

Ben S Bernanke: Regulation and financial innovation

Remarks by Mr Ben S Bernanke, Chairman of the Board of Governors of the US Federal Reserve System, to the Federal Reserve Bank of Atlanta's 2007 Financial Markets Conference, Sea Island, Georgia (via satellite), 15 May 2007.

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Good morning. I'm pleased to be able to join you for this year's financial markets conference, albeit from afar. Last year the focus was on hedge funds, and the main theme of this year's gathering is credit derivatives. This pairing makes eminent sense, in that the increasing prominence of hedge funds and the growth of the market for credit derivatives are both aspects of the remarkable wave of financial innovation that we have seen in recent years. Both of these developments have also been the subject of public policy debates, including calls for increased regulation. In my remarks today I will address, from the 30,000-foot level, the challenges that financial innovation poses for public policy and the nature of the appropriate regulatory response. I will argue that central banks and other regulators should resist the temptation to devise ad hoc rules for each new type of financial instrument or institution. Rather, we should strive to develop common, principles-based policy responses that can be applied consistently across the financial sector to meet clearly defined objectives.

In addressing the challenges and the risks that financial innovation may create, we should also always keep in view the enormous economic benefits that flow from a healthy and innovative financial sector. The increasing sophistication and depth of financial markets promote economic growth by allocating capital where it can be most productive. And the dispersion of risk more broadly across the financial system has, thus far, increased the resilience of the system and the economy to shocks. When proposing or implementing regulation, we must seek to preserve the benefits of financial innovation even as we address the risks that may accompany that innovation.

Clear thinking is therefore essential. In developing a regulatory framework, we need to be explicit both about what the public policy objectives of regulation are and about how, if at all, fresh developments threaten to undermine those objectives. We should also take into account the role that the market itself can play in controlling risks to public objectives; as I noted last month, market discipline can be an important element in a well-functioning regulatory scheme. And as I have already observed this morning, any regulatory changes should fulfill the test of consistency, across both institutions and instruments.

Ensuring a consistent approach

In thinking about how, or whether, to regulate innovative financial institutions (such as hedge funds) or instruments (such as credit derivatives), we should be wary of drawing artificial distinctions. Are the characteristics of hedge funds or credit derivatives that arouse concern peculiar to these institutions and instruments, or are they associated with others as well? If the characteristics in question are in fact a feature of the broader financial landscape, then a narrowly focused approach to regulation will be undermined by the incentives such an approach creates for regulatory arbitrage.

For example, while the complexity of new financial instruments and trading strategies is potentially a concern for policy, as I will discuss, not all credit derivatives are complex and – to state the obvious – not all complex financial instruments are linked to credit risk. Single-name credit default swaps and credit default swap indexes are relatively simple instruments, whereas derivatives based on other asset classes – such as exotic interest-rate and foreign-exchange options – can, by contrast, be quite complex. Moreover, derivatives in general are not necessarily more complex than some types of structured securities. In short, if complexity per se is the concern, we cannot address that concern by focusing on a single class of financial instruments. Similarly, hedge funds are hardly a homogeneous group of institutions, nor can their trading strategies be unambiguously distinguished from those of large global banks or of some traditional asset managers. A consistent regulatory strategy needs to be tailored to the essential characteristics of institutions or instruments that pose risks for policy objectives, not to arbitrary categories.

At last year's conference, I discussed a policy proposal focused narrowly on hedge funds – namely, the development of a database of hedge fund positions and portfolios. As I noted last year, given the complexity of trading strategies and the rapidity with which positions change, creating a database that

would be sufficiently timely and detailed to be of practical use to hedge funds' creditors and investors or to regulators would be extremely difficult. Collecting such information also risks moral hazard, if some traders conclude that, in gathering the data, the regulators have somehow reduced financial risk. The principle of consistency on which I am focusing today raises an additional objection to this proposal, which is that it would make little sense to collect data on hedge funds' positions without gathering the same information for other groups of market participants that use similar strategies and take similar risks.

An analogous issue arises in the debate over transparency in the credit derivatives market. Some argue that policymakers should act to make trading in the credit derivatives market more transparent, on the grounds that the market and policymakers should know just who is holding the credit risk associated with a particular issuer. But if transparency about risk-bearing is important, then consistency seems to imply that full transparency should be required of credit markets broadly, not just of credit derivatives. And why stop with credit markets? Do we know exactly who is bearing the risk in equity markets or foreign exchange markets, for example?

Rather than addressing specific institutions or instruments in isolation, regulators should begin by identifying their objectives and then address the implications of the broad range of financial innovations for those objectives. By returning to the basics, we can increase the coherence, consistency, and effectiveness of the regulatory framework.

Public policy objectives

As public policymakers, we have three principal objectives in the financial sphere, objectives that have remained essentially unchanged over many decades even as the pace of financial innovation has accelerated. These objectives are financial stability, investor protection, and market integrity. These goals are widely shared by policymakers around the world and thus provide a basis for international cooperation.

From a central banker's point of view, the objective of ensuring financial stability remains critical. Indeed, the Federal Reserve was founded in large part because of concerns about periodic bouts of instability that damaged both the financial system and the broader economy. Policymakers cannot prevent financial shocks, but we can try to mitigate their effects by ensuring that the system remains fundamentally sound. In particular, as I will discuss, we can use our supervisory authority to ensure that the large institutions that form the core of the financial system – which happen to be the leading dealers in the credit derivatives markets and the principal counterparties and creditors of hedge funds – manage the risks that they face in a safe and sound manner.

Investor protection is another vital public objective. A loss of confidence in the financial system by investors, too, could undermine the system's stability and functioning. Of course, we cannot – and should not – prevent all investor losses. To avoid moral hazard and let market discipline work, investors must be allowed to bear the consequences of the decisions they make and the risks they accept. But investors are entitled to the information they need to make decisions appropriate to their personal circumstances.

Closely linked to the imperative of investor protection is the third public policy objective: preserving the integrity of the market. The stability and the efficiency of the market depend on a common understanding of and adherence to the rules of the game. Thus, policymakers must attach a high priority to preventing insider trading, market manipulation, and other activities that rig the game and undermine public confidence.

Challenges to public policy objectives

The rapid pace of financial innovation creates challenges for policymakers with respect to each of these policy objectives. In particular, financial stability depends on adequate risk measurement and risk management by market participants. Failures of risk management by large institutions, or by a sufficient number of smaller ones, would threaten not only the solvency of the institutions themselves but also the health of the whole system.

Of course, in some respects financial innovation makes risk management easier. Risk can now be sliced and diced, moved off the balance sheet, and hedged by derivative instruments. Indeed, the need for better risk sharing and risk management has been a primary driving force behind the recent

wave of innovation. But in some respects, new instruments and trading strategies make risk measurement and management more difficult. Notably, risk-management challenges are associated with the complexity of contemporary instruments and trading strategies; the potential for market illiquidity to magnify the riskiness of those instruments and strategies; and the greater leverage that their use can entail.

Complexity – especially when combined with illiquidity – amplifies the difficulty of measuring risk, both market risk and counterparty credit risk. For example, some complex instruments can be valued only with the aid of sophisticated modeling techniques. The problems of valuation and of risk measurement faced by investors in tranches of bespoke collateralized debt obligations (CDOs) are a good example. Similar problems are faced by the core financial intermediaries that often act as counterparties to hedge funds in complex synthetic CDO transactions or that finance hedge funds' investments in bespoke CDO tranches. Complex trading strategies and positions, too, can create problems. For example, counterparty risks may be underestimated because of failures to aggregate exposures to risks across instruments and counterparties. What is essentially the same risk can appear in different forms; for example, investments in a CDO tranche, a bond, and a credit default swap may all entail credit risk to a given obligor.

Illiquidity, or the potential for illiquidity under some conditions, is also a problem for managers of market risk and counterparty credit risk. Substantial market risk may be associated with holdings of illiquid instruments; again, tranches of bespoke CDOs illustrate this well. A pattern of crowded trades may lead to market illiquidity – sometimes in surprising locations – when risk aversion heightens. In particular, counterparty exposures can be significantly increased if the closeout of positions of one or more hedge funds by their dealer counterparties leads to, or exacerbates, market illiquidity.

Market liquidity depends not only on the presence of willing buyers and sellers but also on the underlying infrastructure, including market-making capacity and the system for clearing and settling financial transactions. Twenty years ago this fall, the 1987 stock market crash was significantly worsened by the inability of trade-processing systems to keep up with order flows, including orders resulting from program trading. Of course, automated trading is far more pervasive today, and overall trading volumes have expanded greatly. As trading volumes grow, market infrastructures must adapt. Until 2005, reliance on paper-based procedures for confirming trades in the rapidly growing credit derivatives markets sometimes resulted in large backlogs of unconfirmed trades, which increased the risks to market participants. With leadership from their prudential regulators, dealers in those markets have adopted electronic confirmation platforms and greatly reduced the backlogs. Currently, regulators and market participants are beginning to address large backlogs of confirmations in the equity derivatives markets.

The *leverage* that can be embedded in new financial instruments and trading strategies compounds the difficulties of risk management. Embedded leverage can be difficult to measure; at the same time, like conventional leverage, it may increase investor vulnerability to market shocks. Some credit derivatives do make it easier for investors to take leveraged exposures to credit risk. For example, the first-loss tranche of the investment-grade CDX credit default swap index is exposed to the first 3 percent of losses on the index portfolio. Holding a \$3 million position in this tranche exposes an investor to losses on an underlying portfolio of \$100 million. A dealer taking the other side of the trade obviously needs to enhance its counterparty risk-management practices to take this greater leverage into account.

Complexity, illiquidity, and embedded leverage also create challenges for policymakers with respect to the objectives of protecting investors and maintaining market integrity. If hedge funds and the large banks that are hedge funds' counterparties and creditors have difficulty assessing the risks associated with complex financial instruments, many investors will find gaining a sufficient understanding of the risks even more burdensome. Investors may also not appreciate the extent to which they may have multiple exposures to the same source of risk – for example, arising from effective exposures to the same hedge fund through funds of funds or from investments in different funds with similar trading strategies. Current restrictions on hedge fund investors, which limit direct investors to institutions or wealthy individuals, reflect the recognition of the difficulties that a retail investor would face in adequately assessing these types of risk. But as instruments and trading strategies become more complex and intertwined, even the most sophisticated investors will be challenged to make reliable judgments about their risk exposures. Likewise, complex and difficult-to-value financial instruments could be exploited as vehicles for profiting from insider trading or market manipulation, although, as history shows, simpler instruments can be used in this way as well. Policymakers must be confident of their ability to detect such market abuses when they occur.

A principles-based, risk-focused approach

How best to respond to these daunting challenges? As I noted, there are powerful arguments against ad hoc instrument-specific or institution-specific regulation. The better alternative is a consistent, principles-based, and risk-focused approach that takes account of the benefits as well as the risks that accompany financial innovation.

Some commentators have sought to draw a sharp distinction between the approach to financial regulation in the United States and that in the United Kingdom. These observers have characterized the British approach as being principles-based and as using a "light touch" – the implication being that these two features somehow go together. In a speech in February of this year, Sir Callum McCarthy, the head of the United Kingdom's Financial Services Authority (FSA), took issue with this interpretation.¹ Sir Callum confirmed that the FSA's approach is built on a framework of principles, although he noted that the FSA also has an 8,500-page rulebook to accompany the eleven principles it has laid out. But the FSA head rejected the view that their approach is "light touch." Rather, he said, it is risk-based, which means that regulatory resources and attention are devoted to firms, markets, or instruments in proportion to the perceived risks to the FSA's regulatory objectives.

In fact, as in the United Kingdom, the principles-based, risk-focused approach to regulation has had considerable influence on this side of the Atlantic as well. For example, as you may know, the President's Working Group on Financial Markets (PWG) recently issued a statement of principles – ten in this case – relating to the regulation of private pools of capital, including hedge funds. Our aim in presenting these principles was to spell out how a combination of market discipline and government oversight could be most effective in addressing the challenges to public policy objectives that I have described. The principles make clear that regulators and supervisors should adopt the risk-focused approach described by Sir Callum. In particular, they emphasize that risks to financial stability are best addressed by focusing our attention on the large institutions at the core of the financial system.

Some care is needed in applying a risk-focused approach to regulation, however. In particular, when the government singles out particular institutions or markets as being especially critical to the stability of the system, moral hazard concerns may well follow. A perception that some institutions are "too big to fail" may create incentives for excessive risk-taking on the part of those institutions or their creditors. For that reason, part of an effective risk-focused approach is the promotion of market discipline as the first line of defense whenever possible. Market discipline is enhanced whenever regulators take positive steps to ensure that investors and managers bear the consequences of their financial decisions.

Reliance on market discipline should not be confused with a policy of laissez-faire or benign neglect. To the contrary, as the PWG's principles spell out, market discipline often needs to be buttressed by government oversight. Notably, supervisors must diligently ensure that regulated firms – especially those core financial firms that act as creditors, counterparties, and clearing firms for highly leveraged entities, including hedge funds – adopt and implement best practices for monitoring and managing risks. These best practices could include those identified through cooperative private-sector initiatives, such as those of the Counterparty Risk Policy Management Group II. Importantly, best practices must address the challenges I mentioned earlier, including those relating to the complexity of instruments and strategies (which can make exposures difficult to measure), the illiquidity or potential illiquidity of positions held by the firm or its counterparties, and the risks of embedded as well as explicit leverage.

In implementing risk-focused and principles-based policies, we must also face the reality that finance does not stop at the water's edge. Financial globalization and financial innovation are closely tied, with each trend promoting the other. As a consequence, global regulatory coordination and collaboration are more vital than ever. We already work closely with our counterparts in the major industrial countries as well as in international forums such as the Basel Committee on Banking Supervision and the International Organization of Securities Commissions (IOSCO). To the extent possible, we should work toward common principles and approaches as well as improved information sharing. International cooperation is also essential for establishing and maintaining effective oversight of the payment and settlement systems that constitute the infrastructure of global financial markets. Organizations such as the Committee on Payments and Settlements Systems (CPSS) and IOSCO have developed shared international principles to ensure the safety and efficiency of payment systems.

¹ See Callum McCarthy (2007), "[Financial Regulation: Myth and Reality](#)," speech delivered at the British American Business London Insight Series and Financial Services Forum, February 13.

Investor protection can also be addressed in a risk-focused, principles-based manner. Most important, disclosures and protections should be tailored to the level of sophistication of the investor. Mutual funds, for example, must provide disclosures sufficient to help retail investors make informed choices. When instruments and strategies are so complex that an unsophisticated investor could not be expected to effectively evaluate and manage the associated risks, U.S. regulators have chosen to limit the exposure of those investors. For example, most retail investors are effectively precluded from engaging in over-the-counter credit derivative transactions or from investing directly in hedge funds unless they meet various criteria regarding income and net worth.

Retail investors may have indirect exposures to complex instruments and strategies – for example, through pension funds. The appropriate principle for investor protection in this case is that the investors' agents – pension fund managers, for example – must apply sound risk-management practices and take risks consistent with the stated objectives of the ultimate investors. Regulators have a role to play in imposing fiduciary duties and standards on the investors' agents. For example, the Employee Retirement Income Security Act (ERISA) sets standards for private pension fund managers, including the requirements that, as fiduciaries, they act prudently and solely in the interest of the pension fund participants. Supervision of these fiduciaries must ensure that these standards are consistently met and that fiduciaries themselves fully understand the nature of their risk exposure.

Market integrity is the third public policy objective that I noted earlier. Consistent with a principles-based approach, U.S. securities laws against insider trading and market manipulation apply broadly to all financial institutions, including hedge funds, and to trading in a wide range of financial instruments, including securities-based over-the-counter derivatives transactions. Just as institutions and other investors need to adopt best practices to measure and manage risk, they should also have robust internal controls to ensure that the laws are not violated. For example, some market participants have expressed a concern that a bank may use nonpublic information in the credit derivatives market that it has obtained through its lending activities. To protect against such abuses, private-sector groups have proposed practices and principles for handling material nonpublic information – for example, by creating barriers between the staff members with access to such information and others. Risk-focused regulators and supervisors in turn should encourage effective implementation of these best practices, particularly in situations in which the potential for misuse, either intentional or unintentional, is high.

Conclusion

Financial innovation has great benefits for our economy. The goal of regulation should be to preserve those benefits while achieving important public policy objectives, including financial stability, investor protection, and market integrity. Although financial innovation promotes those objectives in some ways, for example by allowing better sharing of risks, certain aspects of financial innovation – including the complexity of financial instruments and trading strategies, the illiquidity or potential illiquidity of certain instruments, and explicit or embedded leverage – may pose significant risks. These risks should not be taken lightly.

Devising an appropriate regulatory response to financial innovation is challenging. I have argued today that we should strive to implement a regulatory regime that is principles-based, risk-focused, and consistently applied. Enhancing market discipline can complement and strengthen such an approach. As in the United Kingdom, a principles-based approach is not inconsistent with the use of rules, which can provide needed clarity or a safe haven from legal and regulatory risks. However, rules should implement principles rather than develop in an ad hoc manner. Admittedly, a fully consistent regulatory framework that focuses on the most significant threats to public policy objectives is an ideal that may never be fully realized, either here or abroad. However, determined efforts to work toward such a regime could provide substantial economic and social benefits.