

# Procyclicality of financial systems: is there a need to modify current accounting and regulatory rules?

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*Financial systems have an intrinsic tendency to exacerbate business cycle fluctuations rather than smoothing them out. The current crisis is a perfect illustration of this. Some commentators have argued that the recent reforms to international bank regulation (Basel II) and accounting rules (IAS 39) are likely to increase this intrinsic procyclicality in the future. This article examines whether this accusation is founded and what policy decisions could be envisaged to alleviate this undesirable feature of financial systems.*

## THE INTRINSIC PROCYCLICALITY OF FINANCIAL SYSTEMS

The subprime crisis is a perfect illustration of the "procyclicality" of financial systems. Relatively small losses<sup>1</sup> on US credit markets in the early summer 2007 have precipitated a major, world-wide confidence crisis in the banking and financial sectors, thereby reducing dramatically the capacity of these sectors to provide financing to households and firms, by far the most important function of financial systems. This phenomenon is by no means specific to the current crisis. Financial history<sup>2</sup> abounds with examples of such financial cycles, with an alternation of credit booms fuelled by "exuberant" optimism during growth phases, followed by dramatic episodes of credit "crunches" triggered by relatively moderate negative shocks but ultimately generating major downturns in economic activity.

In an hypothetical world of perfect (*i.e.* complete and frictionless) financial markets, this should not be the case. On the contrary, financial instruments should in theory be available to insure the real shocks faced by households and firms. For example all the risks confronted by individual economic agents (risks that economists call "idiosyncratic") should be eliminated by diversification. Similarly, macroeconomic shocks should be dampened by financial systems, through an efficient reallocation of risks among economic agents and a better diversification across countries and generations.

In practice however, financial markets are inevitably imperfect.<sup>3</sup> First of all they cannot be complete: many of the individual risks confronted by households and firms are not insurable, because of informational problems that are susceptible of provoking moral hazard and adverse selection. Similarly inter-temporal transfer of risks is necessarily limited by the unavailability (or at best illiquidity) of financial instruments with long maturities. Second, financial markets cannot either be considered as frictionless: direct and indirect transaction costs

are not negligible, especially on primary markets. A good illustration of these frictions is the difficulty typically confronted by a financially distressed firm when it wants to issue new securities. In fact, it is often the case that liquidity problems encountered by a firm, even if it is profitable and solvent, degenerate into fundamental difficulties such as credit rationing and sometimes inefficient closure.

These imperfections of financial markets can be alleviated by two mechanisms: financial intermediation and public policy. The modern role of financial intermediaries<sup>4</sup> such as banks and insurance companies is indeed to decrease the transaction costs associated with complex financial instruments and provide indirect access to these instruments for firms (mostly small and medium enterprises) and households. The larger firms, which typically use direct finance, also benefit from financial intermediaries, since these financial intermediaries contribute to improving the functioning of financial markets. In particular they provide certification services for primary markets and increase the liquidity of secondary markets by taking large trading positions that contribute to the elimination of arbitrage opportunities.

Public policy also plays an important role in the reduction of economic and financial fluctuations. Given their unique ability to pledge the income of future generations (through taxation), governments can adopt anti-cyclical fiscal and budgetary policies that might contribute to dampen economic fluctuations. Monetary policy can be also used as a stabilizer: in some countries such as the United States, the mandate of the central bank includes, together with the standard objective of price stability, that of maintaining maximum sustainable employment.<sup>5</sup> Finally, public authorities are supposed to maintain the safety and soundness of the financial systems, through appropriate prudential regulation and supervision of financial intermediaries. But these regulatory/supervisory systems may themselves generate procyclicality. This is the topic we examine in the next section.

1 See Brunnermeier (2008).

2 See Kindleberger (2000).

3 We only consider here the two major forms of imperfections, namely incompleteness and the presence of transaction costs. We do not discuss here another form of financial markets imperfection, coming from the fact that the market value of financial assets may sometimes differ substantially from their "fundamental" value (even though this fundamental value is often very difficult to define objectively), creating "bubbles" (when the market value exceeds the fundamental value) or underpricing (in the reverse situation). These divergences create an important drawback in the use of market value accounting for financial institutions. Mishkin (2008) discusses the implications of bubbles for monetary policy.

4 The traditional role of banks was to transform the savings of households (mostly in the form of demandable deposits) into corporate and real estate loans. The development of financial markets and techniques (notably securitisation) has largely made this business model obsolete.

5 See Mishkin (2008).

## IS PRUDENTIAL REGULATION AN ADDITIONAL SOURCE OF PROCYCLICALITY?

The prudential regulation of banks has two main objectives: protect the deposits of the public and guarantee the stability of the financial system. Since the 1980s, the international harmonisation of prudential systems has been a constant preoccupation of the public authorities of developed countries. In this spirit, the Basel Committee on Banking Supervision (BCBS) has successively produced two sets of regulatory standards (1988, 2004), nicknamed Basel I and Basel II, that were initially intended to apply to internationally active banks of G10 countries. In several regions of the world, these standards have also been adopted by domestic regulators, albeit with some adjustments.

The main component of these standards is a minimum capital requirement: roughly speaking, the ratio of a commercial bank's own funds over a weighted sum of its assets (risk-weighted assets or RWA) should be at least 8%. Effectively, this requirement limits the maximum volume of risky assets that a commercial bank can manage (including in particular the volume of loans it can grant) to a certain multiple (the inverse of the minimum capital ratio, namely 12.5) of its equity capital. The main difference between Basel I and Basel II resides in the weights used for the computation of RWA.

The official justification for such capital requirements is that they provide a buffer against losses that limits the probability of failure of the bank over a certain horizon to some predetermined threshold: this is the value-at-risk (VaR) approach to solvency regulations. Without commenting in detail about the arbitrariness of this criterion of a maximal probability of failure for banks, as well as recalling the major drawbacks of the VaR criterion,<sup>6</sup> it seems reasonable to consider instead that the objective of these capital requirements is rather to preserve banks' incentives to select carefully their assets and to monitor their borrowers, very much in the same way that banks themselves impose a maximum borrowing capacity to their corporate borrowers.

In any case, capital requirements are intrinsically procyclical: banks incur more credit losses during recessions than during booms, which negatively impacts their own funds (the numerator of the capital ratio decreases) and therefore their maximum lending capacities also decreases. Thus Basel I was already potentially procyclical: in effect it was indeed accused of provoking a credit crunch in the early 1990s. But of course Basel II is likely to be much more procyclical, since RWA, the denominator of the capital ratio, will increase during downturns, simultaneously to the decrease in the numerator already mentioned. As explained by Taylor and Goodhart (2004), this is due to the fact that Basel II risk weights incorporate different measures of credit risk (such as the probability of default, PD and the loss given default, LGD) that increase during recessions. Thus the capital required for a given volume of loans is likely to increase during recessions. Several empirical studies validate this presumption. For example Kashyap and Stein (2003) find that three different methods proposed by the BCBS to compute credit risk weights (Standard and Poor's credit ratings, Moody's KMV model and a major international bank's internal credit risk model) all lead to significant increases in capital requirements. However, the precise way in which capital charges are computed also plays a big role. For example Saurina and Trucharte (2006) show that the method used to compute the PD: instantaneously (point in time), *versus* dynamically (through the cycle) has a dramatic impact on the procyclicality of the capital ratio. A dynamic computation method smooths out capital requirements, at the cost of reducing the informational content of capital ratios.<sup>7</sup> The same is true for the computation of provisions for credit losses.<sup>8</sup>

However, most banks hold actually much more capital than the regulatory minimum. This discrepancy between "economic" capital and regulatory capital is due to the fact that banks are also subject to market discipline: shareholders, financial analysts and rating agencies typically require higher capital buffers than regulators. Besides, bank managers often adopt a sound, prospective approach: they hold capital in

<sup>6</sup> Alfred Galichon (2008, personal communication) has found a devastating critique: any portfolio of risks can be sliced in a conveniently designed family of sub-portfolios in such way that the total VaR (at some predetermined confidence level) is exactly zero!

<sup>7</sup> See Gordy and Howells (2004).

<sup>8</sup> See Bikker and Metzmakers (2002).

excess of regulatory minimums, in order to cover losses due to predictable economic downturns. In other words, additional capital buffers should allow banks to maintain a reasonable volume of lending activities even during recessions. This is the point of view defended by Jaime Caruana, the former Chairman of the BCBS: "When banking systems are adequately capitalised, well-managed and risks are correctly assessed within the appropriate time horizon, the financial system becomes more stable, less procyclical, better able to promote sustainable growth, and more resilient during periods of stress".<sup>9</sup>

Thus, even though there is indeed some procyclicality in the minimum capital ratio imposed to banks by Basel II, it is not clear that it will impact dramatically the volume of credit to the economy, given that banks can potentially smooth out the fluctuations of the regulatory ratio through their economic capital buffer. Moreover, Basel II accords also include two other "pillars": regulatory action and market discipline. The former (pillar 2) can mitigate the procyclical effects

of the capital ratio (pillar 1) if regulators can impose additional capital charges to the banks that would hold insufficient economic capital. The latter (pillar 3) may have more ambiguous effects, given that more transparency is often synonymous of more volatility. This is also the case for IAS 39, the new International Accounting Standard that imposes market value accounting for financial derivatives and for the assets that are part of the banks' trading books. Many commentators have pointed out the risks of market value accounting especially during periods of crisis. For example Plantin, Sapra and Shin (2008) show that when assets sales by financial intermediaries are forced by binding liquidity or leverage constraints, the changes in the market price of these assets do not reflect any new information about fundamentals, but rather the variations in the aggregate liquidity of the financial firms that are susceptible of purchasing these assets: this is what Allen and Carletti (2008) call "liquidity pricing". In this context, fair value accounting performs badly, especially if assets are long-lived, illiquid and senior, which are precisely the characteristics of the majority of banks' assets.

*Even though Basel II and IAS 39 will introduce some additional procyclicality in the minimum capital requirements of banks, it is not clear that the impact on bank lending will ultimately be sizable: this remains to be established by facts rather than presumptions. Moreover, even in the case where this additional procyclicality is indeed confirmed by empirical studies, it would be a big mistake to compensate it through regulatory forbearance, i.e. making target capital ratios (8% at present) contracyclical. The impact on banks' incentives would be a disaster, especially in the present context where public authorities have already intervened a lot, in order to protect private institutions from closure. As we already pointed out, if governments want to smooth out economic fluctuations, they should use appropriate policy instruments such as fiscal and possibly monetary policy, and should not interfere with prudential regulation and supervision of financial intermediaries.*

*This being said, it is important for prudential authorities to continue their efforts in trying to eliminate the possibilities of regulatory arbitrage that are offered by current regulatory arrangements. Similarly, rather than refusing the additional transparency provided by fair value accounting, regulators should develop new methods to "filter out" spurious components of market prices that do not reflect changes in the fundamental values of assets. This can only be done properly prudential authorities endeavour to clarify, and possibly express in quantitative terms, what are the exact objectives of prudential regulation and what are the appropriate benchmarks and measurement tools (asset valuation, provisioning, capital requirements,...) that must be chosen in order to implement these objectives.*

<sup>9</sup> See Caruana (2004).

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