

Investigating the relationship between the financial and real economy

Konstantinos Tsatsaronis

Central banks have always recognised the importance of financial stability for overall macroeconomic performance, but questions related to the health of the financial system have traditionally taken a back seat to those more directly linked to the process of inflation and growth. In recent years, however, financial stability has gained greater prominence on central bankers' agenda. Monitoring the performance of the financial sector and the interaction between the health of financial institutions and macroeconomic stability has increasingly preoccupied central bank economists and decision-makers.

The signs of intensified interest in financial stability are many. Central bank financial stability departments are explicitly mandated to monitor the performance of the financial sector and assess vulnerabilities. An increasing number of regular central bank publications devoted to communicating these assessments now feature prominently alongside other periodic publications more traditionally focused on macroeconomic developments. While these trends are especially pronounced among central banks that do not have direct supervisory responsibilities for financial institutions, they are certainly not confined to them.

The reasons behind this more intense focus on financial stability are linked to the factors that have increased the vulnerability of the macroeconomy to financial system stress. There are both structural and secular factors at work here.

On the structural side, deregulation has transformed the financial system, enabling financial firms to explore profitable opportunities more fully and to expand the scope of their activities. Intensified competition has promoted efficiency and encouraged innovation. As a result, the financial sector has grown rapidly both in size and in terms of its contribution to overall economic activity. At the same time, a deregulated environment is arguably also one more prone to volatility: failure is an integral part of the market adjustment mechanism in a competitive system and provides the natural check on participants' pursuit of profit.

On the secular side, the success of central banks in combating high inflation might also have influenced the nature of the interaction between the real and financial sectors of the economy. Reduced macroeconomic uncertainty has freed resources to transact in other sources of risk. At the same time, this success may also have had the unintended consequence of cultivating a sense of private sector complacency about the potential downside risks. Such an environment might arguably be more permissive of cumulative processes that gradually contribute to the build-up of financial imbalances, which in turn can be the source of macro instability when they unwind.

Beyond these factors, improved risk measurement "technology" has also played a supporting but key role. In particular, advances in the measurement and analysis of financial risk have contributed to a better understanding of the different dimensions of financial risk and vulnerabilities. Advances have been made in developing a greater overall conceptual framework and in more specific measurement tools. At the level of the individual enterprise, this has laid the basis of better risk management. At the macro level, it has spurred more structured and quantitative analysis, not least by improving the availability of information.

The papers in this volume deal with many such issues. They were presented at the annual Central Bank Economists' Meeting hosted by the BIS on 9-10 October 2003. The meeting was organised in three thematic units. The first deals with the influence that financial conditions have on aggregate expenditure and overall economic developments. The second theme reverses the direction and looks at the impact of the macroeconomic environment on the financial health of different economic sectors. Finally, the third theme deals with the evolving nature of the measurement of financial risk both at the micro level of individual economic units and at the macro level of whole sectors or the economy overall.

Impact of financial variables on the macroeconomy

One aspect of the interaction between the real and financial sectors is the influence of financial conditions of firms and households on consumption and investment. One can usefully distinguish the influence that operates through the demand for external funding, on the one hand, and that which operates through its supply, on the other.

On the demand side, production and consumption decisions are critically dependent on the underlying financial condition of economic agents. High levels of debt that are not supported by robust income flows can restrict the absorption capacity of the private sector and become a drag on economic expansion or even result in an economic slump. The risk is particularly acute in the later stages of a strong economic upswing, when the tendency to project the recent past into the future may feed overly optimistic expectations and encourage the build-up of financial imbalances, as balance sheets become overstretched. The vulnerability of these aggregate positions would undermine the validity of the individual expectations on which they are founded.

On the supply side, those same financial conditions are a key factor in determining the terms on which external funding is granted. Asymmetric information between suppliers and demanders of funds generally makes external funding more expensive and less accessible than its internal counterpart, such as retained earnings. It also makes it quite sensitive to the perceived and actual financial strength of economic agents. This is especially so for those that have less of a track record and less security to offer, such as smaller firms, which typically do not have access to capital markets. In addition, the financial condition of suppliers of funds themselves, especially financial intermediaries, can play an important role. A deterioration in their financial health can easily lead to retrenchment. Pressure on capital buffers can restrict the intermediation and risk-taking ability of financial firms, removing in turn a potential source of liquidity that could soften the constraints faced by the non-financial sector. And the fact that markets rely so much on banks for market-making and backstop liquidity services means that their functioning, too, can be impaired by a weakening in the financial vigour of institutions.

Asset prices play a key role in the process, on both the demand and supply sides. Private sector expectations are embedded into the prices of financial and real assets. As such, they reflect the extent of any excessive optimism or pessimism of market participants. In addition, they have a direct impact on the ability of the private sector to obtain financing, not least since a borrower's wealth is a common source of security for lenders. Asset price fluctuations, therefore, can have an important effect on determining macroeconomic outcomes through their impact on balance sheets. For much the same reasons, they can also contain useful leading information about macroeconomic developments.

Recent experience validates the importance of these mechanisms. For example, the euphoria that attracted ample capital into the technology and communications sector in the second half of the 1990s sowed the seeds of the recent slowdown, which was triggered primarily by a collapse in business investment expenditures. Similarly, the increased debt levels that households in a number of countries have recently incurred in order to participate in a soaring residential real estate market may weaken their ability to sustain the pace of consumption growth, so critical to support growth at the current juncture. Ironically, this might be particularly true if interest rates were to rise in view of a pickup in other sectors of the economy. At the same time, by comparison with experience in the early 1990s, the better health of financial intermediaries has helped to cushion the decline in economic activity following the initial slowdown, by limiting the tightening of the supply of external funding.

Impact of the real economy on financial strength of individual sectors

The interaction between prevailing financial conditions and real economic activity also runs in the opposite direction. The state of the business cycle has an important influence on incomes, profits and, by extension, the balance sheets and creditworthiness of various economic players. Understanding these links is no less important, especially if the objective is to gain insight into the feedback mechanisms that determine the overall impact of developments or policy actions on the state of the economy.

Financial conditions in the economy evolve largely in sync with the different phases of the business cycle, ie they are highly procyclical. Periods of expansion boost income and strengthen the balance

sheets of households and firms. By contrast, the creditworthiness of borrowers deteriorates during periods of economic slowdown, which are typically associated with thinning income cushions and greater financial strains. In addition, the rise in default rates tends to spread those strains to the economic sectors that are net lenders of funds.

The profitability and balance sheet strength of financial intermediaries is closely linked to such developments. Fee and intermediation margin income has a very strong cyclical component. Similarly, as asset quality follows the business cycle, provisioning costs and outright losses tend to be higher in economic downturns. Moreover, prevailing accounting practices, which lead to a recognition of losses only once negative credit events are clearly identifiable, increase this synchronicity.

Developing a good understanding of the joint dynamics of these processes and their relationship to the business cycle is key to assessing vulnerabilities of financial conditions at any given economic juncture. The greater the common component in the dynamics of credit risk across different economic sectors, the more exposed the economy will be to shocks that can have widespread economic impact. Importantly, the more likely it is that this impact will have longer-lasting effects, owing to the mutually reinforcing interactions between the health of the financial and non-financial sectors.

Financial sector risk measurement in the small and in the large

Parallel to the increased policy interest in the interactions between the real and the financial sectors of the economy, risk measurement methodology has made major progress in recent years. This progress consists of more systematic approaches to data collection, the development of analytical frameworks as well as the modelling and empirical analysis of risk. Importantly, it also takes the form of efforts to embed these approaches into the daily business decisions of financial firms.

The development of a risk measurement and management framework has progressed sequentially across different types of risk and from the micro to the macro levels.

Advances have been most evident at the level of the risks faced by the individual firm. Here the framework for the measurement of market risk is the most advanced, followed by the modelling of credit risk; liquidity risks (market liquidity and funding liquidity risks) have also received considerable attention. Critically, not least in the wake of the autumn 1998 market turbulence, market participants have devoted much effort to understanding the mutually reinforcing interaction of these risks, at least with respect to episodes of market stress, far less so at business cycle frequencies. Typical tools include refinements to value-at-risk methodologies, the extension of similar concepts to the analysis of credit risk, as applied to both portfolios of traded securities and non-traded assets, and the development of stress testing. Focus on articulating a consistent framework for the understanding and measurement of operational risk is of more recent vintage, reflecting partly the absence of data.

Importantly for central banks, many of the basic tools and concepts can be and have been transposed from the micro to the macro level. In this case, the focus shifts from the analysis of the risks incurred by individual firms to those that are faced by the system, whether the “system” is defined in terms of broad sectors, such the banking sector, or the financial sector as a whole. The emphasis here is on the commonalities in risk exposures that signal a heightened probability of joint losses among financial institutions and on the mechanisms that can propagate strains across the financial system.

A key question that arises is how these measures of risk relate to general economic developments. More specifically, what are the lead-lag relationships between measured financial risk and economic activity? In other words, how much advance warning do the measures provide about the materialisation of risk?

The answer to this question largely determines the usefulness of the measures of risk. To the extent that the lead time is sufficiently long, using these indicators can provide useful advance information to both policymakers and market participants, allowing them to take remedial action. If, on the other hand, measures of financial risk tend to move coincidentally with the realisation of strains in firms, their primary function is more descriptive than predictive. In this case, they are less informative about current vulnerabilities as such. That is, they are more like a thermometer, providing an accurate measurement of current temperature, than a barometer, which by measuring current conditions that are imperceptible to our senses can offer insight into impending weather changes.

This is an important distinction. For, to the extent that risk measures are more descriptive than predictive, they can actually contribute to the amplification of business fluctuations. They can do so directly, by influencing funding and risk-taking decisions in a procyclical way. And they can do so indirectly, through the operation of the prudential constraints, as the framework moves away from a reliance on prescriptive rules and regulatory standards to become better aligned with the way financial firms measure, price and manage risks. Thus, during expansions, low levels of measured risk would encourage financial intermediaries to expand their activity, even as imbalances and the associated risk are actually building up. The opposite will be true during slowdowns, when increased levels of measured risk prompt retrenchment, potentially restricting the ability of the financial system to channel funds to their best use. This might seem a prudent course of action when viewed from the perspective of the individual institution in response to exogenous sources of risk. However, it is not necessarily the optimal response from a macro viewpoint, which is more sensitive to the mechanisms that can endogenously amplify the risk to the economy.

This has implications for prudential policy design. Arguably, a prudential policy framework should, to the extent possible, counterbalance the feedback mechanisms that tend to amplify the financial and business cycles. The optimal design of capital requirements, provisioning and reserving rules depends critically on the relative balance between idiosyncratic and systematic movements in the dynamics of asset quality, profitability and cost structures of the financial sector. Prudential norms that help reduce the importance of the systematic component of these movements should lead to more stable outcomes.

This macroprudential perspective is the one that is more naturally associated with central banks. The focus of analysis is on the interaction of different sectors of the economy and the ultimate objective is to ensure that policies are in place to foster macroeconomic stability. In other words, the object of study is financial vulnerabilities that can be the source of macroeconomic costs.

Financial stability research in central banks has sought to develop measures that quantify these vulnerabilities and can shed light on how they can be better understood and identified at an early stage. In this context, macro stress test exercises represent an important tool, as they can help to evaluate the vulnerability of the financial sector to large shocks and are particularly well suited to the assessment of systemic risk. The methodology readily lends itself to the study of the intensity of the mechanisms and interactions of individual responses that can amplify the overall impact of stress. It facilitates the study of the endogenous aspects of financial risk and in this sense adds value compared to the simple aggregation of analyses conducted at the micro level.

Importantly, the benefits of risk assessment exercises from a macroprudential perspective are enhanced when the analysis of financial risk is paired with that of relationships that have traditionally been at the centre of central bankers' attention, namely the links between monetary policy and the behaviour of different sectors of the economy. On the one hand, the reaction function of the monetary authorities is a key ingredient in macro stress tests. On the other hand, a greater understanding of the likely impact of monetary policy actions on financial conditions in the economy, and hence also on the supply of credit, can only lead to better policy decisions. In turn, charting these effects calls for a good understanding of prevailing attitudes towards risk-taking among economic agents, not least financial intermediaries, as critically conditioned by their financial soundness.

Viewed from this angle, financial stability analysis is an integral component of central banks' primary mission, viz the conduct of monetary policy aimed at providing a sound basis for macroeconomic stability and long-term growth. This is so regardless of whether the pursuit of the mission is seen as operating exclusively or just largely through price stability. In a world where the role of the financial sector has become more central in influencing these macroeconomic objectives, central bankers' more intense focus on financial stability is not only natural but also appropriate.