Research Policy Brief 30

Unregulated Entities, Products, and Markets: Challenges for Monitoring and Regulation

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August 2009

The Asian Development Bank Institute's (ADBI) research policy briefs are short, non-technical pieces that summarize the key messages from ADBI research projects. They are available online via http://www.adbi.org/publications/ and in hard copy.

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ISSN: 1882-6717

Unregulated Entities, Products, and Markets: Challenges for Monitoring and Regulation

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This policy brief is based on presentations by Michael Johnson (Federal Reserve Bank of San Francisco), Andrew Sheng (China Banking Regulatory Commission), Hung Tran (Institute for International Finance), Paul Koster (Dubai Financial Services Authority), Philip Wooldridge (Bank for International Settlements), Bruno Levesque (Organisation for Economic Co-operation and Development [OECD]), Stephen Lumpkin (OECD), and Takashi Hirano (Tokyo Stock Exchange), and comments from other participants at the OECD-ADBI 10th Roundtable on Capital Market Reform in Asia on 2–3 March 2009 in Tokyo.

1. Introduction

The implications for financial stability of lightly regulated and highly leveraged financial institutions such as hedge funds and private equity funds, together with innovative financial products such as derivatives and asset-backed securities, remain a subject of controversy. This is particularly true in the current global financial crisis, where issues of systemic risk have not only national, but regional and global implications. The contributions of these institutions and markets to the development and worsening of the crisis suggest that they need to be monitored and regulated more closely, but there is still disagreement about the degree of regulation that is needed.

This policy brief examines hedge funds, private equity funds, and innovative financial products, particularly collateralized debt obligations and asset-backed securities, as the latter are at the heart of the freeze up of various financial markets. What is the overall structure of these products? What role did they play in the development of the current global financial crisis? What changes are needed in the global financial architecture related to these institutions and products to strengthen financial stability going forward?

2. Hedge Funds and Private Equity Funds

Hedge funds and private equity funds have frequently been regarded as potential sources of systemic risk, given their lack of regulation and reporting requirements, high exposure to international financial markets, high degree of leverage, and, in the case of hedge funds, the high rate of turnover in their portfolios and their reliance on complex investment strategies. In this section, we examine the structure, performance, and role in the current global financial crisis of hedge funds. On the whole, we found that they did not play a significant role in causing the crisis, although selling pressure emanating from them did serve to amplify downward pressure on financial markets at a later stage of the crisis.

A. Hedge Funds

There is no widely agreed-upon definition of hedge funds, and, in fact, many of these funds do not use "hedging" to manage risk. They do, however, share a number of defining characteristics. Most importantly, they are investment funds that accept funds only from very large investors (e.g., in the United States [US], individuals with US$5 million or more in investment assets). This allows them to avoid most, if not all regulations that apply to investment funds catering to smaller investors. For example, hedge funds typically are not required to register with the Securities and Exchange Commission in the US, although United Kingdom (UK)-based funds are required to register with

the Financial Services Agency in the UK. Hedge funds typically invest in a broad range of investments, including equities, debt, and commodities; invest in many international markets; and make both long and short investments. They also generally adopt various sophisticated investment strategies using structured products. Hedge funds typically have absolute-return investment targets and fee structures highly geared to those returns, and, most relevantly for financial stability issues, employ leverage to enhance those returns.

Available data on hedge fund assets show that they rapidly rose from about US$324 billion in 1999 to US$2.2 trillion in 2007, an annual average growth rate of 23%. In 2008, the total number of hedge funds fell 9% to about 10,000 (International Financial Services London 2009). The level of assets, however, collapsed to only US$1.5 trillion by the end of 2008, reflecting declines in both market value and redemptions. Moreover, the level could have been even lower, as some hedge funds adopted "lock-up" provisions that temporarily prevented redemptions by their investors.

Perhaps the most counterintuitive finding about hedge funds is that their overall average leverage ratio is not very high, hitting a near-term high of about 190% in 2007, and falling to about 120% in 2008 (McGuire and Tsatsaronis 2008). In contrast, regulated commercial and investment banking institutions had, in some cases, far higher leverage ratios of about 20 times or more. These included Citigroup (19.2 times), Goldman Sachs (28 times) and Morgan Stanley (33 times) (*Wall Street Journal* 2008).

B. Private Equity Funds

Private equity funds are similar to hedge funds in their structure and regulation. However, they differ substantially from hedge funds in terms of their investment period and investment assets. "Generally, "private equity" refers to a wide range of alternative investments, including equity investments in unquoted companies; venture investing at early and late stages; large-size and mid-size buyout investing; mezzanine debt and mezzanine equity investments; special situations; and finally real estate investments. Private equity also includes privately negotiated investments in public companies. A "private equity fund" refers to a limited partnership in which the general partners invest in private equities on behalf of the fund's limited partners. Private equity funds tend to have a fixed life of 10 to 12 years. The funds are self-liquidating structures; that is, general partners invest the raised funds within three to five years of the inception. As investments are divested, the cash realizations are distributed to the limited partners over time." (Erturk, Cheung, and Fong 2001) Private equity funds typically take a direct equity stake in companies that they regard as having good long-term prospects. Therefore, unlike hedge funds, their portfolios are quite illiquid and stable from year to year. Like hedge funds, private equity funds typically employ leverage to enhance returns. The degree of leverage varies with market conditions, but, between 2000 and 2005, debt averaged between 59% and 68% of the total purchase price for leveraged buyouts (LBOs) in the US (Trenwith Group 2006).

Funds managed by private equity funds also rose rapidly over the past decade, going from about US$40 billion in 2000 to

US$500 billion in 2007, an annual growth rate of 31%, but falling to US$440 billion in 2008 (International Financial Services London 2008). Again, the "equilibrium" amount is likely to be significantly lower, because many investors would have preferred to sell, but were locked into forced contributions when anticipated returns from earlier years did not materialize. Also, in many cases these funds are still sitting on large amounts of cash, since the market for LBOs has collapsed.

Unlike loans to hedge funds, the outstanding amount of leveraged loans issued in connection with LBOs increased slightly to US$600 billion in 2008 (Standard and Poor's 2009). However, this increase largely reflects the long lock-up period for private equity funds. Nonetheless, the share of "covenant-lite" and second lien loans in total loans began to shrink in mid-2007, reflecting tightening credit conditions and reduced appetite for risky loans.

C. Role of Highly Leveraged Funds in the Financial Crisis

Prior to the current global financial crisis, concerns about systemic risk arising from highly leveraged investors centered on two categories—direct losses of core institutions on counterparty exposures to such investors, and indirect losses on banks' trading positions caused by forced liquidation of hedge funds' positions. In fact, however, hedge funds were not a major contributing factor to the start of the current crisis. Of greater significance were the direct losses experienced by internal funds of investment banks and the warehoused assets of banks. Indirect losses attributable to hedge funds started to become an important issue in 2008, when hedge funds became large-scale

forced sellers to meet redemption demands by investors in response to the overall decline in financial markets. Thus, the current crisis differs from that of the Long Term Capital Management (LTCM) crisis of 1998, when both direct and indirect losses arising from LTCM's failure were seen as having systemic risk implications. This suggests that regulation of hedge funds and private equity funds is not an urgent issue, although issues of monitoring and regulation need to be considered carefully.

D. Reform Proposals

There is no consensus yet on whether to regulate hedge funds and private equity funds, although most recommendations focus on stepping up monitoring and communication rather than on increasing regulation. The Financial Stability Forum (FSF) released its most recent reports on highly leveraged institutions in May and October of 2007 (Financial Stability Forum 2007a, 2007b). These maintained the stance of not calling for regulation of these entities. Instead, the reports called on authorities to increase their surveillance and monitoring of the risk management activities of core institutions, and called on the hedge fund industry to review and enhance existing sound practice benchmarks for hedge fund managers in the light of expectations for improvement set out by the official and private sectors.

The Basel Committee on Banking Supervision has taken a similar approach, putting most of its emphasis on strengthening guidelines for estimating capital at risk in banks' trading books and making enhancements to the Basel II framework (Basel Committee on Banking Supervision 2009a, 2009b). This is also

implied by the conclusions of the so-called de Larosière report issued in February of this year, which is the most recent comprehensive European statement of regulatory recommendations emanating from the current crisis (European Commission 2009b). The report states, for example: "If banks engage in proprietary activities for a significant part of their total activities, much higher capital requirements will be needed." (European Commission 2009b: 17)

This is consistent with the experience that the activities of the regulated banks themselves were the key factor behind the current crisis. However, the European Commission has indicated that it will publish a "comprehensive legislative instrument establishing regulatory and supervisory standards for hedge funds, private equity and other systemically important market players." (European Commission 2009a: 7) The Group of Twenty (G20) communiqué of April 2009 noted its agreement "to extend regulation and oversight to all systemically important financial institutions, instruments and markets. This will include, for the first time, systemically important hedge funds." (Group of Twenty 2009)

The FSF also noted that the issuance of draft best practice standards by the UK-based Hedge Fund Working Group, which include a "comply or explain" expectation, was a notable step toward improved transparency and discipline, and represented a recognition by the sector of its responsibilities as a significant force in the financial system (Hedge Fund Working Group 2008). However, the lack of uptake within the hedge fund industry of these recommended principles has been disappointing, and leaves open the door to regulation imposed from outside.

The approach of regulators to hedge funds is guided by their desire to reduce the procyclicality of the financial system and its tendency to boom and bust. In particular, there are concerns about the feedback loops between bubbles or bubble collapses in asset prices and their impacts on the real economy. To address these concerns, the FSF, in cooperation with the Bank for International Settlements, Basel Committee on Banking Supervision, Committee on the Global Financial System, and other international bodies, is examining ways to mitigate procyclicality. The focus of the study is on capital regulations, loan-loss provisioning, interaction of valuation standards and leverage, and compensation practices. One approach being explored is the use of "through-the-cycle" estimates of asset values. In addition, the group recommends that regulators closely monitor the activities of large hedge funds with a potential for systemic risk and maintain an ongoing dialogue with those firms.

The group also supports the development of a macro-prudential framework to monitor and address the buildup of risk in the financial system. Hedge funds and private equity funds are to be included in the monitoring process. The approach likely to be adopted is similar to that of the UK's Financial Services Authority, which focuses on identifying the potential for systemic risk. Another approach being widely considered is to modify the framework for monetary policy to place more weight on the importance of asset price movements. Nonetheless, further direct regulatory requirements on hedge funds and private equity funds cannot be ruled out.

3. Innovative Products

Innovative financial products have played a key role in the development of the current financial crisis, and have also compounded the difficulty of resolving it. This is because the difficulty of valuing such products has, in many cases, caused markets for them to cease functioning. This has led to great uncertainty regarding the financial position of institutions holding these products, which has, in turn, frozen the process of trying to separate "good assets" from "bad assets," an important step in restoring the normal functioning of credit markets. The main innovative financial products relevant to the current financial crisis are derivative products—mainly credit default swaps (CDS) and asset-backed securities (ABS). (See glossary of terms in the Appendix.)

A. Derivative Products

Derivative products, i.e., products whose value is a function of the value of other underlying financial products such as stocks, bonds, or loans, are a key category of innovative products. The overall over-the-counter market for derivative products has expanded dramatically over the past decade, rising from US$90 trillion in 1998 to nearly US$700 trillion by June of last year (in notional amounts) (Bank for International Settlements 2008b). Major types of derivative instruments include those related to foreign exchange, interest rates, equities, commodities, and credit default swaps. Table 1 shows that interest rate contracts

are still by far the largest type of derivative, making up about two-thirds of the total.

Table 1: Notional Amounts Outstanding of Over-the-Counter (OTC) Derivatives

US$ billion, end-period	2000	2005	2006	2007	June 2008
Total contracts	95,200	297,666	414,845	595,341	683,725
Foreign exchange contracts	15,666	31,360	40,271	56,238	62,983
Interest rate contracts	64,668	211,970	291,582	393,138	458,304
Equity-linked contracts	1,891	5,793	7,488	8,469	10,177
Commodity contracts	662	5,434	7,115	8,455	13,229
Credit default swaps	-	13,908	28,650	57,894	57,325
Unallocated	12,313	29,199	39,740	71,146	81,708

Note: - = information not available.

Source: Bank for International Settlements (2008a).

Among derivatives, credit default swaps have been the greatest source of systemic risk. A credit default swap is a financial contract in which the protection buyer (risk shedder) pays a fixed periodic fee in return for a contingent payment by the protection seller (risk taker). The contingent payment is triggered by a credit event of the entity that the contract refers to. Credit events, which are specified in CDS contracts, may include bankruptcy, default, or restructuring. On a gross notional basis, CDS grew from negligible amounts in 1998 to US$58 trillion by December 2007 (about 10% of the total), although they fell substantially last year to US$32 trillion (The Depository Trust and Clearing Corporation 2009). The gross notional value is the total value of potential payouts specified in the contract. However, the net notional level, defined when a credit event actually takes place, is much lower, at only about 3% of the gross notional value (The Depository Trust and

Clearing Corporation 2009). This is because firms often both buy and sell protection on the same company, so the net exposure is reduced accordingly. The use of "trade compression," which replaces existing trades with a smaller number having the same payoff structure, is one factor behind the recent decline in gross notional value.

This lower net estimate for risk exposure has held for individual major bankruptcies as well. For example, in the case of Lehman Brothers, the gross notional value was US$72 billion, but the net payment was only US$5.2 billion (Bank for International Settlements 2008b). This figure is not very large, but the main problem for Lehman Brothers was its exposure to collateralized debt obligations (CDOs), not to CDS. Moreover, CDS markets basically behaved as they were meant to, absorbing these losses and not freezing up the way CDO markets did.

B. Asset-Backed Securities

The main source of instability and uncertainty for financial markets has been the valuation of ABS, especially mortgage-backed securities. Traditional ABS are backed by the credit obligations of individuals, such as residential mortgage loans, auto loans, and credit card balances. Securities backed by residential mortgage loans are called residential mortgage-backed securities. In the case of mortgages bought by the three government home mortgage loan agencies (the Federal National Mortgage Association [FNMA or Fannie Mae], the Federal Home Loan Mortgage Corporation [FHLMC or Freddie Mac], and the Government National Mortgage Association [GNM or Ginnie Mae]), they are referred to as agency mortgage-backed

securities. CDOs are similar in structure, but typically are backed by investment-grade corporate loans and/or bonds. These include collateralized loan obligations, which are based on loans, and collateralized bond obligations, which are based on bonds. The outstanding levels of these assets originating in the US and Europe are summarized in Table 2.

Table 2: Securitized Assets Outstanding by Region (end-2008)

US$ billion	US	Europe
Asset-backed securities (ABS)	2,658	267
Agency mortgage-backed securities (MBS)	5,048	-
Non-agency residential mortgage-backed securities (RMBS)	1,275	1,487
Commercial mortgage-backed securities (CMBS)	626	192
Collateralized debt obligations (CDO)	-	414
Whole business securitization (WBS)	-	55
Total	**9,607**	**2,415**

Notes: (i) US figures for ABS include CDOs
(ii) - = information not available

Source: European Securitisation Forum (2008).

The bulk of securitized assets were originated in the US (about US$9.6 trillion out of a total of US$12 trillion at the end of 2008). Agency MBS, i.e., those originated by Freddie Mac, Fannie Mae, and Ginnie Mae, made up just over half of that total (US$5.0 trillion). Assets originating in Europe totaled US$2.4 trillion, the bulk of which were residential mortgage-backed securities (European Securitisation Forum 2008).

C. Role of Innovative Products in the Crisis

As described above, the CDS market performed fairly well during the crisis period. However, there has been criticism that buyers of CDS used short-selling of stocks as a hedge against

losses, thereby aggravating market downturns. The main victim of CDS during the crisis was the insurer American International Group (AIG), which suffered total losses of US$99 billion in 2008 and had to be effectively nationalized by the US government. AIG's decline was triggered by losses on its portfolio of mortgage-backed securities held by its financial products subsidiary, which resulted in a reduction of AIG's capital reserves. This decline in capital reserves, in turn, led Standard & Poor's and Moody's Investors Service to downgrade AIG from an AAA to an A rating. These downgrades then triggered collateralization requirements under AIG's CDS contracts, which were estimated to total US$450 billion. The amount of collateral that AIG had to produce was about US$100 billion, which it simply did not have. In other words, AIG's whole model was based on the company preserving its AAA rating.

The main contribution of these products to the worsening of the crisis was that the markets for various kinds of asset-backed securities products froze up due to the difficulty of valuing such products. The lack of a functioning market for these assets contributed greatly to market uncertainty about the financial position of many financial institutions, and complicated attempts to aid those institutions. This undermined the banks' originate-to-distribute model, which has made it much more difficult for them to increase lending, as it means they have been unable to move existing loans off their balance sheets. For example, mutual funds stopped buying CDOs after some money-market fund values dropped below par due to losses incurred on those CDOs.

The most spectacular bankruptcy arising from these losses and market freeze-ups was that of Lehman Brothers in September 2008. At the time of its collapse, it was estimated to hold about US$54 billion worth of mortgage-backed securities, while reporting only US$26 billion worth of equity in its last quarterly report for the period ending May 2008. Even that equity estimate was somewhat overstated. If the company's mortgage-backed securities had lost half of their value, a not unlikely scenario, it would have wiped out the firm's equity, even without taking other losses into account.

The direct impact on financial institutions in Asia of the losses arising from asset-backed securities was limited due to their relatively small holdings of these assets. US and European bank losses arising from holdings of such assets amounted to about US$910 billion as of June 2009 (*Reuters* 2009). Including losses from other financial institutions, the total is likely to have reached about US$1.1 trillion. However, losses by Asian institutions due to such holdings were much smaller, accounting for only about 3% of this total. Nevertheless, the magnitude of the losses has been significant for some institutions, primarily Japanese banks. Most of the impacts on Asia have been indirect, arising either from a liquidity crunch due to a shortage of US dollars in specific countries, or from the deterioration in economic conditions arising from the sharp decline in export demand across the region. In some cases, particularly in Singapore and Hong Kong, China, many individuals suffered losses on derivatives-related savings products whose risks were often not adequately explained.

D. Reform Proposals

The magnitude and widespread nature of the current financial crisis highlights failures in many areas of monitoring and regulation that need to be analyzed and reformed. These include regulations for origination, distribution, and trading of derivatives and asset-backed securities; gaps in regulatory coverage; the Basel II capital adequacy rules; rules regarding government takeover of systemically important financial institutions that are failing; the scope for international cooperation and surveillance; and the role of rating agencies and regulators. Greater efforts to educate directors, market participants, regulators, and credit agencies are also needed.

Regarding CDS, reforms should have a number of targets. First, CDS contracts should be standardized in order to facilitate trade compression, thereby reducing the size of the net exposure. Second, transactions should be moved onto exchanges run by centralized clearing counterparties (CCPs) in order to increase transparency and reduce counterparty risk. This process has started. The main question is whether there will be one or multiple markets. It looks as though the US and Europe will have at least one market apiece. The Tokyo Stock Exchange is also developing a CCP, and is looking to establish links between its CCP and those in other regions. Even if one single global market is not feasible, for political and other reasons, markets ought at least to be consistent and standardized. Third, it is necessary to revive securitization markets, because without them, it will be difficult to see a recovery in credit markets. Finally, there have been calls to require banks that securitize

debt to hold a certain share of such products in order to maintain a degree of risk exposure to such assets. This could be counterproductive, however, as part of the problem leading up to the current financial crisis was that banks were too willing to hold such products, and, in fact, should have held less, which would have reduced their losses considerably.

Regarding hedging strategies involving short-selling of stock to offset buying of CDS, some have suggested that such short-selling should be banned, and this should be examined further. Some countries already have partial or blanket bans on short-selling of stocks, and these should also be reviewed.

Heavy losses on ABS made the greatest contribution to triggering and worsening the financial crisis, and hence deserve to be paid the greatest attention in monitoring and regulation activities. As the bulk of ABS were originated in the US, and the remainder came largely from Europe, the immediate tasks for regulation and monitoring should fall in those two regions, rather than in Asia, where there was very little origination of ABS. However, the origination industry may well take hold in Asia in the future, and a regulatory framework is needed. This includes requirements for monitoring of the quality of underlying assets used as collateral for securitization, requirements for disclosure of greater information to help value such assets, and requirements for disclosure by systemically important institutions of their holdings of securitized products. Perhaps more relevantly for Asia, there needs to be greater disclosure about the risks inherent in such assets, and regulation of their

distribution. This is particularly important for derivative-type products that are sold to individual investors, such as the Lehman Brothers' so-called mini-bonds.

Heavy use of innovations, such as structured investment vehicles to escape regulations and keep assets off bank balance sheets, contributed to the huge expansion of the "shadow banking system," which ended up rivaling regulated banking in size in the US. This greatly reduced transparency in the financial system and the effective reach of regulators. There have been calls to oblige issuers of complex securities to retain on their books for the life of the instrument a meaningful account of the underlying risk (non-hedged). However, some banks got into trouble precisely because they kept too many of such assets on their balance sheets.

Market participants frequently resorted to regulatory arbitrage or made use of gaps in existing relations. Perhaps most egregious was the lack of supervision of the investment operations of insurance companies like AIG. US Federal Reserve Chairman Ben Bernanke noted, "…the AIG situation highlights the need for strong, effective consolidated supervision of all systemically important financial firms" (Bernanke 2009). There needs to be a thorough review of the regulatory architecture to ensure that systemically important institutions are monitored and regulated in a holistic way, that gaps in regulation are eliminated, and that opportunities for regulatory arbitrage are limited. This includes reviewing the status of offshore financial institutions. There also needs to be greater monitoring of hedge funds and other lightly-regulated institutions, and perhaps

further regulation in the case of systemically important institutions.

The Basel II rules for bank capital adequacy clearly failed to ensure that banks had sufficient capital to deal with the current financial crisis. There needs to be a general review of where guidelines for capital fell short, particularly with regard to systemically important institutions. Capital requirements need to take into account overall risk exposure, not just look at individual assets in isolation.

The international scope of the crisis, including the activities of global banks and the worldwide distribution of innovative but opaque financial products, highlights the need for greater oversight and regulation at the global level. Cooperation among national regulators needs to be strengthened, but, beyond that, there are strong arguments in favor of creating an international regulatory authority and international "colleges" of regulators to oversee systemically important global financial institutions.

More generally, the disastrous performance of financial institutions as a result of shifting to the originate-to-distribute model and their reliance on complex securitized products suggests that there was a failure to educate directors, regulators, accountants, and rating agencies about the risks involved in both the model and the products used. Therefore, education efforts in this area clearly need to be improved. It may also be desirable to set up a global task force to monitor new financial products.

Finally, the high reliance on risky securitized assets and off-balance-sheet investment vehicles for bank profitability suggests

that there was a broad-based misalignment of incentives, not only in terms of compensation of bank executives, but also for regulators and credit-rating agencies. There was too much emphasis on short-term profitability and on the use of risk models. Credit ratings that were derived from those models were, in hindsight, clearly too optimistic. These issues all need to be reviewed as part of a general revision of the global financial architecture. Accounting standards; risk analysis procedures—especially those related to "value-at-risk" models, i.e., model-based estimates of total expected financial losses; and credit rating procedures all failed broadly during this episode, and need to be reviewed.

4. Conclusion

Hedge funds, private equity funds, and innovative financial products have each raised significant concerns about financial stability and the need for increased surveillance and regulation. Hedge funds have figured prominently in this regard, due to their light regulation, lack of disclosure, high leverage, and rapid turnover of portfolios. There were often concerns about both direct losses of core institutions on counterparty (trading) exposures to hedge funds and indirect losses on banks' trading positions caused by forced liquidation of hedge funds' positions. Since private equity funds have very illiquid portfolios, concerns about them focused on banks' potential direct losses.

However, most assessments of the origins of the current global financial crisis conclude that highly leveraged funds did not play a significant role. This is no doubt partly because their leverage was lower than often assumed, typically ranging between one and two times their equity capital. It was only the forced selling of hedge fund assets due to redemptions that aggravated market declines later on, and this phenomenon was hardly limited to hedge funds. Instead, the main sources of instability were found in the highly regulated banking sector, where leverage was sometimes far higher. Therefore, most assessments focus on the need to increase surveillance of hedge funds and other lightly regulated entities, and to maintain dialogues with major hedge funds, although there are increased calls for regulation of systemically important hedge funds.

Concerns about innovative financial products, especially derivative products such as credit default swaps and asset-backed securities, center on the need for standards in the origination, distribution, and trading of such products, as well as their capital requirements. In the case of CDS, the market has functioned more or less as expected, and losses associated with major credit events such as the bankruptcy of Lehman Brothers have turned out to be much smaller than implied by gross notional exposure levels. Proposals for reform center on standardizing contracts to facilitate trade compression and thereby minimize net exposure, and on moving over-the-counter transactions onto standardized exchanges in order to increase transparency. Capital requirements related to such contracts also need to be strengthened.

The problems are much greater with ABS, where markets remain frozen due to uncertainties about valuation and the implications of market-clearing prices for bank capital. Regulated banks, with their originate-to-distribute model, lie at the center of the production process for derivative products. A resolution of the valuation problem of asset-backed securities is a prerequisite for restoring the capital adequacy of the bank sector and restarting the lending process. Monitoring and regulation of the origination, distribution, and trading of such products needs to be strengthened, and capital requirements need to be increased.

The toxic effects of the combination of the originate-to-distribute banking model and the reliance on sophisticated but opaque financial instruments highlighted widespread failures in regulatory coverage, the Basel II capital adequacy standards, international regulatory cooperation, corporate governance, management incentives, risk management practices, accounting standards, and the behavior of regulators and credit rating agencies. These issues all need to be addressed as part of the shift to an improved global financial architecture. Regulatory gaps need to be closed, including those at the international level, and the Basel II capital adequacy rules need to be reviewed and strengthened. The education of all participants, including directors, management, regulators, accountants, and credit rating agencies, needs to be strengthened as well.

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Appendix 1: Glossary

Asset-backed securities (ABS): Securities whose value and income payments are derived from, and collateralized (or "backed") by, a specified pool of underlying assets. The pool of assets is typically a group of small and illiquid assets that are unable to be sold individually. Pools of underlying assets can include common payments from credit cards, auto loans, and mortgage loans, to esoteric cash flows from aircraft leases, royalty payments, and movie revenues.

Collateralized bond obligation: A form of securitization where payments from multiple investment-grade corporate bonds are pooled together and then subdivided into assets with different risk characteristics (tranches), which are sold to different investor groups.

Collateralized debt obligation (CDO): A security backed by a pool of assets, mainly non-mortgage loans or bonds, but also other asset-backed securities. CDOs are made up of tranches with various maturities and risk characteristics, with the equity tranches carrying the most risk, and therefore paying the highest interest rate to the buyer. CDOs are basically the same as traditional ABS in terms of their structure, but differ from traditional ABS with respect to the type of assets underlying the collateral pool, the motivation for issuance, and the relationship between the borrower and the special purpose vehicle. CDO asset pools typically consist of loans (collateralized loan obligations), higher yield bonds (collateralized bond obligations), or a mixture of both. The number of loans typically included is much lower than in traditional ABS (hundreds versus

thousands), and the types of loans and bonds included can be much more diverse than in traditional ABS.

Collateralized loan obligation: A form of securitization where payments from multiple middle-sized and large business loans are pooled together and passed on to different classes of owners in various tranches.

Commercial mortgage-backed security: A security backed by one or more pools of mortgage loans secured by commercial (non-residential) properties.

Covenant-lite loan: A loan whose main terms have fewer or no maintenance covenants. A covenant-lite loan does not include the legal clauses which allow a lender to control and track the performance of a company and, if need be, declare a default if certain criteria are breached. With covenant-lite loans, a bank can only act if a borrower attempts to take specific actions, such as adding more debt or making an acquisition. More-traditional maintenance covenants allow banks to step in at any point if a borrower's performance drops below a certain benchmark.

Credit derivative: A contract between two parties which uses a derivative to transfer credit risk from one party to another, in exchange for a fee.

Credit default swap (CDS): A bilateral financial contract in which the protection buyer (risk shedder) pays a fixed periodic fee in return for a contingent payment by the protection seller (risk taker), which is triggered by a credit event of a specified firm or entity. Credit events, which are specified in CDS contracts, may include bankruptcy, default, or restructuring.

Credit default swap spread: This spread signals the market's view on a specified firm or entity's likeliness to experience a credit event that would trigger a contingent payment. The CDS spread is the premium paid by the protection buyer (expressed as basis points per annum of the notional amount of the CDS contract). A CDS spread of 500 basis points means that the annual cost of protection with respect to US$1 million of specified underlying debt is US$50,000.

Gross nominal value or gross notional value: Nominal or notional amounts outstanding are defined as the gross nominal or notional value of all deals concluded and not yet settled at the reporting date. The notional value to be reported is that of the maximum default protection specified in the contract itself and not the par value of financial instruments intended to be delivered.

Mortgage-backed security: A security backed by a pool of mortgage loans secured on real property. Investors receive payments of interest and principle derived from payments received on the underlying mortgage loans.

Macro-prudential framework: A framework for preserving financial stability that looks not just at the soundness of individual institutions, but also takes into account the interactions among various financial markets and institutions as possible sources of systemic risk. In other words, the risk to financial stability of the system as a whole may be greater than the sum of the risks to individual institutions.

Net notional value: Net notional balances, as opposed to gross balances, cancel out transactions that offset each other. For instance, if an investment bank buys US$100 million in credit-default swaps to protect against a company default and sells US$50 million of swaps for protection on the same company, the net notional value would be US$50 million. The International Swaps and Derivatives Association (ISDA) estimates that the net notional value, which is the amount at risk in the CDS marketplace, is only 3% of the gross notional value.

Originate-to-distribute model: A business model for banks whereby banks make loans, but then package them into securities in order to sell them, thereby removing them from their balance sheets. Having a smaller balance sheet enables banks to reduce their capital requirements.

Procyclicality: The tendency of financial regulations to exacerbate the volatility of economic swings. For example, when the economy turns down, banks' capital declines, which forces them to reduce lending to maintain their capital adequacy ratios. However, this, in turn, puts further downward pressure on the economy, leading to further declines in banks' capital.

Residential mortgage-backed security: A security backed by a homogeneous pool of mortgage loans secured on real residential property.

Second lien loan: A form of loan with a security interest in the assets of a company that is second in ranking behind a traditional senior credit facility. The second lien lender will typically be required to agree contractually (through an

intercreditor agreement or other contract) to subordinate its claims on the assets to the first lien secured lenders.

Special purpose vehicle (SPV) or Special purpose entity (SPE): "A special purpose vehicle (SPV) or special purpose entity (SPE) is a company that is created solely for a particular financial transaction or series of transactions. It may sometimes be something other than a company, such as a trust. The SPV's debts may, or may not, be raised with recourse to the "real" borrower. SPVs/SPEs are often used to make a transaction tax efficient by choosing the most favourable tax residence for the vehicle. This is commonly done with eurobonds so that foreign investors do not have to pay withholding taxes in the borrower's country of residence." (Pietersz 2006–2009)

Structured investment vehicle: A type of SPE that funds the purchase of its assets (mainly highly-rated securities) through the issuance of both commercial-paper and medium-term notes. Structured investment vehicles are offshore entities, and therefore escape the regulations that banks and finance companies are subject to.

Trade compression: A process that involves terminating existing trades and replacing them with a smaller number of new "replacement trades," which have the same risk profile and cash flows as the initial portfolio, but less capital exposure.

About this Research Policy Brief

The implications for financial stability of lightly regulated and highly leveraged financial institutions such as hedge funds and private equity funds, together with innovative financial products such as derivatives and asset-backed securities, remain a subject of controversy, especially in the current global financial crisis, where issues of systemic risk have not only national, but regional and global implications. This policy brief examines hedge funds, private equity funds, and innovative financial products, particularly collateralized debt obligations and asset-backed securities, including their overall structure, their role in the development of the current global financial crisis, and what changes are needed in the global financial architecture related to these institutions and products to strengthen financial stability going forward.

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ISSN: 1882-6717