

*"If you're not failing every now and again, it's a sign you're not doing anything very innovative."
- Woody Allen -*

The Case for Financial Innovation – An Encounter with Regulation

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Background

The recent global financial crisis has highlighted the limitations and 'moral hazards' of financial innovation and its negative consequences. While innovation is recognised as a critical source of economic growth and productivity, financial innovation goes to the very core of modern economies as it interlinks with markets, technologies, investments and businesses – with the intention to reduce financial market imperfections. Structured credit and credit derivative products like Collateralized Debt Obligations (CDOs) and Credit Default Swaps (CDSs) were assigned much of the blame for the financial crisis and the ensuing recession – leading many to question the value of financial innovation.

The role of financial innovation is to fundamentally offer an effective solution to managing enterprise risk management, to provide mechanisms for pooling resources and settling payments, to deliver faster ways to transfer economic resources through cross-border channels seamlessly and by benefitting consumers through increased convenience and flexibility – the very process of "creative destruction which is the essential fact of capitalism" (Schumpeter). Despite this, the financial products created in the run up to 2007 managed to circumvent stringent regulation and standards designed to protect the banking industry and perpetuated excessive systemic risk, all in the name of innovation. How do investors and financial stakeholders discern if the harm was caused by the design of the products or by the way the innovation functioned in markets? This is of significant importance to policy makers and crucially underlies the role of governance and a sound regulatory framework.

Financial Crisis and the Role of Financial Innovation

The financial crisis is forcing a reassessment of the role and benefits of complex financial innovation. In the study of CDOs, they were created as a financial product which could convert cashflows with low credit quality (mostly bonds) into separate investment tranches – each with their own peculiar risk profiles which enabled investors to purchase them based on their risk/reward appetite. Bundling the bonds helped distribute the risk of default from a single investment grade paper and turned illiquid assets into liquid investment opportunities, while allowing investors to participate in the capital market. On the back of this, synthetic CDOs was another more radical innovation which made it possible for investors to purchase a CDO which had no underlying asset – facilitating a much easier buy and sell over shorter timelines with no real asset collaterals. This was warmly welcomed by investors whose demand for CDOs outweighed the availability and supply of suitable mortgage assets, perpetuating the growth of the CDO market from 2005 – 2007 into riskier assets. The bubble burst when CDO assets held by hedge funds declined in value due to increasing defaults in subprime mortgages. In short, CDOs had enabled financial institutions to increase their leverage bet on the housing market, boosting short term returns multi fold by funnelling

money into the mortgage market and leading investors to believe that they were making safe investments on low credit quality assets.

The impetus for the innovation of CDS however takes a slightly more different approach to risk management. Essentially, a CDS would provide protection to a creditor against defaults on credit securities (e.g. corporate bonds) by swapping the default risk against the loss of value of the bond if there is a credit event. JP Morgan was credited with creating the first CDS for Exxon in 1994, following the extension of a USD4.8billion line of credit for liability over the Exxon Valdez oil spill. To mitigate the effect of this large credit line on JP Morgan's balance sheet and capital requirements, a CDS was introduced with the European Bank for reconstruction and Development as counterparty, to swap the default risk against fees (source: Bank of International Settlements 2011). The invention was hailed as a defining moment in finance. Though initially developed for the corporate bond market and between interested parties who had deep credit information about each other, an investor could also purchase a CDS in the open market without any interest in the underlying asset ("naked" CDS position) to benefit from the high returns. Corporate institutions could purchase them to protect against the risk of default and soon banks would speculate on the credit risk of the instrument which brought on a negative effect. Thus, as demand for the product grew and pushed returns higher, the CDS market grew far larger than the corporate bond market which provided the underlying asset. Perpetuating this was fundamentally the fact that CDSs were traded over the counter, and not through an exchange – which made it difficult to know exactly the net exposures of investors and the credit quality of the instruments being traded, raising serious transparency and governance issues.

Viewed from a broader spectrum, CDSs and CDOs played a crucial contributing factor to the crisis, especially as excessive risk, leverage and credit deterioration of both instruments coalesced and this was cataclysmic to financial markets. CDSs further contributed to the collapse of the CDO market by i) enabling hedge funds and speculative funds to purchase complex hedging mechanisms that involved junior equity tranches while shorting other more credit defunct tranches using CDSs and ii) CDSs allowed investors to transfer risk from the CDO market to other CDS issuers who were not in a position to take that risk. A famous casualty of this was AIG – who severely misinterpreted the risks it had and sold an excessive amount of credit protection using CDSs without holding the adequate capital on its balance sheet.

The role these financial instruments played in the financial crisis defined the gradual shift in the role of market intermediation engaged by global banks. Innovation in financial instruments which were predominantly created to intermediate credit shifted to intermediate risk i.e. products which offered credit value and credit exposure morphed into risk trading instruments which required complex quantitative risk models but which were based on credit models. The net effect was a mispricing of credit risk (and the insufficient regard of it) and a lack of quantifiable risk information on the exposures which saw tiered risk structures collapse with the deterioration in subprime assets (refer to appendix).

The innovation of these instruments alone however did not lead to the graveness of the financial crisis. The crisis erupted against a backdrop of systemic weaknesses – namely macroeconomic instability (caused by a prolonged period of high growth, low interest rates, loose credit and lax risk management processes) and corporate institutional failures (weak corporate governance and internal controls, poorly enforced lending limits, inadequate

enterprise risk management guidelines). Investors on their part performed little or no due diligence on their own and exclusively relied on financial info memo's or credit ratings which they had very little understanding of. In the end, the complexity of the financial products and the sheer pace of the economic breakdown combined with wide-spread lack of risk awareness exacerbated the crisis. What is striking however is the absence of market supervision and regulatory oversight in the run up to the crisis - especially in an industry which is highly regulated and constantly under microscopic scrutiny.

Regulatory Implications of Financial Market Innovation

The crisis brought to the fore the role of governance and regulation in ensuring a sound, fertile financial and economic environment. Experience shows that corrosion in market discipline tends to occur periodically, where banks / financial institutions avoid prudence for short term profit gains. Most bad credit or problems are accumulated during the boom periods in an economic cycle, and manifest themselves during a bust, precipitating financial instability. Against this backdrop regulatory authorities face the balancing act of encouraging innovation which is fair and productive in finance, while issuing standards and regulation which prevent excessive risk, leverage and financial distress by preserving financial stability. On the back of this, regulation plays 2 strategic roles in promoting stability in the economy:

- I. **Fiscal and financial policy to encourage stability:** maintain monetary policy as the first line of defence in an economic slowdown - to monitor price instability, distortions in mispricing of credit and risk, and to "provide a stable background for the economy-keep the machine well oiled" (Friedman). Fiscal policies on the other hand enhance the long term sustainability of a system and prudent risk mechanisms.
- II. **Regulatory and governance framework:** sound, robust regulation and standards which underlie the ethics of players operating in the financial markets by encouraging responsible risk taking and minimising "moral hazards" in the financial ecosystem.

In retrospect, authorities in markets which saw the trading of complex instruments thrive were lax in both the key pillars outlined above which fuelled the destructive elements of the product when left unimpeded. What was more disturbing was the way in which regulation played a role in the crisis, in that the concern was in the ideology-driven regulatory framework which thrived (where the market takes care or corrects by itself with no intervention) vs. a more problem-focused regulatory mechanism (where each product is evaluated and needs to pass the regulatory 'litmus test' to study its impact and wider negative consequences). A case in point here is the CDS market, where unrestrained volumes were allowed to trade without knowledge of real counterparty exposures. Measures to enhance information disclosure here designed so that investors clearly understand the risks they are taking by simply registering to trade and clear with a central counterparty could increase have increased transparency and risk awareness.

In 2009, The Monetary Authority of Singapore (MAS) reviewed its guidelines on governing the sale and marketing of unlisted investment products to include banks having to enhance the quality of information they obtain from their clients – while providing them with more information on the basis of the bank's recommendation to purchase a structured product in a formal binding document. Additionally, a new category called "complex investment products" was introduced to the regulatory requirement, where banks now need to add "health warnings" to their product sheets, which carry alerts to investors on the risk of a product and clearly outline that investors should not buy a product if they do not fully understand the financial instrument being offered.

In the UAE for example, banks are now required to get explicit permission from the Central Bank of the UAE before selling structured products to retail customers, which includes high net worth clients. These measures are enacted to reduce the consequences of uninformed credit decisions taken by customers, and serves to institutionalise regulation to enhance financial stability.

Other possible more easily adoptable regulation (widely prevalent in emerging markets in the Far East) include regulatory authorities reducing the moral hazard of 'too-big-to-fail' institutions by enhancing disclosure, incentives and performance through reporting mechanisms. This also suggests the role played by central banks to include the 'lender-of-last-resort' role in the dictate of Bagehot (1873) "to avert panic, central banks should lend early and freely to solvent institutions against good collateral at high rates."

Other structural regulatory oversight can be extended to include higher capital adequacy ratios for riskier products, as introduced in the EU post 2009. Liquidity and capital adequacy ratios could also take into account the amount of interest rate charged against the size of the institution for a more accurate reflection of risk weighted adjustments on banks' balance sheets. Such measures, if implemented and monitored properly have the advantage of being rule based – which circumvents the discretion of bankers when deciding which products to originate and underwrite.

The real question is: what is the correct policy response to financial innovation? Regulation of financial markets and institutions is intended to preserve the resilience and soundness of the economy and thereby enhance the economy's overall resource allocation efficiency. On the flip side, financial institutions are susceptible to *agency problems*, as shareholders and depositors may find it difficult to monitor the behaviour of bank managers. Therefore, authorities should seek ways to enhance the benefits of innovative accomplishments, while ensuring that rampant disadvantages of harmful activities are well curtailed.

The Innovation Imperative in Regulatory Review

There are many lessons that can be drawn from this extraordinary crisis, not only for financial institutions but also across all sectors and services. For one, the globalised nature of the crisis which brought the global economy to its knees through the interconnectedness of financial markets worldwide depicts the importance of regulatory systems. This requires "getting the perimeters of regulation" right (Stiglitz). Governance and regulatory standards should be broad enough to avoid regulatory arbitrage, comprehensive to cover all "systemically important firms, and sufficiently 'smart' to allow firms to intermediate efficiently (Lynch, K).

Looking back, the crisis was both spectacularly modern and as old as markets themselves. The new normal in finance is characterised by the trading of complex products 24 hours a day across different time zones, with traders hedging risk exposures across different currencies and taking advantage of information which is now transmitted 24/7 around the world seamlessly through technological advances. And yet, the pace of governance or regulatory framework remains a step behind. Regulation in its current form to govern market activities will seem archaic in the 'new financial order'. The regulatory framework of the financial sector itself requires innovation.

For one, greater regulatory cooperation across jurisdictions in major trading hubs around the world will fill the regulatory arbitrage opportunities that currently exist and provide an impetus for greater monitoring. Regulation must also be problem driven rather than ideology driven – a form of governance which is prevalent in other industries like pharmaceuticals, food & beverages, consumer products etc. The financial system cannot rely on the market taking care of itself or being self-regulated. The propensity for asset bubbles, greed and the

channelling of funds to speculative activities in banking is far more detrimental to the broader economy and creates a negative multiplier effect on socioeconomic activities. The role of the state in championing consumer interests and protecting the rights of investors was also forgotten during the years leading up to the crisis. This needs to be brought back to mainstream finance so that financial innovation is socially useful and results in a wider positive social outcome. Within a broader context, other initiatives which can be introduced to monitor while not stifling innovation include:

- Stress testing innovation in financial products – the same way banks stress test their portfolios and adapt their enterprise risk management to address risks and market uncertainties, similar processes should be introduced for new structured products
- Adapt the business model and structure of banks / financial institutions to accommodate innovation through special board risk committees, legal review processes, incentive and remuneration committees so that there is proper oversight in the innovation process and its outcome
- Innovation efforts should be customer focused and less reliant on short term profit making prospects
- Formalising the innovation process at banks through innovation units or departments which fully understand the regulation and risk management complexities within which it operates. This will also help advance new ideas and accelerate the time to market of new products
- Collaborate with regulators to monitor innovation efforts to drive sustainable financial innovation and to reduce negative outcomes
- Invest in customer awareness and education through MIS or technology to keep investors aware and informed of market trends, risks and performance of their investments

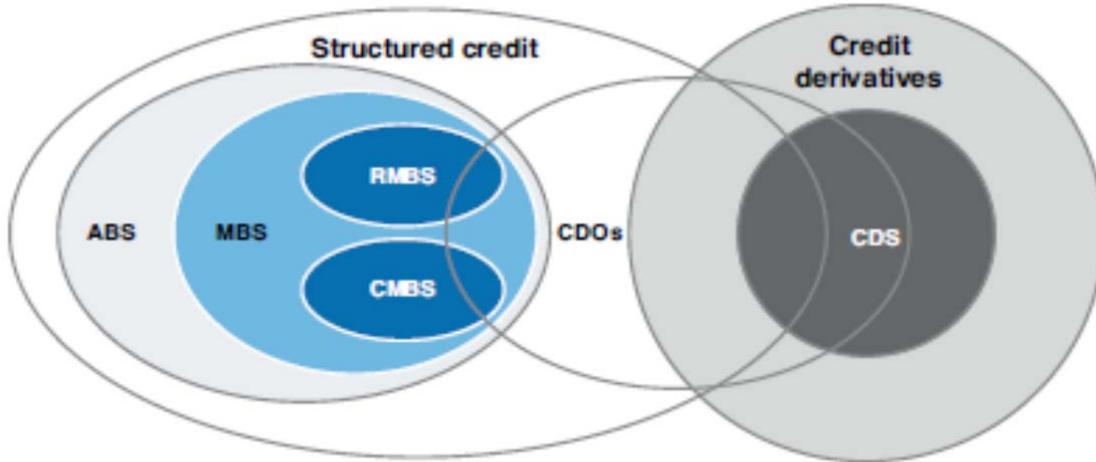
Conclusion

The capital market provides a fertile breeding ground for financial innovation – some examples of financial innovation which have made a significant difference to society include microfinance loans to populations with no access to credit (Grameen Bank in Bangladesh, Akhuwat in Pakistan), mobile and technology driven banking products like M-PESA in Kenya or Paypal as well as the reliable ATM machines used worldwide. Financial innovation is the natural result of creativity and inspiration, and signifies the progression of humans as a race.

The global financial crisis unveiled fundamental forces beyond innovation alone that led to an extensive failure to understand credit and underestimate risk. This does not mean that financial innovation should be discouraged in a post crisis world; rather, with lessons from this decade, the next decade of financial advancement should be peppered with innovative products that serve the wider socioeconomic fabric of a population. Ultimately, innovation exists to complete inherently incomplete markets - and more than ever today innovation, the role of the enterprise and intellectual assets drive economic growth. This, if coupled with solid, sound regulation will have the added benefit of developing a sustainable financial framework while mitigating elements of risk in innovation.

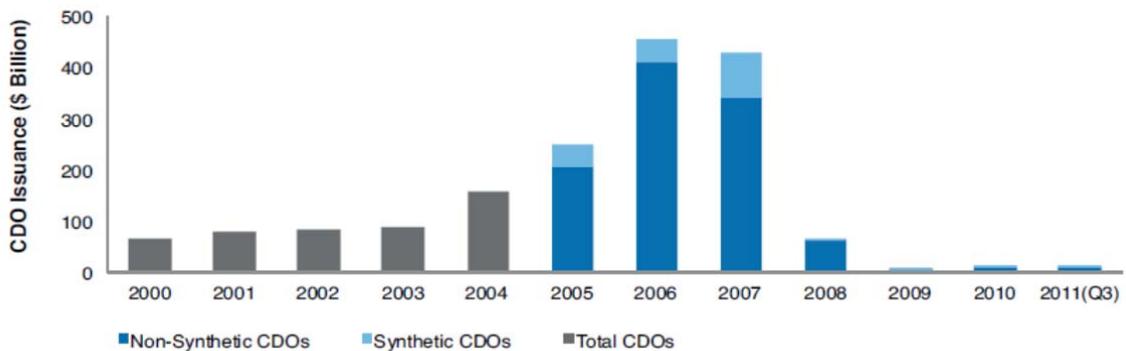
Appendix

1. The Overlap and Connection between Structured Debt and Credit Derivatives



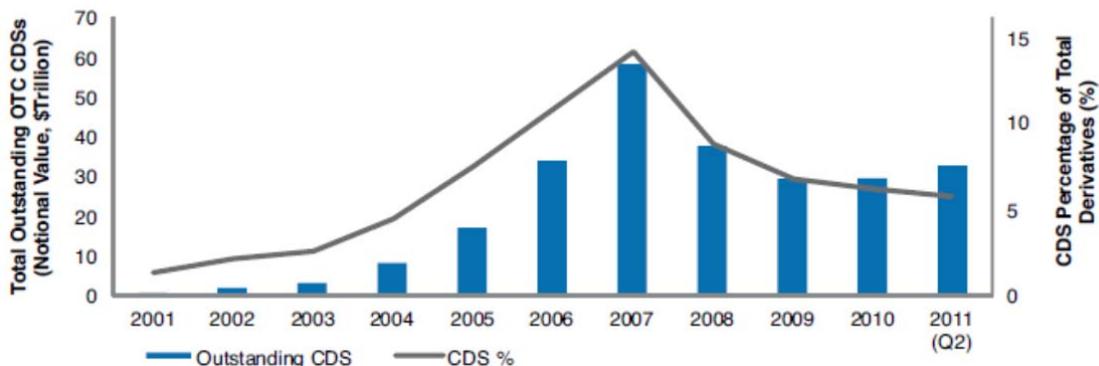
Source: Choudhry, M. & Fabozzi, F.J. (2004) *The Handbook of European Structured Financial Products*
 Note: ABS = Asset Backed Security, MBS = Mortgage Backed Security, RMBS = residential Mortgage Backed security, CMBS = Commercial Mortgage Backed Security, CDS = Credit default Swap; and CDO = Collateralized Debt Obligations.

2. Global Collateralized Debt Obligation (CDO) Issuance



Source: US Federal Reserve Report, SIFMA

3. Global Outstanding Credit Default Swaps (CDOs)



Source: US Federal Reserve Report, SIFMA

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