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Chapter III

LEARNING FROM THE CRISIS: POLICIES FOR SAFER AND SOUNDER FINANCIAL SYSTEMS



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A. Introduction

The most serious financial crisis since the Great Depression, the de facto nationalization of a large segment of the United States financial system, and the deepest global recession since the Second World War are now casting doubts on assumptions made by a number of economists on the functioning of contemporary finance. Many economists and policymakers believed that securitization and the “originate and distribute” model would increase the resilience of the banking system, that credit default swaps would provide useful hedging opportunities by allocating risk to those that were better equipped to take it, and that technological innovation would increase the efficiency and stability of the financial system. And Alan Greenspan (2003), as Chairman of the Federal Reserve, once stated: “Although the benefits and costs of derivatives remain the subject of spirited debate, the performance of the economy and the financial system in recent years suggests that those benefits have materially exceeded the costs”. Events of the past two years warrant a reappraisal of these assumptions.

As discussed in chapter I of this *Report*, a major cause of the financial crisis was the build-up of excessive risk in the financial system over many years,

made possible by new financial instruments that obscured debtor-creditor relations. Many new financial instruments that were praised as enhancing financial efficiency were delinked from income generation in the real sector of the economy.

This could largely have been prevented if policymakers had been less ideological and more pragmatic. Policymakers should have been wary of an industry that constantly aims at generating double digit returns

in an economy that is growing at a much slower rate (UNCTAD, 2007), especially if that industry needs to be bailed out every decade or so.¹ Because there is much more asymmetric information in financial markets than in goods markets, the former need to be subject to stricter regulations. Inappropriate risk assessment, based on inadequate models, has resulted in lax financial control and encouraged risky financial practices. This suggests that a greater degree of prudence and supervision is necessary, including more regulation – not deregulation as in the past.

The case for reviewing the system of financial governance now seems obvious, and has been made by many leading economists (e.g. Aglietta and

Excessive leverage in the years before the crisis could have been prevented if policymakers had been less ideological and more pragmatic.

Rigot, 2009; Brunnermeier et al., 2009; Buiters, 2009; Goodhart and Persaud, 2008; Hutton, 2009; Subramanian and Williamson, 2009; and Stiglitz, 2009). It is therefore surprising that the G-20, the intergovernmental forum mandated to promote constructive discussion between industrial and emerging-market economies on key issues related to global economic stability, has paid very little attention so far to the necessary reforms of the financial system. Its recent communiqués highlight several problems with tax havens and offshore centres (which played a minor role, if any, in the build-up of the current crisis), but provide no proposals on how to redesign financial regulation.

Financial markets in several developed countries have come to resemble giant casinos in that a large segment of their activities is entirely detached from real sector activities. The crisis has made it abundantly clear that more finance and more financial products are not always better, and a more sophisticated financial system does not necessarily make a greater contribution to social welfare. On the contrary, several innovative financial products have had negative social returns. Thus, in order to

reap the potential benefits of financial innovation, it is necessary to increase the clout and responsibilities of financial regulators.

This chapter seeks to draw lessons for financial regulation from the current financial crisis, which is the deepest and widest since the Great Depression. In addition, it discusses why and how the overall effectiveness of financial regulation will depend on the way in which measures for financial reform at the national level are combined with a reform of the international monetary and financial system – a topic examined in greater detail in chapter IV.

Section B of this chapter briefly discusses to what extent the nature and context of the current financial crisis differ from previous, milder ones. Section C reviews principles that could guide improved regulation and supervision of national financial systems, and examines various types of regulatory measures that could help prevent the occurrence of similar crises in the future. Section D focuses on lessons that developing-country policymakers may draw for their own financial policies from a crisis that originated in the world's financial centre.

B. The current crisis: some new facets, but mostly the same old story

There are certainly some elements that differentiate the current crisis from previous ones. The new elements – which, ironically, were intended to increase the resilience of the financial system – include the “originate and distribute” banking business model, financial derivatives (such as credit default swaps) and the creation of a “shadow” banking system.

However, there are also many elements that are not new. Any student of Kindleberger (1996) or Minsky (1982), would have recognized that, as in previous crises, the roots of the current turmoil lie in

a self-reinforcing mechanism whereby high growth and low volatility lead to a decrease in risk aversion and an increase in leverage credit, which in turn leads to higher asset prices. This eventually feeds back into higher profits and growth and even higher risk-taking. The final outcome of this process is the build-up of debt, risk and large imbalances that at some point will unwind. The proximate cause of the crisis may then appear to be some idiosyncratic shock (in the current case, defaults on subprime mortgage loans), but the true cause of the crisis is the build-up of debt and risk during good times. Vulnerabilities linked

to regulatory arbitrage, which are at the heart of the current crisis, were not unpredictable and indeed were anticipated by several economists.²

The recognition that the current crisis has many common elements with previous crises has important implications for financial regulation and it raises several questions. Why did policymakers make avoidable mistakes? Why did they forget that policymaking should be rooted in pragmatism and not ideology? Why did they disregard the well-known fact that market-based risk indicators (such as high yield spreads or implicit volatility measures) tend to be low at the peak of the credit cycle, precisely when risk is high? (Borio, 2008).

The standard interpretation is that these policy lapses were driven by policymakers' blind faith in market discipline. In that case, the current crisis might lead to a new generation of more pragmatic and less ideological policymakers. According to some commentators, however, the problem is deeper and relates to the fact that the financial industry managed to capture policymaking in a number of important countries, leading policymakers to assume that "what is good for Wall Street is good for the country" (Johnson, 2009).

Arguably, another group of observers who could have been more critical of the faith in free markets when guiding influential policymakers – whether captured by the financial industry or not – is the academic economists. In view of the vast literature and rich empirical evidence on financial markets' proneness to excesses and crises, it is surprising that there was so little challenging of the popular belief in the supposedly unchallengeable wisdom of unfettered market forces. Economic theory teaches that, especially in financial markets, the invisible hand may require guidance and restraint through proper regulation and supervision. And yet, by acting as uncritical cheerleaders, mainstream academic economists, too, have played an important role in propagating the free market faith. As Acemoglu (2008: 4–5) self-critically observes: "... we were in sync with policymakers ... lured by ideological notions derived from Ayn Rand novels rather than

economic theory. And we let their ... rhetoric set the agenda for our thinking and ... for our policy advice".

Economists and institutions whose views do not fully conform with the orthodoxy are often marginalized, and their policy advice is not taken seriously.

This sobering admission raises a number of important questions concerning, for instance, incentive structures in academia, and mechanisms for selecting and channelling expert policy advice. Society may not be well served by incentive structures in academic research institutions (often sponsored by the tax-payer) which marginalize views that do not conform to the mainstream (Eichengreen, 2009). Furthermore, and as the current crisis also highlights, there are risks to society if policy advice is effectively monopolized by propagators of the mainstream view, and if policy-shaping debates take place in a sterile environment of convergent and homogeneous views. This has also been recognized by the United States Congressional Oversight Panel:

Government, industry, Wall Street, and academia typically employ economists with similar training and backgrounds to create their forecast, leading to optimism and convergence of economic forecasts ... A Financial Risk Council composed of strong divergent voices should avoid overly optimistic consensus and conventional wisdom, keeping Congress appropriately concerned and energized about known and unknown risks in a complex, highly interactive environment.

Congressional Oversight Panel,
2009: 47–48.

The importance of creating a forum comprising economists with different backgrounds and approaches cannot be overstated. For instance, the International Monetary Fund (IMF, 2009) argues that policymakers were not ready for the crisis because "warnings provided by official bodies before the crisis were too scattered and unspecific". It has proposed a joint IMF-Financial Stability Forum to provide "early warnings" (IMF, 2009). However, it is at least debatable as to whether such an arrangement would ensure a healthier and more objective debate than before, since past experience suggests that it would bring together only those economists that hold the mainstream view. Instead, in order to meet

the challenge posed by the Congressional Oversight Panel cited above, a wiser step may be to entrust the role of vigilant observers that provide early warnings to a more diverse body. One such body would be the Commission of Experts of the President of

the United Nations General Assembly on Reforms of the International Monetary and Financial System (often referred to as the Stiglitz Commission), which is composed of economists of far more diverse backgrounds and views.

C. How to deal with the fragility of the modern financial system

According to Christopher Cox, Chairman of the United States Securities and Exchange Commission, it has become “abundantly clear that voluntary regulation does not work”.³

The financial sector acts like the central nervous system of modern market economies. In principle, its function is to mobilize the capital necessary to finance large investment projects, to allocate funds to the most dynamic sectors of the economy, and, through its payments system, to enable management of the complex web of economic relationships that are necessary for economies characterized by a high degree of division and specialization of labour. However, it does not always fulfil these functions properly.

An effective financial system is essential for economic development, but the presence of informational asymmetries, high leverage and maturity mismatches render financial systems unstable and prone to boom and bust cycles. Consequently, almost every country has detailed legislation aimed at regulating the domestic financial sector.

However, there are several problems with modern financial regulation. The most fundamental of these is the assumption that “markets know best” and that regulators should not try to second-guess them. As noted by Stiglitz (2009: 5), “If government appoints as regulators those who do not believe in regulation, one is not likely to get strong enforcement”.

1. Defining and measuring efficiency

The ultimate objective of financial regulation should be the creation of a sound and efficient financial system. There are, however, several possible definitions of an efficient financial system (Tobin, 1984; Buiters, 2009), each of which has different welfare implications. Therefore, the design of a properly functioning regulatory system aimed at maximizing social welfare requires a clear understanding of these different definitions:

- *Information arbitrage efficiency* relates to the price formation process. In an information efficient market, prices reflect all available information. Without insider information, it is impossible to earn returns that constantly beat the market.
- *Fundamental valuation efficiency* refers to a situation in which the price of a financial asset is determined entirely by the expected present value of the future stream of payments generated by that asset. This definition of efficiency rules out bubbles or price volatility not justified by changes in fundamentals.
- *Full insurance efficiency* refers to market completeness. According to this definition, a market

is efficient if it can produce insurance contracts that cover all possible events.

- *Transactional (or technical) efficiency* refers to the market's ability to process a large number of transactions at a low cost, and the ability to trade large amounts of a given security without causing large changes in the price of that security. For instance, markets with low bid-ask spreads are more transactionally efficient than markets characterized by high bid-ask spreads, and so are more liquid and deeper.
- *Functional or social efficiency* relates to the value added of the financial industry from a social point of view. This boils down to the financial sector's contribution to consumption smoothing and long-run economic growth. Financial markets can be characterized by low transaction costs, they can provide many different products, and they can do a decent job of evaluating all available information. However, if they do not contribute to long-term economic growth or stability, they will not provide any social return.

From a regulator's point of view, social efficiency should be the only relevant definition of financial efficiency. The other definitions of efficiency should be of concern to regulators only to the extent that they contribute to functional efficiency. In some cases, high transactional efficiency may even encourage speculative movements and eventually conflict with social or functional efficiency.

In discussing the status of the United States financial system in the early 1980s, Tobin (1984) concluded that markets were becoming more transactionally efficient but less functionally efficient. In his view, the United States financial market was increasingly resembling a casino, where gambling dominated activities with true social returns:

[T]he process of deregulation should be viewed neither as a routine application of free market philosophy nor as a treaty among conflicting sectoral interests. Rather it should be guided by sober pragmatic consideration of what we can reasonably expect the financial system to achieve and at what social cost ... [W]e are throwing more and more of our resources, including the cream of our youth, into financial activities remote from the production of goods

and services, into activities that generate high private rewards disproportionate to their social productivity.

Tobin, 1984: 294.

Tobin's early assessment is corroborated by the fact that the United States financial system managed to completely decapitalize itself and had to be bailed out three times in three decades. In the light of the ongoing financial crisis, the notion of transactional efficiency also deserves to be re-examined. Financial expansion was based largely on huge amounts of unnecessary financial transactions, and on the creation of opaque financial instruments and a shadow financial system. However, on each transaction, even if economically redundant, financial institutions earned a commission.

Thus, financial expansion must be prevented from becoming an end in itself, through public regulation to ensure social efficiency. However, there is very little agreement on this view. Some observers even maintain that the present crisis has resulted from excessive regulation, not from a lack of it. They argue that with less stringent rules for commercial banks, the incentive for regulatory arbitrage would have been weaker. Moreover, several influential economists and policymakers maintain that the deregulated and super-sophisticated United States financial system succeeded in delivering the goods in terms of high GDP growth. According to this view, crises – and the associated public bailouts – are a necessary price to pay for having a financial system that promotes entrepreneurship and leads to high growth (Rancière, Tornell and Westermann, 2008).

Therefore, the ultimate test of social efficiency has to do with the relationship between financial development and long-term economic growth. There is a large body of empirical literature which shows that finance (measured by the size of the financial system) does indeed play a positive role in promoting economic development (Levine, 2005). The idea that financial development may cause decreasing social returns is hardly new (Kindleberger, 1996; Minsky, 1982; Tobin, 1984; Van Horne, 1985; Rajan, 2005), and Panizza (2009) has conducted a test to examine whether there can even be such a thing as too much finance. His analysis corroborates the standard result that the size of the financial sector has a positive impact on economic growth, but it also shows that there are decreasing returns to expanding the financial

sector beyond a certain point, and that such returns can become negative for countries with a large financial sector. Econometric estimations suggest that returns become negative when credit to the private sector reaches 70–80 per cent of GDP (chart 3.1).⁴ Another question, which has important implications for recommendations on how to manage financial systems, relates to the activities that are actually financed. “More” finance does not always mean more investment or faster growth and development. Many financial reforms aimed at “financial deepening” in developing and transition economies did not deliver on their promise of sustainable credit expansion to the private sector, greater availability of investment credit for firms and smaller interest spreads (*TDR 2008*, chap. IV). This points to the importance of considering not only the amount but also the quality of finance in the design and management of a financial system.

Social return should be the only relevant criterion for efficiency of the financial system.

2. Avoiding gambling

A standard assumption behind most regulatory systems is that all financial products can potentially increase social welfare. The only problem is that some products may increase risk and reduce transparency. If these issues could be addressed, the argument goes, more financial innovation would always be beneficial from the social point of view. This assumption is wrong. Some financial instruments can generate high private returns but have no social utility whatsoever. They are purely gambling instruments that increase risk without providing any real benefit to society. They may be transactionally and informationally efficient, but they are not functionally efficient.

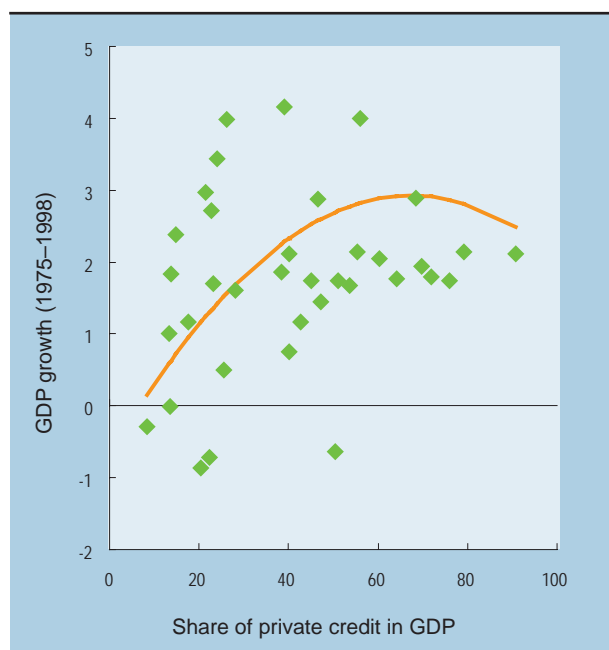
Policymakers should not prevent or hinder financial innovation as a matter of principle. However, they should be aware that some types of financial instruments are created with the sole objective of eluding regulation or increasing leverage. Financial regulation should therefore aim at avoiding the proliferation of such instruments. A positive step in this direction could be achieved with the creation of a financial products safety commission which would evaluate whether new financial products could be traded or held by regulated financial institutions (Stiglitz, 2009). Such an agency might also provide incentives to create standardized financial products that are more easily understood by market participants, thus increasing the overall transparency of the financial market.

In some cases it will be easy to identify products which provide no real service besides the ability to gamble and increase leverage. For instance, credit default swaps (CDSs) are supposed to provide hedging services. But when the issuance of CDSs reaches 10 times the risk to be hedged (see section C.4), it becomes clear that 90 per cent of those CDSs do not provide any hedging service; they are used for gambling, not insurance, purposes.⁵ This is why there is need for regulations that limit the issuance of CDSs to the amount of the underlying risk and prohibit other types of financial instruments that are conducive to gambling. Such regulation is consistent with the notion that purchasers of insurance contracts have an

Chart 3.1

CORRELATION BETWEEN FINANCIAL DEVELOPMENT AND GDP GROWTH

(Per cent)



Source: Panizza, 2009.

insurable interest in the event for which they buy the insurance. Accordingly, there are laws, for example, against homeowners overinsuring their houses and laws against individuals buying life insurance contracts for unrelated persons.

Deciding on the legitimacy of the financial instruments will not always be easy. For financial instruments that provide both real and gambling services, regulators will need to evaluate the costs and benefits of each product and only allow instruments for which the benefits outweigh the costs. Other instruments may have high potential social returns but may also increase risk and opaqueness.⁶ Therefore, they should be properly regulated and monitored. Of course, tighter regulations will have a negative effect on financial innovation (regulations would not be effective if they did not), and in some cases may prevent the adoption of useful financial instruments. But there is almost no evidence that financial innovation has a positive impact on economic development, and there is substantial evidence that financial innovation is often motivated by the desire to evade taxes or elude regulation (Crotty and Epstein, 2009).

In general, choices will not be easy. They will require value judgments and could easily backfire. However, this applies to all policy decisions. The way out may be to follow the “precautionary” principle and examine the usefulness and potential risks of any product before it is allowed to be offered to consumers: what applies to potentially toxic drugs and food should also be applied to “toxic financial products”. The decision not to take any action is a regulatory action in itself, and uncertainty cannot be used as an excuse for not introducing regulation.

3. Avoiding regulatory arbitrage

Poorly designed regulation can backfire and lead to regulatory arbitrage. This is what happened with banking regulation.

Usually, banks take more risk by increasing their leverage, and modern prudential regulation revolves around the Basel Accords which require banks with

an international presence to hold a first-tier capital amount equal to 8 per cent of risk-weighted assets. Regulation has been effective in increasing the measured capital ratio of commercial banks. Over the past 25 years, the 10 largest United States banks have substantially decreased their leverage (chart 3.2), going from a non-risk-adjusted first-tier capital ratio of approximately 4.5 per cent (which corresponds to a leverage of 22), to a non-risk-adjusted first-tier capital ratio of approximately 8 per cent (which corresponds to a leverage of 12.5).⁷

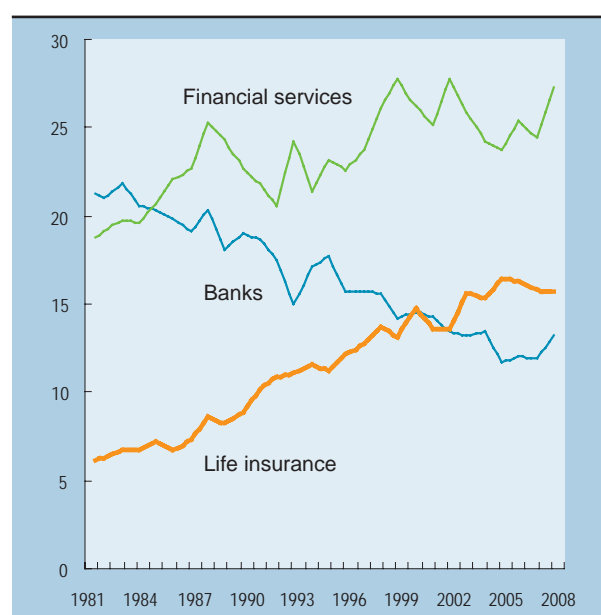
Since capital is costly, bank managers have tried to circumvent regulation by either hiding risk or moving some leverage outside their bank. Indeed, the decrease in the leverage ratio of commercial banks

Some financial instruments have no social utility whatsoever.

Chart 3.2

LEVERAGE OF TOP 10 UNITED STATES FINANCIAL FIRMS, BY TYPE OF ACTIVITY, 1981–2008

(Per cent)



Source: UNCTAD secretariat calculations, based on balance sheet data from Thomson Datastream.

Note: Leverage ratio measured as a share of shareholders' equity in total assets. Data refer to four-quarter-moving averages.

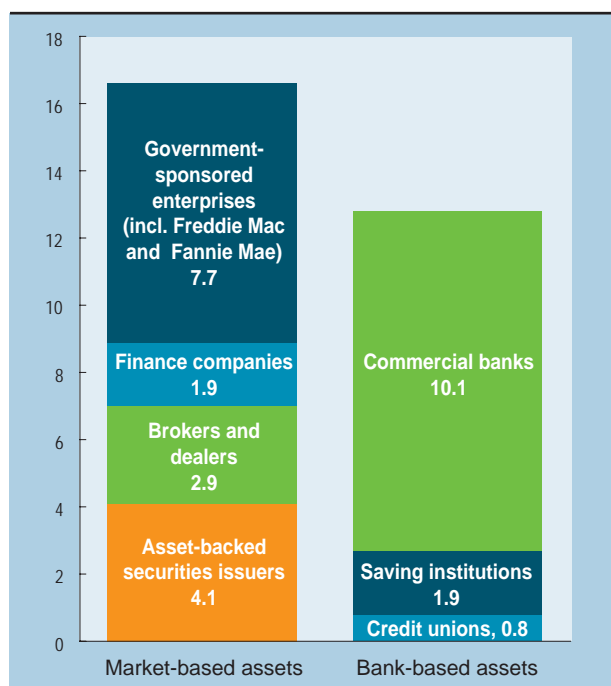
has been accompanied by an increase in leverage ratios of non-bank financial institutions (chart 3.2). Thus bank regulation has pushed leverage to other parts of the financial sector – a classic case of regulatory arbitrage (Furlong and Keeley, 1989; Rochet, 1992; Jones, 2000).

This shifting of leverage has created a “shadow banking system” (a term coined by Paul McCulley of Pacific Investment Management Company). It consists of over-the-counter (OTC) derivatives, off-balance-sheet entities, and other non-bank financial institutions such as insurance companies, hedge funds and private equity funds. These new players can replicate the maturity transformation role of banks while escaping normal bank regulation. At its peak, the United States shadow banking system held assets of approximately \$16.15 trillion, about \$4 trillion more than regulated deposit-taking banks (chart 3.3).

Chart 3.3

SIZE OF THE BANKING SYSTEM AND THE SHADOW BANKING SYSTEM IN THE UNITED STATES, 2007 (2nd QUARTER)

(Trillions of dollars of assets)



Source: Shin, 2009.

Regulators did not seem too worried by this shift in leverage because they assumed that, unlike deposit-taking banks, the collapse of large non-bank institutions would not have systemic effects.⁸ The working hypothesis was that securitization had contributed to both diversifying and allocating risk to sophisticated economic agents who could bear such risk. Consequently, they believed that the system could now take a higher level of total risk. The experience with structured investment vehicles (SIVs) shows the flaws in this line of reasoning (UNCTAD, 2007). While regulation focused on banks, it was the collapse of the shadow banking system which kick-started the current crisis and eventually hit the banking system as well.

In order to avoid regulatory arbitrage, banks and the capital market need to be regulated jointly, and financial institutions should be supervised on the basis of fully consolidated balance sheets (Issing et al., 2008). All markets and providers of financial products should be overseen on the basis of the risk they produce. If an investment bank issues insurance contracts like CDSs, this activity should be subject to the same regulation that applies to insurance companies. If an insurance company is involved in maturity transformation, it should be regulated like a bank (Congressional Oversight Panel, 2009).

4. Can securitization reduce risk?

The originate and distribute model – a process in which banks originate loans then sell them, packaged into different types of securities, to a wide range of investors – was supposed to increase the resilience of the financial system and isolate banks from costly defaults. It was also endorsed by the IMF:

There is growing recognition that the dispersion of credit risk by banks to a broader and more diverse group of investors ... has helped make the banking and overall financial system more resilient ... commercial banks may be less vulnerable today to credit or economic shocks.

IMF, 2006: 51.

The Bank for International Settlements (BIS) was more sceptical about the merits of the new model:

Assuming that the big banks have managed to distribute more widely the risks inherent in the loans they have made, who now holds these risks, and can they manage them adequately? The honest answer is that we do not know.

BIS, 2007: 145.

Indeed, securitization did not deliver as expected for several reasons (for a detailed discussion, see UNCTAD, 2007). First, banks entered the game because a regulatory loophole allowed them to buy structured products and increase leverage through lightly regulated conduits. Second, as banks are likely to be more careful in evaluating risk when they plan to keep a loan on their books, securitization led to the deterioration of credit quality.⁹ Third, securitization increased the opaqueness of the financial system, leading to a situation characterized by “Knightian uncertainty” (i.e. where risk is unknown and cannot be modelled with standard probability distributions) in which nobody is willing to lend because nobody knows who holds the risk. Fourth, most investors in the collateralized debt obligations (CDOs) market were of the “buy-and-hold” type. This resulted in low market turnover and no price discovery. Instruments were valued based on theoretical models rather than on market prices. Securitization offered the law of large numbers as a compensation mechanism for the loss of soft information built into traditional lending.¹⁰ However, the assumptions underlying these models were often flawed. Some assumptions were plainly wrong: for example, some rating agencies had models which assumed that real estate prices could only increase (Coval, Jurek and Stafford 2008). Others were more subtly incorrect, but even more dangerous.

Among the latter was the assumption that the risk associated with each debt contract packaged in a CDO was either *uncorrelated* or had a simple correlation structure (the so-called Gaussian cupola), with the risks of the other debt contracts included in the same CDO (box 3.1). These assumptions tend to work well in normal times. However, in bad times things work differently, because asset prices tend to collapse at the same time, and small mistakes in measuring the joint distribution of asset returns may lead to large errors in evaluating the risk of a CDO.¹¹ These problems are compounded by the fact that all models used in the financial industry use historical

data to assess risk. But, by definition, historical data do not contain information on the behaviour of new financial instruments.

Another problem with standard models of risk is that they do not control for *counterparty risk* (i.e. the risk that one of the counterparties will not deliver on its contractual obligations), which is especially important for insurance and futures contracts. Several financial institutions are both buyers and sellers of risk, and gross exposure to risk is often much higher than the actual underlying risk. Even in a situation in which all parties are fully hedged, the presence of counterparty risk amplifies uncertainty, leading to a situation in which instruments that are supposed to diffuse risk end up increasing systemic fragility (Brunnermeier, 2008). For instance, the gross exposure from CDS in the United States market is about 10 times the net exposure (chart 3.4), and counterparty risk played a key role in the panic that followed Lehman Brothers’ bankruptcy in September 2008. Moreover, this was the main reason for the bailout of giant insurer – American International Group (AIG) (Crotty and Epstein, 2009).

Transparency could be increased by creating a clearing house that can net the various positions (Segoviano and Singh, 2008) or by moving from OTC trading to organized exchanges.¹² The United States Administration seems to favour this latter line of action. In mid-May 2009, the United States Treasury unveiled a proposal aimed at encouraging regulated institutions to make greater use of exchange-traded derivatives. While this proposal goes in the right direction, it may end up being too timid because, by only “encouraging” the use of organized exchanges (or by limiting the requirement to operate on organized exchanges to standardized derivatives), it may lead to a substantial amount of trading remaining in opaque OTC markets. Indeed, the proposal may even end up being counterproductive, as research indicates that if only some derivatives are traded in organized markets, the risk of derivatives traded in OTC markets could increase, and so could total systemic risk (Duffie and Zhu, 2009).¹³ Alternatively, it would be possible to prohibit the excessive use of CDSs by preventing the gross notional value of a CDS contract from exceeding its net notional value. This would still allow hedging, but limit gambling.

Box 3.1**COLLATERALIZED DEBT OBLIGATIONS AND CREDIT DEFAULT SWAPS**

Two instruments at the centre of the current crisis are collateralized debt obligations (CDOs) and credit defaults swaps (CDSs).

COLLATERALIZED DEBT OBLIGATIONS^a

A CDO is a structured financial product which is supposedly able to take risky financial instruments and transform them into less risky instruments. This transformation of risk is achieved through a two-step procedure involving pooling and tranching.

In the first step – pooling – a large number of assets (e.g. mortgages) are assembled into a debt instrument. Such a debt instrument can achieve risk diversification if the payoffs from the underlying securities are negatively correlated with each other. However, the new debt instrument cannot reduce risk to any great extent because the expected payoff of the whole portfolio is the same as the expected payoff of the underlying securities. Thus the credit rating of this new instrument would be similar to the average credit rating of the underlying securities. Therefore, there is no credit enhancement with pooling.

It is the second step – tranching – that produces credit enhancement. With tranching, the original debt instrument is divided into segments (tranches), which are prioritized according to the way they absorb losses from the original portfolio. For instance, CDOs are usually divided into three tranches. The bottom tranche (often referred to as “equity” or toxic waste) takes the first losses, the middle tranche starts absorbing losses after the bottom tranche is completely exhausted, and the top tranche starts taking losses only after the middle tranche is exhausted.

With this mechanism, it is possible to start with a pool of assets that are not investment grade and transform part of them into investment grade tranches of CDOs. The process does not necessarily stop here. By tranching the equity tranche of a regular CDO, asset managers can generate CDO-squared, which extracts AAA assets from the toxic waste component of the original CDO. In 2007, about 60 per cent of structured products were AAA-rated, while only about 1 per cent of corporate bonds received that rating (Coval, Jurek and Stafford, 2008).

This transformation of risk has several advantages for the issuer because sub-investment grade assets have a high capital charge for regulated commercial banks and cannot be held by institutional investors. It is not surprising that the market for CDOs grew exponentially, from issuances of \$25 billion per quarter at the beginning of 2005 to issuances of \$100 billion per quarter at the beginning of 2007 (Coval, Jurek and Stafford, 2008).

However, investors and regulators alike did not seem to understand that risk enhancement came at the price of transforming diversifiable risk into concentrated risk, which is strongly correlated with overall economic performance. Moreover, rating a CDO is more complex than rating a single name debt instrument because it requires knowledge of both the average probability of default of the various instruments included in the pool and the correlation between these probabilities of default. In other words, it requires knowledge of the joint distribution of the payoffs of the various instruments included in the CDO. Small mistakes in estimating such distribution (which are almost irrelevant in the rating of single debt instruments) can lead to large rating errors, which are compounded in CDO-squared.

Even if agencies improve their rating process, investors should be aware that the type of risk associated with a CDO is different from that of a single debt instrument and thus the same rating may mean completely different things. It may thus be appropriate to create a rating category that only concentrates on structured financial products.

CREDIT DEFAULT SWAPS

Most debt securities have two types of risks: interest rate risk and default risk. A CDS allows swapping the second type of risk to the insurer (this is why CDSs are also called swaps). In a typical CDS contract, those who buy insurance pay a premium, which should be equal to the probability of default times the notional amount of the CDS. This seems an efficient way of hedging one type of risk, which is why CDSs became very popular in 2006–2007: at their peak, they reached a notional amount of almost \$60 trillion.

Box 3.1 (concluded)

However, there are two problems with CDSs. First, in order to buy a CDS on a given security, investors do not need to hold the security. Most CDSs were bought by people who were betting on the fortune of a given security, and not by investors who needed to hedge a certain exposure to risk. In fact, there seemed to be betting over betting, with gross exposure of a CDS being about 10 times its net exposure. As a result, nobody knew who was insured against or exposed to any type of risk. Second, while the insurance industry is regulated, CDSs are not. In the United States, regulation of these instruments is blocked by a measure inserted into an appropriations bill of December 2000. While insurance companies have rules limiting how much insurance they can sell, there is no limit on a financial institution's issuing of CDSs. Thus investment banks moved to the insurance business, which soon started looking more and more like a gambling business (Stiglitz, 2009).

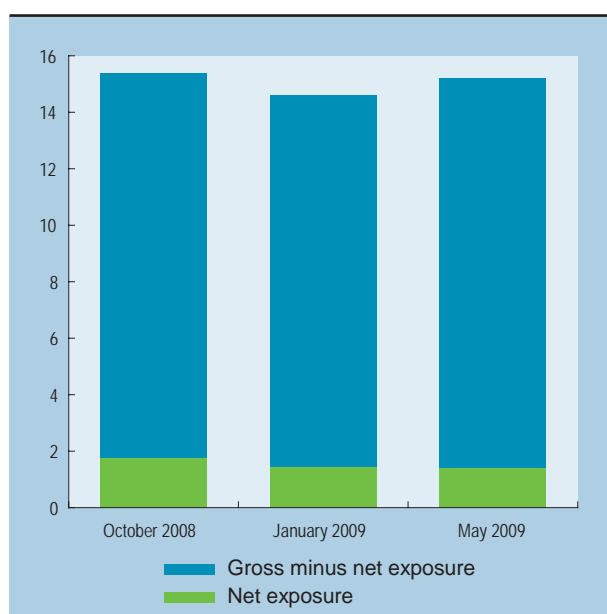
When some insured securities started defaulting, sellers of CDSs realized that they could incur large losses which they had not provisioned against. This increased the risk that sellers of insurance would not be able to deliver on their obligations, and investors that felt hedged suddenly realized that they were exposed to risk. Rather than reducing uncertainty, CDSs ended up increasing uncertainty.

^a The discussion of CDOs draws on Coval, Jurek and Stafford (2008).

Chart 3.4 5. Strengthening regulation

**OUTSTANDING CREDIT DEFAULT SWAPS,
GROSS AND NET NOTIONAL AMOUNTS,
OCTOBER 2008–MAY 2009**

(Trillions of dollars)



Source: UNCTAD secretariat calculations, based on data from the Depository Trust and Clearing Corporation.

The current regulatory framework assumes that policies aimed at guaranteeing the soundness of individual banks can also guarantee the soundness of the whole banking system (Nugée and Persaud, 2006). This is problematic, because there are instances where actions that are prudent for an individual institution have negative systemic implications. Consider the case of a bank that suffers large losses on some of its loans. The prudent choice for this bank is to reduce its lending activities and cut its assets to a level in line with its smaller capital base. If the bank in question is small, the system will be able to absorb this reduction in lending. On the other hand, if the bank in question is large, or the losses affect several banks at the same time, the individual bank's attempt to rebuild its capital base will drain liquidity from the system. Less lending by some banks will translate into less funding to other banks, which, if other sources of liquidity are not found, might be forced to cut lending and thus amplify the deleveraging process. As a consequence, a bank's attempt to do what is prudent from its own point of view (i.e. maintain an adequate capital ratio) may end up causing problems for other banks, with negative effects on the banking system as a whole.

Another channel through which the current regulatory system may have a negative systemic impact relates to mark-to-market accounting, according to which banks need to value some assets by using their current market price. Consider again the example of a large bank that realizes losses and needs to reduce its risk exposure. Presumably, this bank will sell some of its assets and thus depress their price. This will lead to mark-to-market losses for banks that hold the same types of assets. If these losses are large enough to make capital requirements binding, the affected banks will also need to reduce their exposure. If they start selling assets, they will amplify the deleveraging process. As the opposite happens in boom periods, this mechanism leads to leverage cycles.

From this, it becomes clear that some of the assumptions that form the basis of the Basel Accords are questionable. Risk-weighted capital ratios impose high capital charges on high-risk assets and low capital charges on low-risk assets. This can increase systemic risk and amplify the leverage cycle, because during good times some assets will be deemed to be less risky than they actually are, and during bad times the same assets might be considered more risky than they are. Required capital ratios will end up being too low in good times and too high in bad times.

Moreover, relatively safe assets have the highest systemic risk. This argument, which may seem paradoxical, can be illustrated by thinking about a continuum of debt securities, going from super-safe assets (e.g. AAA government bonds) to high-risk junk bonds, and then imagining which assets are more likely to be downgraded if a systemic crisis were to happen. These are most likely to be the relatively safe assets, such as AAA-rated tranches of CDOs, rather than either the super-safe ones (because of flight to quality) or the high-risk ones (because they cannot be downgraded by much). But these are the assets that had low regulatory capital during the boom period, and, because of the downgrade, need larger regulatory capital in the crisis period (Brunnermeier et al., 2009).

What may be prudent for one bank may cause problems for other banks.

Risk-weighted capital ratios can amplify the leverage cycle.

As mark-to-market accounting plays a role in amplifying the leverage cycle (Plantin, Sapra and Shin, 2005), representatives of the financial industry have suggested that this form of accounting should be suspended during periods of crisis (Dallara, 2008).

This seems contradictory: on the one hand, the financial industry praises the market-discovery role of securitization and asks for light regulation; on the other hand, it argues that the “discovered” price may sometimes be too low.

An interesting proposal that would contribute to enhancing systemic stability without giving the financial industry a free lunch is “mark-to-funding” (Persaud, 2008). The basic idea is that assets should be valued on the basis of a bank’s need to roll over the funding of its assets, and not on the basis of the bank’s own idea of how long the assets will be held in its books. If the purchase of an asset is funded with a six-month loan, the financial institution should value the asset by concentrating on the expected price of the asset in six months’ time. After all, it is then that the bank will either be able to roll over its debt or will have to sell the asset. If a bank funds its activities with overnight loans, mark-to-funding will be identical to mark-to-market. According to Persaud (2008), besides having the potential for reducing procyclicality, mark-to-funding could also provide incentives for reducing maturity mismatches in the banking system.

While mark-to-funding has several desirable properties, it also has some drawbacks. The first is a practical one. Since banks pool their assets and liabilities, mark-to-funding cannot be implemented on an asset-by-asset basis. Therefore, regulators need to find a way to average the maturity of both funding and assets. This complex exercise could stimulate the viral nature of financial innovation and lead bank managers to adopt complicated short-term funding strategies that appear to be long-term. Hence, mark-to-funding could increase the opaqueness of the financial system. The second and more fundamental problem is that banks are useful precisely because they are involved in a process of maturity transformation.

This is why the idea of narrow banks (Simons, 1948) never gained much traction: it would be dangerous if a mark-to-funding system were to eliminate the maturity transformation role of banks.

6. Implementing macro-prudential regulation

The time for economy and for accumulation is before [the crisis]. A good banker will have accumulated in ordinary times the reserve he is to make use of in extraordinary times.

Bagehot, 1873.

Most crises occur because financial institutions have similar vulnerabilities and are exposed to similar types of shocks. It is thus necessary to understand how these vulnerabilities grow over time, and to complement micro-prudential regulation with macro-prudential policies aimed at building up cushions during good times, rather than reducing liquidity during periods of crisis.

Borio (2003) provides a lucid discussion of the differences between micro- and macro-prudential regulation. The ultimate objective of micro-prudential regulation is to protect depositors, whereas the ultimate objective of macro-prudential regulation is to guarantee the stability of the system and avoid large output losses. Micro-prudential regulation is based on a model of exogenous risk, while macro-prudential regulation assumes that the risk is endogenous with respect to the behaviour of the financial system. Moreover, the correlation and common exposure across financial institutions, which is irrelevant for micro-prudential regulation, is fundamental for macro-prudential regulation.

Macro-prudential regulation should focus on both the *cross-sectional* and the *time* dimension of risk (Borio, 2003). For the former, regulators should internalize regulatory arbitrage and be aware that both banks and non-bank financial institutions can be a source of systemic risk. The key consideration for macro-prudential regulation is each institution's

contribution to systemic risk. Other things being equal, larger institutions should be subject to a heavier regulatory burden than smaller institutions: if institutions are “too big to fail”, they are also too big to be saved, and are probably too big to exist (Subramanian and Williamson, 2009). However, size is not a sufficient indicator, because many small institutions which are subject to correlated risk may have the same systemic importance as large institutions. Regulators should also be concerned about leverage, maturity transformation, provision of essential services (such as payment or market-making) and interconnectedness.¹⁴

The time dimension of risk can be assessed by establishing early warning systems, and recognizing that booms (and the subsequent crashes) are fuelled by imprudent lending and high leverage stemming from the perception that risk has permanently lowered. Vulnerabilities can be attenuated by building buffers of capital in good times and reducing them in periods of crisis. Such countercyclical provisioning would also smoothen the leverage cycle (Goodhart and Persaud, 2008).

Some policymakers have argued against such “leaning against the wind” policies. They suggest that, rather than second-guessing the market, it is better to wait for the crisis and clean up the mess later. This view appears wrong for at least two reasons. First, the current crisis shows that cleaning up the mess is neither easy nor cheap. Second, anticipating vulnerabilities (or second-guessing the market) is not so difficult if one has a medium-term horizon. Borio and Drehmann (2008) and Borio and Lowe (2002) show that three simple early warning indicators based on real-time data (i.e. information that is available at the time the predictions need to be made) perform well in forecasting episodes of financial distress with a lead of up to four years. These indicators are: credit growth that is 6 per cent above its long-run trend, equity prices that are 60 per cent above their long-run trend, and real estate prices that are between 15 and 25 per cent above their long-run trend.

Another advantage of a system of countercyclical provisioning (or dynamic provisioning) is that it could be implemented as an automatic stabilizer.

Anticipating vulnerabilities in the medium-term is not so difficult.

There are important political economy considerations that support the idea of a non-discretionary regulatory system. The seeds of a financial crisis are planted during boom periods, but it is precisely during booms that political support for regulation reaches its lowest point. Regulators endowed with large discretionary power may thus face pressure to adopt lax standards during periods of rapid credit expansion. A simple rule that relates capital standards to growth in credit or asset prices would protect regulators from such pressure (Brunnermeier et al., 2009).

7. Enhancing international coordination

Regulatory arbitrage not only applies to institutions within a jurisdiction, but also extends across jurisdictions.¹⁵ It is therefore necessary to add an international dimension to financial regulation.

As a minimum, regulators based in different countries should communicate and share information. At this stage, it is impossible to implement a global early warning system because there are no data for either cross-border exposures among banks or derivative products (Issing and Krahn, 2009). Regulators should work together towards developing joint systems for the evaluation of cross-border systemic risk, and share information on liquidity and currency mismatches in the various national markets. But international cooperation needs to go beyond sharing information. It needs to focus on regulatory standards, and ensuring that financial regulation by countries avoids a race to the bottom. Without international coordination, authorities in some countries may believe that they can turn their countries into international financial centres by deregulating their markets. Indeed, some authorities are even reluctant to share data on cross-border exposure because they think that greater transparency may have a negative effect on the competitiveness of their domestic financial sector (Issing and Krahn, 2009). This position is wrong: investors want transparency and proper regulation. A race to the bottom may end up being a negative sum game and reduce the efficiency and the size of the world's financial system (Stiglitz, 2009).

International coordination is important for minimizing the risk of regulatory arbitrage, but ...

Cooperation among regulators should work towards a uniform application and enforcement of regulatory standards (Group of 30, 2009) and should focus on closing regulatory gaps.

Regulators should also coordinate oversight of large international banking organizations and add clarity to the responsibilities of home and host countries (Group of 30, 2009; Issing et al., 2008). Formal agreements are especially important at times of crisis, because in normal times regulators tend to cooperate and share information on an informal basis. However, crises often lead to jurisdictional conflicts which make cooperation more difficult.

Subramanian and Williamson (2009) suggest that the host country should focus on macro-prudential regulation and the home country on micro-prudential regulation. Such division of responsibilities makes sense, because macro-shocks are often country-specific and micro-prudential rules tend to be more homogeneous. But again, whereas such allocation of responsibilities can be optimal in normal times, it can generate tensions at times of crisis, especially if the home country experiences large macroeconomic shocks. There is evidence that foreign affiliates play a stabilizing role for shocks that originate in the host country, but may propagate shocks that originate in the home country (Galindo, Micco and Powell, 2005).

While international coordination is certainly called for, it would not be wise to impose a single, common regulatory standard on all countries. There is no “one-size fits-all” model for the financial system, nor can there be any single regulatory system that is right for all economies. Countries at different levels of development, and with varying regulatory capacity and history need to adopt regulatory approaches that are in line with their specific needs and circumstances. International coordination could help prevent regulatory arbitrage across countries from remaining a source of instability in international financial relations. Competition among countries for – in most cases wrongly perceived – advantages from regulatory arbitrage tends to lead to a “race to the bottom”, with negative consequences for financial and economic stability in all countries. The scope for regulatory arbitrage could also be significantly

reduced through reforms in international monetary and financial governance, as discussed in chapter IV of this *Report*. On the other hand, allowing countries to experiment with alternative regulatory approaches can provide regulators with a better understanding of the trade-offs of different regulatory models (Pistor, 2009). A better appreciation of these different needs and approaches could be achieved by increasing the participation of developing countries in the various standard setting bodies and international agencies responsible for guaranteeing international financial stability.

... there is no single regulatory system which is right for all countries.

At present, the responsibility for guaranteeing international financial stability rests with the IMF, the Basel Committee on Banking Supervision (BCBS), and the Financial Stability Forum (FSF, recently renamed Financial Stability Board). However, the problem is that these institutions not only have similar views but they also lack representation. The IMF has nearly universal membership, but its governance structure gives disproportionate power to developed countries. The BCBS (which is in charge of designing and implementing the Basel Capital Accords) comprises 20 countries, of which only 6 are developing countries or transition economies (Brazil, China, India, Mexico, the Republic of Korea, and the Russian Federation).¹⁶ The full membership of the FSF consists of 12 high-income countries or territories (including Hong Kong, Special Administrative Region of China; and Singapore).

The G-20 summit in April 2009 enumerated several steps for making these institutions and forums more inclusive and representative. For instance, it supported reforms of the IMF's governance structure and procedures for electing its Managing Director, and it replaced the FSF with the Financial Stability Board (FSB) which will now comprise all G-20 countries (including 10 developing and transition economies).

While these are important steps in the right direction, the fact remains that most developing countries are still excluded from these agenda-setting bodies. Moreover, even after the reforms agreed by the G-20, the IMF and other agencies are still dominated by mainstream economic thinking which failed

miserably in predicting the current crisis.¹⁷ These bodies and institutions need to be made more representative, not only in terms of membership but also in terms of the views of their various members. These deficiencies need to be addressed first, before the international community worries about procedures aimed at ensuring that the analyses and recommendations of these supervisory bodies are translated into action.

8. Financial regulation and incentives

In many countries, financial regulation (and deregulation) rests on the idea that bank managers would not do anything that would prejudice the long-term value of their firms (see, for example, Greenspan, 2003). With the benefit of hindsight, it is now clear that this idea is fundamentally flawed. Economists and policymakers have always been aware that managers' incentives are not aligned with those of shareholders, but they have operated on the assumption that, because of their reputation capital, long-lived institutions could be trusted to monitor themselves. However, large corporations are composed of individuals who always respond to their own private incentives, and those who are in charge of risk control are subject to the same types of incentives that dictate the behaviour of investment officers (Acemoglu, 2008). In most cases, risk officers who are too persistent in ringing bells and blowing whistles are either isolated or fired (Lo, 2008; Devine, 1997).

In fact, even self-interested individuals who spot potential profit opportunities driven by an episode of collective market irrationality may find it difficult to swim against the tide. If an episode of "irrational exuberance" lasts too long, investment managers who buck the trend will underperform and be likely to lose their clients and jobs. Lamont and Thaler (2003) have shown that long-lasting deviations from fundamental asset values are made possible by the fact that very few investors try to fight the trend. It is not surprising that one of the mottos of the financial industry is: "the trend is your friend".

Box 3.2**REALIGNING INCENTIVES IN THE CREDIT RATING INDUSTRY**

The misalignment of incentives in the credit rating industry has generated two types of reactions. Some economists and policymakers take a radical view, suggesting that the regulatory use of ratings should be eliminated (Portes, 2008), and that market-based discipline is sufficient to guarantee the stability of the financial system (Calomiris, 2009). Others argue that eliminating the regulatory role of credit rating agencies is equivalent to throwing the baby out with the bath water. Those who share this view acknowledge the potentially useful role of credit rating agencies for regulatory purposes (Group of 30, 2009), and recognize that market-based discipline does not always work well, especially if the ultimate risk is not borne by those (e.g. asset managers) who choose the composition of a given portfolio of assets.

According to those who support the second view, problems linked to unjustified high ratings could be allayed by developing payment models which provide better incentives for truthful ratings. One possibility would be to return to investor-paid ratings financed through a transaction tax. A more radical proposal is to transform the agencies into public institutions since they provide a public good (Aglietta and Rigot, 2009). These institutions would need to be fully independent (as are many central banks) in order to avoid conflicts of interests in the rating of sovereign and quasi-sovereign entities. A less radical form of intervention is to subject rating agencies to regulatory oversight and regularly publish their rating performance (Issing et al., 2008).

A feasible and market-friendly way to provide the rating industry with the right incentives would be to require issuers who want to have their instruments listed in a given exchange to pay a listing fee (possibly based on the complexity of the instrument), which would then be used to hire a credit rating agency. If the securities are not traded, the same mechanism could be applied by clearing houses or central depositories (Mathis, McAndrews and Rochet, 2008). Such a procedure would break the commercial link between the issuer and the rating agency, and eliminate the conflict of interest that leads to rating inflation. The issuer would still have to provide information to the rating agency, but would not be allowed to remunerate it. As this procedure may not provide incentives to put effort into the rating exercise for yielding unbiased but inaccurate rating, it would be possible to design incentive schemes by matching ratings with observable ex-post outcomes. One remaining issue concerning such a scheme relates to the optimal number of agencies and to the mechanism needed for including agencies in the roster of potential raters.

The list of distorted incentives at the root of the current crisis is long, but executive remuneration in the financial industry and the regulatory role of credit rating agencies are paramount.

(a) Executive pay

Remuneration in the financial industry depends on beating some benchmark while not taking additional risk. This risk-adjusted excess return is usually referred to as Jensen's alpha. In principle, rewarding alpha returns may seem a correct way to assign bonuses. In practice, though, it is very difficult to evaluate an asset manager's ability to generate alpha returns. Since such returns are difficult to obtain (not everybody can be above average), asset managers

may try to generate fake alpha returns by adopting a strategy that leads to excessive returns in most states of the world but hides an enormous tail risk, that is, a very small probability of extremely large negative returns (Rajan, 2005; Foster and Young, 2008). An asset manager's ability to generate alpha returns can only be evaluated by observing his or her activity for many years.

While there is no regulatory framework that can assure a 100 per cent success in limiting incentives to take excessive tail risk, greater transparency, including full disclosure of compensation schemes that may then be used to measure incentive alignment (Issing et al., 2008), and the design of remuneration structures that focus on longer term performance – and not just on the returns of a single year – may be a step in the right direction.¹⁸

(b) Credit rating agencies

Credit rating agencies should improve information flows in financial markets and increase the overall efficiency of those markets. There are, however, problems arising from their peculiar role in modern finance. On the one hand, they are private profit-seeking companies (the “agency” part of their name is misleading). On the other hand, their decisions and activities are at the centre of the prudential regulatory system.¹⁹

Credit rating agencies do not take legal responsibility for their rating decisions on the ground that their activities are similar to those of financial journalists and are thus protected by freedom of speech legislation. This seems a paradoxical argument because their regulatory role gives them a virtual monopoly, which was officially sanctioned by according them the status of nationally recognized statistical rating organizations in the United States in the mid-1970s and by the Basel Accords. As a consequence, there are only three rating agencies with a worldwide presence (Elkhoury, 2008). Moreover, rating agencies are

much more profitable than the financial newspapers with which they compare themselves in support of their freedom of speech arguments (Portes, 2008).

In the early 1970s the industry switched from investor- to issuer-paid fees. Since issuers may shop around for good ratings, credit rating agencies have an incentive to provide good ratings.²⁰ Incentives are further distorted by the fact that securitization would not be possible without credit rating agencies’ assurance of the quality of these complex and opaque financial products, and credit rating agencies have an incentive to provide such an assurance because they earn large fees from rating complex instruments. For example, in 2006, 44 per cent of Moody’s revenues came from activities related to structured finance.²¹

Problems related to unjustified high ratings could be addressed by either developing payment models which provide better incentives for honest and accurate ratings, or by subjecting rating agencies to regulatory oversight and by regularly publishing rating performance (box 3.2).

D. Lessons for developing countries

The present financial crisis is a developed-country crisis. But, although developing countries have been mostly innocent bystanders, they can derive several lessons from the current crisis for their own financial policies. Developing countries are paying a heavy economic price for a crisis that originated at the centre of the world’s financial system, and they need to consider how they can protect themselves from similar external financial shocks in the future. Moreover, most developing countries are trying to build deeper and more efficient financial systems, and, although they are right to do so (as long as efficiency is defined as functional efficiency), they should be aware of the hidden risks of financial development. The current crisis shows that more

sophisticated financial systems require more, and not less, regulation.

1. Increasing resilience to external shocks

In the absence of a complete overhaul of the global financial architecture (see chapter IV for a more detailed discussion), developing countries can limit external vulnerabilities by maintaining a competitive exchange rate. This would reduce vulnerabilities through at least three channels (UNCTAD, 2007): (i) when a real currency appreciation is prevented,

a speculative attack that would cause currency crisis is less likely (Goldfajn and Valdes, 1999); (ii) a competitive currency tends to lead to current-account balance and reduces the vulnerability to a sudden stop of capital inflows; and (iii) avoiding real currency appreciation goes hand in hand with the accumulation of international reserves which can provide a first line of defence if a currency attack or sudden stop were to happen. Such a policy orientation, which may be reasonable from the point of view of an individual country, would, however, be problematic at the international level, because if several countries pursue the same strategy it would lead to competitive devaluations and endanger the stability of the entire system. This is why a truly multilateral exchange-rate system, as discussed in chapter IV, is called for. As an alternative or complementary measure, a well-designed capital-account management regime can also help to protect a fragile domestic financial system from undesirable swings in external financial transactions.

Developing countries should also try to avoid (or limit) currency and maturity mismatches in both private and public balance sheets. Debt management policies aimed at substituting foreign-currency-denominated public debt with domestic-currency-denominated public debt can help. Also useful is regulation limiting the ability of households and corporations that have domestic currency income to incur debt denominated in foreign currency.

Finally, developing countries should have contingency plans to be implemented if all else fails. Moderately intrusive capital controls can help during crisis periods (Kaplan and Rodrik, 2001), and market-friendly capital controls can limit risk accumulation in good times. There is much to be said for the sequencing of reforms, including a well-regulated financial sector, which is a necessary (but not sufficient) condition for benefiting from financial globalization. However, the standard policy prescription of regulating and then opening up (Kose et al., 2006) is more problematic in its assumption that a good regulatory system can be easily implemented in a relatively short period. The massive failure of financial regulation in the world's most sophisticated financial system suggests that it may take a long time before developing countries will be able to benefit

from an open capital account. Therefore, they should proceed with extreme caution along this path. It is probable that by the time a developing country is able to meet all the conditions for successfully opening up its capital account, it would no longer be a "developing" country.

2. *More financial development requires more and better regulation*

The financial systems of developing countries tend to be less functionally efficient than those of developed countries. Given the importance of finance for modern economic growth, several developing countries adopted ambitious structural reform programmes aimed at modernizing and improving their financial systems. There are now doubts as to whether these pro-market policies were successful in achieving their objective of increasing the size and efficiency of their financial sectors (*TDR 2008*, chap. IV). While deregulation generally led to an expansion of credit to the private sector, in many cases this expansion proved short-lived as it resulted in financial crises and a subsequent credit crunch, and most of the additional credit did not finance business investments. Neither did it achieve a narrowing of interest margins or a durable credit expansion. However, even more successful outcomes may be accompanied by an increase in risk-taking, and therefore require a better regulatory system.

Consider a country characterized by a non-competitive financial system in which banks make good profits by paying low interest on deposits and charging high interest rates on loans, which they only extend to super-safe borrowers (or, in some cases, to their managers' friends). Shareholders and bank managers are content with rents arising from limited competition, but such a system is hardly conducive to economic development. Credit will be limited and unlikely to flow to high-return investment projects. High transaction costs will lead to small bond and stock markets.

Assume now that the country's policymakers decide on the need to reform the financial system

Policymakers should not aim for a sophisticated financial system ...

and that they realize the reform process should target functional efficiency. They also know that financial instruments that may have high social returns in a more developed country may not be appropriate for their relatively underdeveloped economy. Thus, rather than aiming for excessive sophistication, they target the reform process to the real needs of their country. Further, assume that the reform process is successful and increases the competitiveness of the financial sector, it increases the availability of credit to the productive sector and, in general, improves overall access to credit.

Even with these rosy (and unrealistic) assumptions, financial regulators will soon start facing new problems, because, by reducing margins, the reform process leads to a whole new set of incentive-related problems. In the old system, bank managers were generally paid fixed salaries as there was no need to offer performance incentives (Rajan, 2005). Thus they had limited incentives for seeking higher profitability and acted conservatively, thereby facilitating the job of supervisors. The system was inefficient, but it was relatively easy to control.

A more competitive environment alters the incentive structure of bank managers in two ways. First, as their compensation now depends on returns on investment, they might be tempted to take more risks than they are able to evaluate. Along similar lines, regulators accustomed to an inefficient but stable banking system may not understand the new risks and vulnerabilities. Second, since bank managers know that they are evaluated against their peers, they have incentives to herd and take hidden risks (Rajan, 2005). Detecting this behaviour, which has the potential for generating large systemic shocks, requires sophisticated regulators.

On the investment bank side, the loss of a stable income from brokerage activities may provide incentives for increasing leverage and entering into activities that involve maturity transformation; in other words, for the creation of a shadow banking system. But, again, regulators may not be ready for this new structure of the financial system and may still work under the assumption that only commercial banks are of systemic importance.

... instead, they should target reforms to the real needs of their country.

This example shows that one danger of financial reforms that are successful in reducing margins is that in doing so they may induce bankers to take more risk than they are prepared to absorb or regulators are able to understand. This does not mean that developing countries should not try to improve the functional efficiency of their financial system. However, the process needs to be gradual and should be accompanied by a stronger and more comprehensive regulatory apparatus.²²

3. *There is no one-size-fits-all financial system*

Developing countries face a difficult trade-off in the design and regulation of their financial systems. On the one hand, access to finance is necessary for economic development, and financial deepening may increase the ability of a country's financial system to absorb risk. On the other hand, greater financial sophistication does not equate with greater social efficiency of the financial system: a more sophisticated financial sector is also likely to lead to an increase in total risk (even if regulators are successful in regulating away socially inefficient financial instruments). If the second effect dominates, financial development may lead to an increase in systemic risk.

Until recently it was believed that good financial regulation could be a solution to this trade-off, and that most countries could build both sophisticated and stable financial systems. The current crisis suggests that this objective may not be within the reach of most developing countries, at least not in the near future. In choosing where to position themselves in the continuum between financial sophistication and stability, developing countries should recognize that there is no single model that is right for all countries or at all times. Each country needs to find the model which is most appropriate for its current level of development, needs and institutional capacity. This requires a cautious, exploratory process similar to the one that was the basis of the successful pro-market reforms in China, reflecting Deng Xiaoping's famous phrase: "crossing the river by feeling the stones".

Countries that have a stronger regulatory and institutional capacity and are better prepared to absorb shocks may decide to adopt a more aggressive process of financial liberalization and move towards a stronger market-based financial system. Other countries may want to be more cautious by relying on traditional banking. Some countries may find that their regulatory capacities do not even enable the proper working of private banks and may decide to rely more on State-owned banks. If they decide to do so, they should not be discouraged by the World Bank's (2001) claim that "state ownership tends to stunt financial sector development, thereby contributing to slower growth".

Each country needs to find a model which is the most appropriate for its current level of development.

Recent research has shown that the previous evidence against State-owned banks is not as strong as originally believed, and that there are instances where such banks can play a useful role, especially during crises or in low-income countries (Levy Yeyati, Micco and Panizza, 2007; Detragiache, Tressel and Gupta, 2008). After all, the recent crisis has shown that, ultimately, all banks are public to a certain extent.

The rationale for public ownership of banks is not only based on limited regulatory capacities, but also on the fact that private banks seek, often short-term, private benefits and are not concerned with long-term development objectives.

E. Conclusions

It is often argued that financial regulators should not fight the last crisis. And yet this is exactly what agencies in charge of air traffic safety do with considerable success. Some may argue that things are different for finance. The principles of physics that keep aeroplanes in the air do not respond to regulatory changes, but financial markets do. It has been argued that the viral nature of financial innovation causes the system to react to regulation by producing more complex and opaque financial instruments, making each financial crisis different from the previous one, and therefore unpredictable. According to this view, nothing can be learned and nothing can be done, and new regulation can only do more harm.

This line of reasoning is certainly true for the particular instruments which are the proximate cause of any financial crisis. In 1637 it was tulip bulbs, in 1720 it was stocks of the South Sea Company, and in the current crisis it is mortgage-backed securities.

Nobody knows which financial instrument will be the root cause of the next crisis, most likely not mortgage-backed securities. Probably the instrument has not yet been invented.

However, the mechanism that leads to a crisis is always the same: a positive shock generates a wave of optimism which feeds into lower risk aversion, greater leverage and higher asset prices, which then feed back into even more optimism, leverage and higher asset prices. At the beginning, sceptical observers will claim that asset prices cannot grow forever at such a high rate – they never did. The enthusiasts will answer that this time it is different. If the boom lasts long enough, some of the sceptics will end up believing that this time it is indeed different. Those who remain sceptical will be marginalized and sometimes even ridiculed. Of course, things are never different. At some point the asset bubble will burst, triggering a deleveraging process and an economic

crisis. A regulatory framework based on a clear understanding of this mechanism could have prevented some of the excesses that led to the current crisis.

The problem is that in the developed world financial crises are fairly rare events, and this leads to a regulatory cycle, with overshooting in both directions. After a crisis there is widespread political support for regulation, which may lead to overregulation. After a long period of stability, characterized by small, non-systemic crises, policymakers start forgetting the lessons of the previous major crisis (especially if it happened before they were born), and they no longer understand the rationale for the existing regulatory apparatus.

This is when the deregulatory process starts. To the extent that the crisis led to too much regulation, this may be good. However, as there was overregulation in reaction to the crisis, there is likely to be excessive deregulation later. This is problematic because the costs of excessive regulation and excessive deregulation are unlikely to be symmetrical.

A possible solution to this regulatory cycle is to follow the example of air safety regulators who, besides learning from relatively rare aeroplane crashes, also give considerable attention to near misses. For instance, there was much to be learned from the LTCM collapse of 1998. A proper regulatory response then may have played a positive role in limiting the consequences of the current crisis.

Seven practical lessons for regulators

The first and most important lesson is that financial efficiency should be defined as the sector's ability to stimulate long-term economic growth and provide consumption-smoothing services. Transaction costs, the number of available instruments, or the overall size of the financial system should not be the objectives per se; they are only relevant if they contribute to increasing social welfare.

Financial markets in many developed countries have come to resemble giant casinos, which almost

always win, and when they lose they get bailed out, while everybody else loses. Many financial instruments generate large private returns, but, rather than contributing to economic development, they reduce transparency and misallocate resources. Consequently, their contribution to social welfare is negative. Tobin (1984) argued 25 years ago that there may be something wrong with an incentive structure which

leads the brightest and most talented graduates to engage in financial activities "remote from the production of goods and services" and that the private rewards of financial intermediation might be much higher than its social rewards. More recently, Rodrik (2008) asked, without finding a convincing answer, "What are some of the ways in

which financial innovation has made our lives measurably and unambiguously better?" National level measures are the first line of attack to significantly reduce, the "casino" element in financial markets. A key objective of regulatory reform should be the weeding out of financial instruments with no social returns and providing incentives to channel resources towards investment projects with high social returns.

The second lesson relates to regulatory arbitrage. The unregulated shadow banking system at the centre of the current crisis was a natural response to a regulatory apparatus that imposed tight controls on commercial banks and much laxer standards on the rest of the financial system. Regulatory arbitrage can only be avoided if regulators are able to cover the whole financial system and ensure that all financial transactions are overseen on the basis of the risks they produce.

The third lesson is that market-based risk indicators often send the wrong signals, and systemic stability cannot be achieved if regulators use the same models of risk adopted by the financial industry.²³ Regulation is necessary because markets sometimes do not work. But how can one prevent market failures by using the same evaluation instruments used by market participants? It is therefore necessary to complement micro-prudential regulation with macro-prudential policies aimed at smoothing the leverage cycle.

The fourth lesson relates to the incentive structure within the financial industry. Compensation

An appropriate regulatory framework could have prevented some of the excesses that led to the current crisis.

schemes within the financial industry promote excessive risk-taking and the incentives of credit rating agencies are misaligned and lead to rating inflation. The first problem can be attenuated by designing remuneration structures that do not focus on annual returns but on returns over a long term: managers must not only care about gains but also about losses. The incentives of credit rating agencies could be improved by establishing a regulatory authority that supervises the operations of the agencies, or by breaking the commercial link between the issuers of financial instruments and the rating agencies.

The fifth lesson specifically relates to developing countries which today are paying a heavy economic price for a crisis that originated at the centre of the world's financial system. In the absence of a truly cooperative international financial system, developing countries can increase their resilience to external shocks by maintaining a competitive exchange rate, limiting currency and maturity mismatches in both private and public balance sheets, and having contingency plans to be implemented when all else fails.

The sixth lesson has to do with the trade-off between the size of the financial sector and financial

stability. The majority of developing countries are far from the point where the size of the financial system starts yielding negative returns. Therefore, for them, a larger financial system tends to be growth-inducing. However, larger financial systems have a greater need for financial regulation. Almost every episode of financial deregulation and rapid credit growth has been followed by a banking crisis (Reinhart and Rogoff, 2008; *TDR 2008*). Developing countries should therefore develop their financial sector gradually and avoid this boom and bust cycle.

Regulation needs to weed out financial instruments with no social returns and channel resources towards investment projects with high social returns.

The seventh lesson relates to the need for international coordination. Regulators based in different countries should share information, aim at setting similar standards, and avoid a race to the bottom in financial regulation. However, it would be a mistake to impose a common regulatory standard. There is no single regulatory system that is right for all countries. Countries with different levels of development, regulatory capacity and history need to adopt different regulatory approaches. By increasing the participation of developing countries in the various agencies responsible for guaranteeing international financial stability, those agencies may develop a better understanding of their different regulatory requirements. ■

Notes

- 1 Prior to the bailouts in the current crisis, the United States banking system had to be bailed out after the Latin American debt crisis of the early 1980s and after the savings and loans crisis of the late 1980s.
- 2 One of the most lucid and detailed discussions of this hidden build-up of risk and the associated emerging problems came from an economist who was (and is) working for the Board of Governors of the United States Federal Reserve (Jones, 2000). It is thus unfortunate that the crisis caught United States regulators almost by surprise.
- 3 <http://www.sec.gov/news/press/2008/2008-230.htm>.
- 4 While the case against too much finance is often built on focusing on financial innovation, the statistical analysis discussed above follows the tradition of the empirical literature on finance and growth, and focuses on the size of the financial sector (measured as total credit to the private sector). Although there are problems with this variable (see Levine, 2005, for a detailed discussion), at this stage, size remains the best measure of financial development which is available for a large sample of countries. In fact, there is almost no research aimed at measuring the social welfare implications of financial innovation (Frame and White, 2002). The finding that even the simplest form of finance creates negative social returns suggests that this might be even truer for more sophisticated and complex forms of financial intermediation.
- 5 Such gambling instruments should be permitted only if one assumes that they are welfare-improving. However, the conditions under which “financial lotteries” can increase social welfare are rarely met (Buiter, 2009). See also United States Planning Commission (2009) and Crotty and Epstein (2009) for different views of this type of instrument.
- 6 For instance, a tighter risk assessment regulation which forces banks to evaluate credit risk by only considering a borrowers’ capacity to service their debt out of their current income (without making any assumption on potential capital gains on the underlying assets) would greatly increase the soundness of the banking system and reduce “predatory lending”. However, such a regulation would also have the negative effect of limiting access to credit for the most disadvantaged social groups.
- 7 The capital ratio plotted in the chart is not risk-adjusted. United States banks try to maintain risk-adjusted capital ratios of approximately 10 per cent, as United States regulators consider this a safe level of capital.
- 8 Indeed, in 2000 the United States Congress ruled out the possibility of regulating credit default swaps, and in 2004, the United States Securities and Exchange Commission allowed large investment banks to increase their leverage (Congleton, 2009).
- 9 Moreover, securitization severs the relationship between lenders and borrowers, and prevents borrowers who are unable to service their debt from reaching a rescheduling agreement with the lender.
- 10 With traditional banking, lenders acquire soft private information about the borrower. Since soft information is useless for “packaging” purposes, loan officers no longer care about it.
- 11 The presence of correlated risk may explain why the last 10 years witnessed the occurrence of several events that, according to the statistical models used by the financial industry, should be extremely rare (often referred to as “black swans”). In mid-2007, Goldman Sachs stated that large losses by some of its hedge funds were due to a “25 standard deviation event” (i.e. something that should happen once every 100,000 years), and Long Term Capital Management (LTCM) issued a similar statement after its collapse in 1998. Either an almost impossible event had happened (again and again), or the assumptions behind their risk models were wrong.
- 12 Subramanian and Williamson (2009) suggest that a tax on OTC contracts would provide the appropriate incentives in this direction. Crotty and Epstein (2009) favour a more drastic approach and suggest that financial products that are too complex to be sold on exchanges should be prohibited.

- 13 Moreover, without international coordination, a new policy in the United States may simply move OTC derivatives trading offshore.
- 14 New research aimed at developing CoVaR models – models that measure the value at risk of financial institutions, which is conditional on other financial institutions being under distress (Adrian and Brunnermeier, 2008) – can help regulators measure risk spillovers and thus assess the systemic importance of individual institutions.
- 15 Consider the case of Swiss banks that could not take too much real estate risk in Switzerland where mortgage lending is strictly regulated, but ended up taking enormous real estate risk by buying mortgage-backed instruments issued in the United States.
- 16 The Basel Capital Accords (Basel I and Basel II) set rules for the allocation of capital to banks' exposures to risks through its lending and other operations. These accords have two objectives. One is prudential, namely to help ensure the strength and soundness of banking systems. The other is to help equalize cross-border competition between banks by eliminating competitive advantages due to differences among countries in their regimes for capital adequacy. Basel I was originally designed for the internationally active banks of the Group of Ten. But by the second half of the 1990s it had become a global standard and had been incorporated into the prudential regimes of more than 100 countries (Cornford, 2008).
- 17 For example, in January 2007, when signs of financial turmoil were growing, participants at the FSF's European regional meeting referred to the "current benign global financial conditions", which they attributed to robust global growth, rising corporate profitability, financial innovation and structural reforms ("Financial Stability Forum concludes its European regional meeting". FSF Press Release 3/2007E, Basel, 31 January 2007). They noted that markets were characterized by low risk premiums, which, they claimed, were due to "healthy fundamentals and innovation in the management of risk exposure". Only as the crisis deepened, did the FSF's assessment become more sober. This is highlighted, for example, by a comparison between the preliminary draft (15 October 2007) and the final draft (7 April 2008) of the report of the FSF's Working Group on Market and Institutional Resilience to the G-7 finance ministers and central bank governors. The preliminary report fundamentally misjudged the depth of the financial crisis. The final report acknowledged the importance of stronger public oversight over financial markets, but still failed to recognize that there may be problems with complex structured financial products, which could result in a recurrence of such a crisis.
- 18 Rajan (2008) suggests that this could be achieved by holding compensation for alpha returns in escrow and releasing it only when there is a reasonable certainty that a particular return was indeed of the alpha type. Of course, this can reduce, but not solve, all problems of distorted incentives. After all, hedge funds and bank managers often have a substantial fraction of their wealth invested in the company or in the assets they manage (James Cayen, the former CEO of Bear Stearns, reportedly lost \$900 million when that investment bank went bankrupt).
- 19 For instance, the Basel Accords build on the notion of risk-adjusted capital ratios, and credit ratings play an important role in determining risk weights. AAA rated instruments have capital charges that range between 0 and 20 per cent and non-investment grade debt instruments have capital charges that range between 100 and 150 per cent. In theory, a bank that holds only AAA rated sovereign bonds can operate with no capital, but a bank that holds only BB+ rated corporate bonds needs to have a capital equal to 12 per cent of its assets. A bank that holds only BBB- government bonds can operate with a 4 per cent capital ratio (because these bonds have a 50 per cent capital charge), but if these bonds are downgraded by one notch to BB+, the required capital ratio immediately doubles to 8 per cent (for a detailed discussion of Basel II and its implication for developing countries see Cornford, 2008). Moreover, ratings influence the type of instruments that can be held by institutional investors (e.g. in most countries, pension funds cannot hold non-investment grade securities).
- 20 While investor-paid ratings would provide better incentives for honest ratings, few private investors are willing to pay for what is effectively a public good (it is hard to hide a credit rating).
- 21 Credit rating agencies also offer advisory services, which issuers can use to improve the credit rating of their instruments. These types of services are particularly useful for issuers of CDOs who want to maximize the size of the AAA-rated tranche of the instrument. In fact, credit rating agencies even sold variants of their rating models which allowed issuers to "pre-test" their securities before applying for a credit rating (Issing et al., 2008). However, when these complex instruments (which are already difficult to rate) are "built to rating," the probability distributions used to rate them, which assume independently drawn observations, are no longer valid, making the rating process meaningless. Another issue relates to the fact that credit rating agencies use the same measure of the probability of default to evaluate sovereigns, corporates and complex instruments, ignoring the fact that these instruments face different liquidity risks.

- 22 Another channel through which financial development can increase risk has to do with the fact that such development often goes hand in hand with a process of disintermediation, whereby arm's length transactions take the place of traditional banking activities. Banks have an advantage in taking risks that require certain specific knowledge and that cannot be easily "standardized". However, deregulation, technical innovation and the development of deeper markets continually increase (or appear to increase) the types of "standardizable" risks. These risks are then taken by other parts of the financial sector which have lower funding costs than banks (Myers and Rajan, 1998), and banks have to search for new, possibly larger and more opaque forms of non-standard risks. Another potential source of instability relates to the fact that arm's length transactions are more institutionally demanding than regular banking. They require good corporate governance, good dissemination of public information and well-defined shareholders and creditors' rights (Rajan, 2005). The current crisis shows that these institutional features are far from being perfect, even in the most sophisticated financial systems, and may be seriously lacking in countries with incipient financial markets.
- 23 Value at risk (VaR) models used by the financial industry only work if a small proportion of market participants use the same model, or if market participants are exposed to completely different sources of risk. These were good assumptions when financial systems were small and segmented, but they are unrealistic in today's world in which investors adopt correlated trading strategies in both the good and bad periods of the business cycle (Persaud, 2008). Regulation is necessary because markets sometimes do not work, but market failures cannot be prevented by using the same evaluation instruments as those used by market participants.

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