much current short-term interest rates which define the stance of monetary policy. What matters is what financial market participants expect the future path of short-term interest rates to be, as well as the consequences of that path on financial markets and ultimately on the real economy.

Setting the interest rate at official board meetings is therefore only one part of conducting monetary policy. The other part relates to the release of information that affects market expectations. Monetary policy is really conducted whenever a central bank releases information that affects markets' expectations about the future path of short-term interest rates and about the expected effects of that path on the economy. Monetary policy could therefore be defined as the process of managing expectations about the future path of the monetary policy instrument and the probable effects of that path on the economy.

In this context, transparency is a crucial element of a successful monetary policy strategy.³ If a central bank wants to implement its monetary policy strategy efficiently, it should communicate its intentions and expectations to financial markets and to the public as clearly as possible. In other words, based on its assessment of the available data, it should lay out the likely direction of the monetary policy path as well as the expected economic effects of that path. Central bank transparency then allows markets to better anticipate the

³ See for example Blinder et al. (2001) for an in-depth overview of the benefits of transparency in central banking.

future path of short-term rates, the effect of this path on other financial market prices and ultimately the impact on the real economy. The monetary policy transmission process is thus rendered more efficient.

Transparency has a second advantage: It reduces uncertainty and may therefore lead to lower volatility in various financial markets. If markets can better anticipate the behaviour of a central bank and the effects of monetary policy, there should be less scope for monetary policy surprises, better anchored inflation expectations, less monetary policy-induced volatility in asset prices and ultimately less macroeconomic volatility.

Less volatility should translate into a lower risk premium and may thus promote investment and positively affect economic growth. Lower risk premiums also lead to higher asset prices. Indeed, throughout the world and for most asset classes, there seems to be a trend in recent years to higher valuations. These higher valuations can probably partly be attributed to the reduction of the risk premium due to lower expected volatility. To the extent that market participants correctly gauge a reduction in the risk premium, higher asset valuations can be expected to endure and represent lasting wealth creation.

There is a third reason why central bank transparency has become pertinent. With the world's capital stock growing faster than the world's economies, real effects attributable to asset prices are becoming more important.⁴ On the one hand, this is good news, as it creates wealth and strengthens the transmission process of monetary policy. On the other hand, a sudden increase in asset price volatility could have more adverse consequences for the real economy than what we might infer from past experience. If that is so, central banks clearly have an incentive to avoid becoming the source of unnecessary asset price volatility. The growing importance of balance sheet considerations in monetary policy only reinforces the importance of transparency in central bank communication.⁵

⁴ See for example McKinsey (2005), where it is shown that the ratio of the global financial stock (including equity, debt securities and deposits, but excluding real estate) was roughly three times the size of world GDP in 2003, while it was about equal to world GDP in 1980.

⁵ The growing importance of balance sheet considerations in monetary policy was noted by Alan Greenspan in his reflections on central banking at the Jackson Hole Symposium 2005. «In particular, our analysis of economic developments almost surely will need to deal in greater detail with balance sheet considerations than was the case in the earlier decades of the postwar period. The determination of global economic activity in recent years has been influenced importantly by capital gains on various types of assets, and the liabilities that finance them. Our forecasts and hence policy are becoming increasingly driven by asset price changes».

Finally, let me make an obvious but nonetheless crucial point, even if it goes beyond today's topic. Transparency is a valuable good in its own right. For good reasons, central banks are powerful and for the most part politically independent institutions. Moreover, the officials who run central banks are typically appointed for lengthy terms and are difficult to remove from their positions. Transparency is a crucial element in creating democratic legitimacy for politically independent institutions whose actions can have wide-ranging consequences for a country's citizens and its elected government. As former Fed Chairman Alan Greenspan (1996) said ten years ago, it «cannot be acceptable in a democratic society that a group of unelected individuals are vested with important responsibilities, without being open to full public scrutiny and accountability».

Transparency is of little use if markets and the public do not believe what a central bank says. Credibility is therefore a condition that is a sine qua non for a successful monetary policy. How can credibility be established? Alan Blinder (1998) summarises credibility as a «painstakingly built up history of matching deeds to words». A long history of actually matching deeds to words, of honest communication and a reputation for delivering price stability will therefore ensure central bank credibility. In practice, only a small number of central banks can draw on a sustained history of successful monetary policy, amongst them, the Federal Reserve, the Bundesbank and the Swiss National Bank. Fortunately, in recent years, an increasing number of central banks are rapidly accruing credibility in that painstaking process referred to by Alan Blinder.⁶

When we think about expectations, transparency and credibility in the context of monetary policy, it is important to remember that they cannot and should not be substitutes for action. It is often said that a high level of transparency in conducting monetary policy means that the central bank has less work to do, because stating clear intentions will induce financial markets to do some of the work for the central banks. For example, a credible and transparent central bank might indicate that, on the basis of its assessment of available economic data, it intends to embark on a gradual tightening or easing cycle. Such a clearly stated policy intention could lead to changes in financial market prices – say long-term interest rates or the exchange rate – resulting in a change in the monetary policy stance without any formal change in the level of the official policy instrument. The idea

⁶ In the past 15 years, more than 20 central banks around the world changed their monetary policy framework in favour of inflation targeting strategies. By successfully bringing down inflation and by prioritising communication and transparency, most of these central banks have greatly increased their credibility.

here, as Kohn and Sack (2003, p 28) have stated, is that «statements and policy actions can serve as effective substitutes for one another, at least in the short run».

I would argue strongly that central bankers must not draw too much comfort from the notion that statements can substitute for policy actions beyond the very short run. As was pointed out by Blinder, credibility is ultimately premised on «matching deeds to words». If deeds systematically fail to match words, credibility will be at risk. Transparency undoubtedly helps a central bank to conduct its monetary policy more efficiently and more effectively by rapidly transmitting its intentions to the market place and affecting a potentially wide ranging set of financial market prices. These monetary policy efficiency and effectiveness gains attributable to transparency have become broadly accepted by both practitioners and theoreticians.⁷ Nonetheless, ultimately, a central bank still *has to do* its job. A central bank should never signal an intention to do something if it does not intend to act accordingly. Market participants would in due time recognise that the emperor has no clothes and alter their expectations in line with this recognition. If a credible central bank decides to use words with the explicit aim of substituting them for action, it will risk losing credibility and, with that, its ability to guide market expectations.

This does not mean that central banks should always deliver what they have signalled in the past. Central bank communication should simply reflect policy intentions based on the data and information available at the time of communication. Naturally, as time progresses, new information will emerge, which may require a change in the assessment of the likely future monetary policy course. Reviewing monetary policy based on new information is not the same as deliberately deceiving financial markets. In their interaction with a transparent and credible central bank, financial market participants accept the need for continuous re-evaluation of the likely future monetary policy path. Indeed, markets expect such an update. Moreover, market participants continuously review and update their own assessment of future economic and monetary policy developments. Financial market prices therefore reflect a real-time and continuous update of market expectations about future economic and monetary policy developments.

3. How do financial markets affect monetary policy?

As I mentioned at the outset, the link between monetary policy and financial markets is not a one way street. Financial market prices reflect market expectations about future

⁷ See, for example, Freedman (1996) and Freedman (2002)

economic developments, such as inflation, output, and the likely course of monetary policy. It is therefore natural and appropriate for central banks to evaluate closely the information contained in market prices. In other words, market expectations can and should influence the setting of monetary policy. However, central banks must exercise caution in using the information extracted from market expectations as an input to formulating monetary policy.

My previous comments illustrate that the more credible and the more transparent a central bank is, the more market prices will reflect the central bank's own expectations about the future. In other words, the information value of financial market prices for monetary policy purposes decreases to the extent that they no longer reflect an independent evaluation by millions of market participants about probable future developments in the economy and in financial markets.

An example may illustrate the potential pitfalls of a central bank relying excessively on market expectations in formulating policy. Consider a country with a liquid inflation-indexed bond market. In principle, these bonds reflect what the market expects inflation to be in, say, ten years time. Now, imagine a highly credible and transparent central bank with an inflation target of 2%. If the credibility of this particular central bank is such that, no matter what it does in the short run, market participants believe that inflation in the long run will remain solidly anchored at 2%, then the 10-year inflation-indexed bond will always reflect an expected inflation rate of 2% in ten years time. If the central bank takes excessive comfort from the fact that market expectations reflect stable inflation expectations, it may over time deviate from the optimal policy path. At some point, markets will detect the policy error. In such an admittedly extreme scenario, the likely reaction of the market place would be a sudden adjustment of inflation expectations with a corresponding costly loss of credibility for the central bank.⁸

This example illustrates what Alan Blinder (1998) calls the «dog chasing its tail» problem: Financial markets look for guidance from the central bank, the central bank looks for guidance from financial markets, and both parties temporarily lose sight of the underlying factors determining inflation, namely the output gap in the short to medium-run, and money

⁸ See also Mervyn King's speech at the Jackson Hole Symposium 2005, where he warned about unstable inflation expectations, «It may be risky to infer from the observation that inflation expectations are stable that all is well. There will be times when large and persistent shocks occur, and it would be unwise to count on inflation expectations remaining stable when actual inflation starts to deviate substantially from its recent range».

growth in the long-run. To avoid this trap, central banks should exercise due caution when making use of financial market expectations. Financial markets provide useful information for a central bank in search of the optimal monetary policy path. But, as Otmar Issing (2005, p. 70) recently put it, central banks must ensure that they do «not end up merely executing the expectations developed in the market». The information about expected future developments reflected in market prices must be continuously cross-checked against a wide range of monetary and economic indicators in what amounts to a «checks and balances» approach to monetary policy.

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