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Price and Financial Stability: Dual or Duelling Mandates?

The recent prolonged period of financial turmoil makes clear that financial stability cannot be taken for granted. It requires proactive efforts by policy-makers, just as much as maintaining price stability. This gives rise to the question whether price and financial stability are dual or duelling mandates.

The answer depends on whether these two policy objectives generate potential tradeoffs, and if so, whether the policy horizon is sufficiently long to achieve both objectives, or whether an effective policy instrument is available for each objective. The *Tinbergen rule*, first formulated by Tinbergen (1952), requires that the number of effective policy instruments is (at least) as large as the number of independent policy objectives. When price and financial stability are potentially conflicting objectives, they can still both be achieved provided the monetary policy instrument is supplemented by effective tools for prudential policy.

The remainder of this short paper first analyzes potential tradeoffs between price and financial stability. It then discusses how a framework of monetary and prudential policy can be developed to achieve a dual mandate of price and financial stability. The final section concludes.

Potential Price and Financial Stability Tradeoffs

The relation between two policy objectives depends on the nature of the disturbances that affect the economy. For example, in monetary policy it is com-

mon for central banks to care about stabilizing both inflation and the output gap. When the economy is hit by aggregate demand shocks, the central bank is able to adjust the policy rate to achieve both objectives. For instance, in case of a positive aggregate demand shock, raising the policy rate contributes to the stabilization of both inflation and the output gap. However, when the economy experiences aggregate supply shocks, the central bank faces a trade-off between its objectives. For instance, in case of a negative (inflationary) aggregate supply shock, raising the policy rate contributes to stabilizing inflation at the cost of greater output volatility.

There are two solutions to this trade-off problem. First, the policy objectives could be ranked. Many central banks nowadays provide a prioritization for their monetary policy objectives, typically identifying price stability as the primary objective.¹ Second, the policy horizon for the objectives could be adjusted to achieve both objectives to some extent. In particular, choosing a horizon for inflation stabilization that exceeds the length of the monetary policy transmission process gives some flexibility to contribute to output stabilization (e.g. by ignoring some supply shocks). In practice, central banks generally aim to achieve their price stability objective in the medium term.²

Although there are many measures of price stability (e.g. GDP deflator, producer price index, consumer price index), these tend to be highly correlated, so most central banks focus on a

¹ Using a sample of 98 central banks throughout the world, the prevalence of an explicit primary objective for monetary policy has increased from 39% in 1998 to 47% in 2006 (Geraats, 2009).

² The European Central Bank (ECB) aims to achieve its primary objective of price stability over the medium term, which it considers to be 18 to 24 months, leaving little scope for other objectives (Geraats, 2010a).

headline or *core* measure of inflation.³ However, no such consensus exists about the measurement of financial stability.

In principle, financial stability could be described as a stable financial system with healthy financial institutions and markets in which asset prices are consistent with fundamentals. Thus, financial instability could manifest itself through the bankruptcy of financial institutions, the disruption of financial markets, or misalignments in asset prices.

There is an intricate relation between price and financial stability. First of all, price stability could contribute to financial stability. In particular, when a central bank is credible in its pursuit of price stability, inflation expectations are more firmly anchored, which reduces interest rate volatility and helps to maintain financial stability. Disinflation often requires high interest rates and a yield curve inversion that weakens financial institutions. In addition, persistent deflation could lead to financial instability due to a debt-deflation spiral in which rising real debt values exacerbate deflationary pressures.

Similarly, financial stability could contribute to price stability. In particular, a financial crisis that induces deflationary pressures is harmful to price stability. Also, an asset price bubble raises inflationary pressures as aggregate demand is boosted by wealth effects. In addition, turmoil in financial markets complicates the transmission of monetary policy, which makes it harder to achieve price stability.

On the other hand, a narrow focus on price stability could endanger financial stability. Macroeconomic stability with low interest rates may induce more risk-taking behaviour and give

rise to financial imbalances (see also Borio and Lowe, 2002; White, 2006).

Whether price and financial stability are complementary or contradictory objectives depends on the type of economic shocks. For aggregate demand shocks, maintaining price and financial stability generally go hand in hand. Adjusting the policy rate to offset aggregate demand shocks helps to stabilize not only the output gap but also goods and asset prices.

However, aggregate supply shocks are more likely to have opposite effects on price and financial stability. For instance, suppose there is a positive supply shock that depresses inflation but boosts output. Then expansionary monetary policy could further inflate asset prices. Instead, it may be more prudent to accommodate the supply shock and aim to achieve price stability over a longer horizon.

In addition, there are shocks that directly affect the financial system or asset prices. Most closely related to monetary policy are money market shocks. The turbulence that erupted in the interbank market on 9 August 2007 wreaked havoc with the monetary transmission mechanism as interbank rates deviated significantly and persistently from the policy rate set by the central bank. Liquidity operations conducted to preserve the proper functioning of money markets thus facilitate both financial and price stability. In fact, such liquidity interventions can be completely separated from monetary policy decisions, effectively providing an additional instrument to ensure the smooth functioning of money markets. This is also the position of the ECB, which has repeatedly emphasized that its liquidity interventions since the summer of 2007 do not influence the

³ A similar issue arises for central banks that focus on the external (rather than internal) value of the currency.

determination of the monetary policy stance.⁴

The monetary transmission mechanism could also be affected by credit shocks that cause disruptions in financial intermediation. For instance, the dramatic monetary easing in the aftermath of the bankruptcy of Lehman Brothers on 15 September 2008 appears to have been (at least partially) counteracted by a credit crunch. Actually, this holds more generally for countercyclical monetary policy as bank lending tends to be strongly procyclical. Additional policy or regulatory instruments such as countercyclical capital requirements or dynamic loan loss provisioning (used by Spain since 2000) could be employed to mitigate this.

Finally, there could be *sentiment* shocks to expectations that directly affect asset prices.⁵ For example, *irrational exuberance* could cause an equity price bubble. Although the central bank could wait until the bubble bursts and then ease monetary policy to prop up aggregate demand, this does not address the distortions in real allocation caused by the misalignment of asset prices. A more proactive policy response would be for the central bank to *lean against the wind* through contractionary monetary policy. But it may be necessary to persistently undershoot the inflation target to deflate an asset price bubble, creating a trade-off between price and financial stability. This could be overcome by extending the policy horizon for the inflation target

to allow for a gradual unwinding of financial imbalances (Borio, 2006). Nevertheless, it would be desirable to develop alternative instruments that more directly mitigate irrational exuberance. For instance, leverage restrictions could be imposed to avoid adding fuel to the fire. These could be applied directly to financial institutions, but also take the form of limits on the loan-to-value ratio for mortgages or higher margin requirements for traders. The leverage restrictions could be adjusted based on the rise in asset prices, providing more effective *leaning against the wind* that is independent of monetary policy.

Table 1

Potential Price and Financial Stability Trade-Offs

Shocks	No trade-off	Weakening monetary policy	Trade-off
Aggregate demand	✓		
Aggregate supply		<	▲
Money market		<	
Credit		<	
Sentiment			▲

Source: Author's compilation.

To sum up, depending on the nature of economic and financial shocks, there may be trade-offs between price and financial stability.⁶ As summarized in table 1, no trade-off arises for aggregate demand shocks; money market and credit shocks tend to weaken the effec-

⁴ See for instance ECB President Trichet's introductory speech at the hearing of the Economic and Monetary Affairs Committee of the European Parliament in Brussels on 26 March 2008. However, since July 2009 the euro overnight index average (EONIA) has been around 0.35% and the three-month euro interbank offered rate (EURIBOR) has declined to around 0.7%, both well below the ECB main refinancing rate of 1%. Thus, it appears that the ECB has used its liquidity operations to conduct monetary policy by stealth (Geraats, 2010b).

⁵ Disturbances to expectations that directly affect consumption or investment, which could be called "confidence shocks", have the same effect as aggregate demand shocks.

⁶ See also De Grauwe and Gros (2009), who focus on technology shocks and "animal spirits." They suggest using legal reserve requirements and macro-prudential controls as policy instruments for financial stability.

tiveness of monetary policy; and aggregate supply and sentiment shocks could induce a trade-off. However, with the adoption of additional policy or regulatory instruments, it is still possible to achieve both objectives of price and financial stability.

A Framework for Monetary and Prudential Policy

The analysis above shows that central banks could achieve a dual mandate of price and financial stability provided they supplement their monetary policy instrument with additional prudential policy tools. In this respect, prudential policy could be described as any measures that promote financial stability,



which could be through supervision and regulation (*ex ante*) or liquidity interventions (*ex post*).⁷

Central banks already routinely conduct liquidity operations in the implementation of monetary policy and these could be enhanced to address any turmoil in money markets. Similar tools could be used to address problems in other financial markets (e.g. the ECB's EUR 60 billion purchase program for covered bonds, which started in July 2009, or the *Securities Mar-*

kets Programme it announced on 10 May 2010.)

In addition, many central banks engage in supervision and regulation of financial institutions to maintain financial stability at the micro level. These micro-prudential efforts focus on managing liquidity and solvency risks, but the recent financial turmoil has shown that these risks are interrelated. In particular, a financial institution with liquidity problems that is forced to sell some risky assets in illiquid markets could end up with solvency problems as well due to mark-to-market accounting.

Furthermore, micro-prudential supervision and regulation do not suffice to safeguard financial stability at the macro level as the global financial system is characterized by a complex web of financial interconnections. The fire sales of one financial institution could spread to many other institutions through illiquid markets. In addition, micro-prudential tools may not be very effective in stemming asset price bubbles. Hence, it is essential to develop macro-prudential policy instruments to maintain stability of the financial system.

So, central banks could fulfil a dual mandate of price and financial stability if they have a sufficient number of effective instruments to conduct both monetary and prudential policy. The Tinbergen rule teaches us that every separate policy objective requires an additional policy instrument. Therefore, tools to achieve financial stability should be developed, such as liquidity operations to stabilize financial markets, micro-prudential supervision and regulation to maintain the health of financial institutions, and macro-prudential requirements to prevent finan-

⁷ Although one could argue that the latter is not really prudential policy but crisis management, this is often essential to prevent financial instability from spreading through contagion, which makes it prudential.

cial imbalances and safeguard the stability of the financial system. Thus, a framework is obtained for monetary and prudential policy, illustrated in table 2.

banks to be involved in both monetary and prudential policy. For instance, central banks will immediately detect any signs of trouble in the interbank market as they implement monetary policy. In addition, the health of financial institutions affects the transmission of monetary policy through the credit channel. Furthermore, information about individual financial institutions is vital to assess the stability of the financial system as a whole. The latter in turn determines

Table 2

Framework for Monetary and Prudential Policy

	Objective	Instruments and tools
Monetary policy	Price stability	Repo rate
Prudential policy	Financial stability – Financial markets – Financial institutions – Financial system	– Liquidity operations – Micro-prudential regulations – Macro-prudential requirements

Source: Author's compilation.

This framework gives rise to the question whether the adoption of additional policy instruments allows monetary and prudential policy to be conducted separately from each other, similar to monetary and fiscal policy. There are three reasons why it would be beneficial for central banks to perform both monetary and prudential policy.

First, both policies sometimes rely on the same tools. In particular, open market operations are frequently used by central banks to implement their monetary policy stance, but they could also be employed to provide liquidity support to ease tensions in money markets. In fact, as the monopoly supplier of the monetary base, the central bank plays a unique and critical role in maintaining financial stability. This also makes it natural for the central bank to host a standing lending facility (or *discount window*) to provide reserves to banks with temporary liquidity problems. This automatically produces useful information about the (lack of) health of financial institutions.

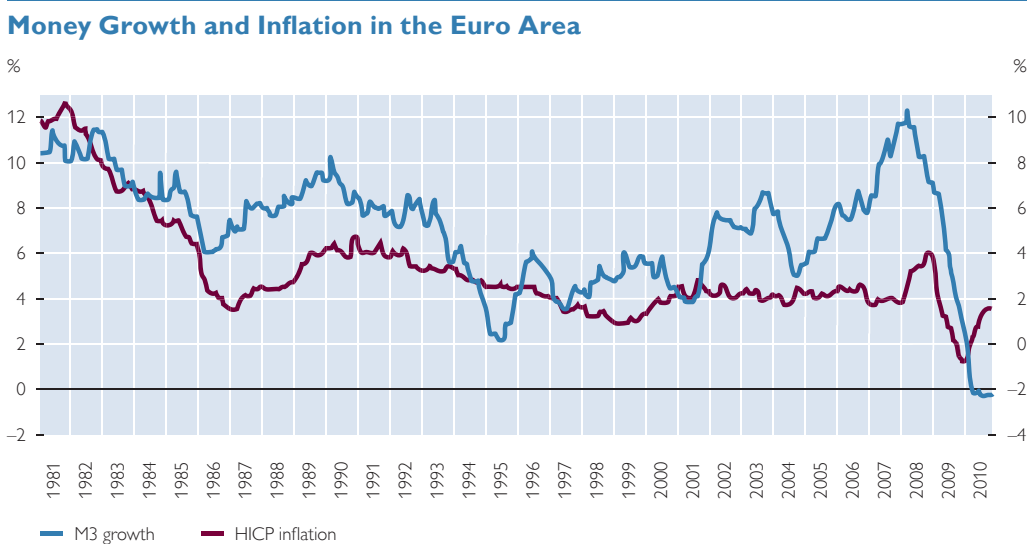
Second, there may be an important informational advantage for central

how robust the risk defences of financial institutions need to be. Because of such synergies, micro- and macro-prudential policy are best conducted hand in hand.

A third reason for delegating monetary and prudential policy to central banks is that there may be an economic connection between price and financial stability as both appear to be affected by monetary aggregates. The classical quantity theory of money predicts a one-to-one relation between money growth and inflation in the long run, but large fluctuations in money demand make the short-term association more tenuous. Chart 1 shows a positive relation between the annual growth rate of M3 and HICP inflation for the euro area from January 1981 to May 2010, with a highly significant correlation coefficient of 0.62. After the great disinflation of the 1980s, the episodes of persistently high money growth during 1988–1990 and 2007–2008 have both been followed by bursts of inflation in excess of 3%.

Nevertheless, even when taking into account sometimes high levels of inflation, there appear to have been episodes of significant excess money

Chart 1



Source: Statistical Data Warehouse (ECB).
 Note: Annual growth rate of M3 (left-hand scale) and of HICP (right-hand scale) for euro area (changing composition). Sample: 1981:01-2010:05.

growth, which may have contributed to asset price booms. This is illustrated in chart 2, which shows the real annual growth rate of euro area M3 loans and the level of the Dow Jones Euro Stoxx 50 from January 1987 to May 2010.⁸ The equity price booms (or bubbles) of the late 1990s and late 2000s were both preceded by prolonged periods of excess credit. All in all, there has been a strong positive relation between real credit growth and (log) equity prices, with a correlation coefficient of 0.46 (0.35).⁹

As a result, when excessive money and credit growth is not igniting inflation, it may be quietly adding fuel to the fire of an asset price bubble. Since

price and financial instability appear to have a common cause, they are best tackled together by a central bank in charge of both monetary and prudential policy.¹⁰

Conclusion

Recent financial crises have revealed that a “nice” (non-inflationary, continuously expanding) economy can mask the buildup of toxic imbalances that threaten the financial system. So, it is vital for policymakers to proactively pursue not only price but also financial stability. Although the pursuit of both objectives could give rise to uncomfortable trade-offs, these can be bypassed by supplementing the main in-

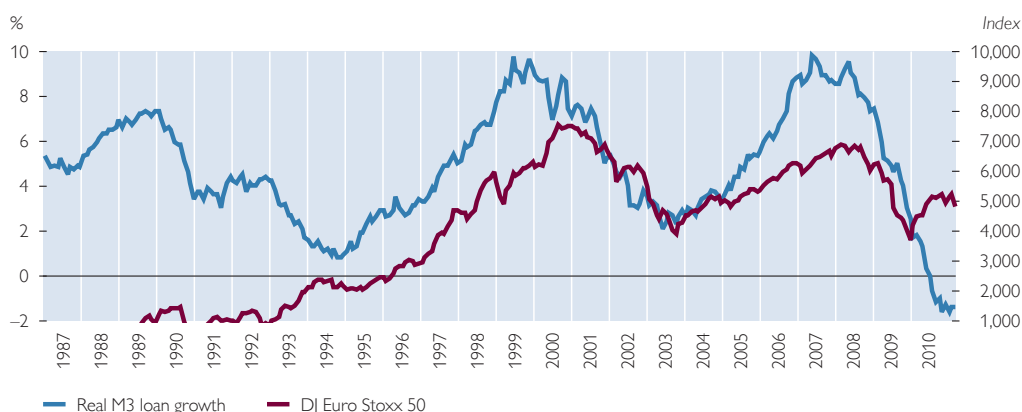
⁸ The sample is shorter due to data availability.

⁹ The correlation between the real annual growth rate of M3 loans and the annual growth rate of the Dow Jones Euro Stoxx 50 is 0.29. For the annual growth rate of M3 loans, the correlations are less significant with 0.26 (0.13) and 0.24 for the (log) level and the annual growth rate of the Dow Jones Euro Stoxx 50, respectively. There is no such significant positive correlation for M3 growth.

¹⁰ De Grauwe and Gros (2009) recommend that the ECB adopts a new two-pillar strategy based on the objectives of price and financial stability. In the United Kingdom, the new coalition government has recently announced the creation of a Financial Policy Committee at the Bank of England in addition to its Monetary Policy Committee, although it is not clear yet whether sufficient prudential policy instruments will be introduced to ensure effectiveness.

Chart 2

Credit Growth and Equity Prices in the Euro Area



Source: Statistical Data Warehouse (ECB) and author's calculations.

Note: Real annual growth rate of M3 MFI loans to non-MFIs excluding government (left-hand scale) for euro area (changing composition), calculated by subtracting annual growth rate of HICP inflation; Dow Jones Euro Stoxx 50 equity price index (log scale, right-hand scale). Sample: 1987:01-2010:05.

strument of monetary policy with tools for prudential policy, in line with the Tinbergen rule.

Thus, a framework could be developed for monetary and prudential policy in which each policy objective has its own instrument. Although this allows a conceptual separation between monetary and prudential policy, it is undesirable to split up the twin objectives of price and financial stability as

they appear to have a common cause, benefit from exchanging information and share some key tools. Instead, these twin objectives are likely to be easier to accomplish when they are pursued together. Although the twin goals sometimes give rise to duelling demands, with an appropriate policy framework central banks can accomplish both and achieve a dual mandate of price and financial stability.

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