
Opinion piece

Debunking the securitisation myth: Understanding why the 2007 credit crunch happened

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Abstract If the core risk management mantra of financial institutions is 'no surprises' the unprecedented, broad-scale write-downs resulting from the 2007 credit crunch represent a systematic failure of institutional risk governance. The co-incidental backdrop to the crisis was: first, a hyperbolic US real estate market, and secondly, an abundance of international liquidity. Paradigmatic shifting technological innovation and financial engineering techniques provided the fission physics for the former to meet the latter in the form of a securitisation market. Securitisation is the banks' platform to on-sell loan risk to investors. In reality, the 2007 credit crunch was a consequence of bank risk originators retaining both explicit and implicit exposure to high octane risk. In the following discussion the author examines the various forms by which banks retained outsized exposures to the US sub-prime market which ultimately resulted in billions of dollars of surprises across financial institutions.

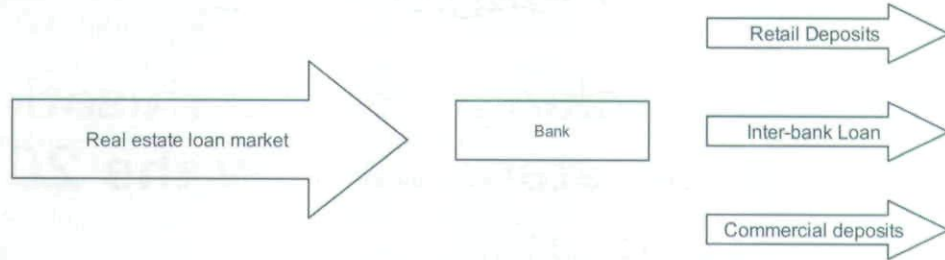
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In 2007, the international banking system was paralysed by a litany of structured credit losses, leaving the economy's modern-day credit transmission process broken.

In recent years, the banking conduit through which asset-backed loan liquidity gets extended to the real economy has undergone a remarkably complex

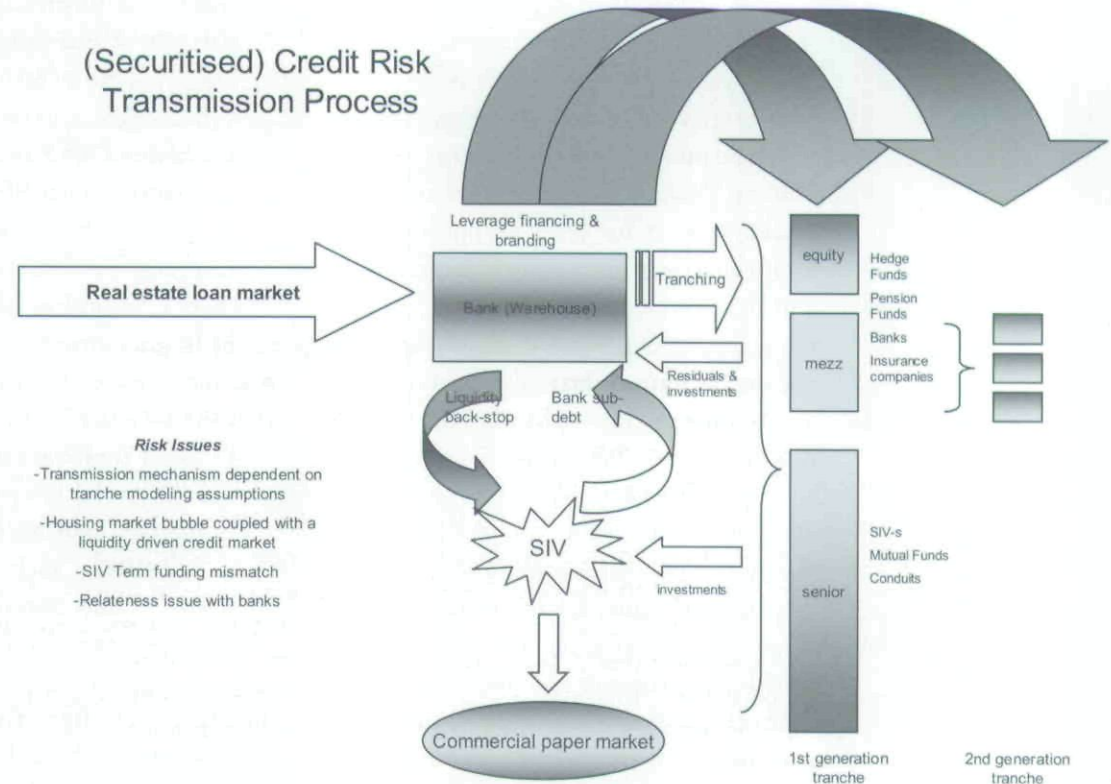
evolution (see Figure 1). Aided and abetted by the changes in international regulatory capital requirements which encourage the migration of credit exposures off balance sheet, banks have adopted aggressive financial engineering techniques to warehouse, tranche, securitise and ultimately sell on credit exposures to investors. This is the finance

(i) Traditional credit transmission process



Banks' real-estate backed loans retained on balance sheet and funded by a range of commercial, retail and inter-bank loans

(ii) Securitisation loan model



The complexity of the securitisation model and its retained connectivity to the bank warehouse is manifold

Figure 1: Evolution of lending model

industry's innovative 'miracle' of securitisation: in contrast to former years, when traditional loans financed by commercial and retail deposit bases sat on balance-sheets for term, banks have ostensibly become non-recourse brokers of a newly re-engineered form of credit risk. This has given the industry an

efficient mechanism for the optimal redeployment of regulatory risk-weighted capital across their alternative businesses.

The reality, however, is that this capital, newly extracted from a traditionally unleveraged loan business model, has been used to underwrite a

securitisation platform that retains a highly leveraged exposure to the same, old-style credit risks:

- *Explicit risk retention.* The bank purchaser of a loan pool warehouses the risk prior to securitisation. Given the anticipated short-term holding period, warehouses amass very significant portfolios of assets and are therefore left retaining risk when there is a sudden loss of investor appetite for the collateralised debt obligations (CDOs) backed by those assets. Moreover, securitisation works on the principle of stratified risk preferences: different investors have different efficiency frontiers. The process of tranching asset-backed loan pools into CDO first (equity), second (mezzanine), and third (senior) loss pieces is a malleable mechanism for matching those varying frontier preferences with the availability of risk. Typically, however, a residual slice of the most risky tranche, the equity first-loss piece, fails to match even the most aggressively concave of frontiers, necessarily leading to a retention of equity by the securitisation originator. As an adjunct to these so-called 'residual' investments, banks themselves are frequent carry-oriented investors in the mezzanine tranches of the CDO capital structure.
- *Counterparty (hedge fund) credit contingent exposure.* The hedge fund community has procured ever-growing leverage for its equity and junior mezzanine tranche CDO investments through collateralised financing programmes with their prime brokers. Banks remain thus exposed to the underlying CDO collateral of their leveraged loan counterparts, as creditors discovered to their cost when Bear Stearns and Co. balked at backing its High-Grade Structured Credit Strategies

Enhanced Leverage Fund in June 2007.

- *Liquidity-backstop facilities.* Special investment vehicles (SIVs) and conduits are significant investors in the super senior echelons of the securitised loan pools' capital structure. Typically financed by short-term commercial paper, the SIVs' liquidity vulnerabilities intrinsic to this yield curve carry the strategy of 'borrowing short-lending long' and are underwritten by guarantees from their financial sponsors and third-party bank guarantors. Under a *force majeure* (commercial paper) liquidity event, SIVs exercise their rights to sell the senior CDO assets to their backstop guarantors. That SIVs are, additionally, investors in banks' subordinated debt is a further incestuous twist in the off balance sheet relationship between SIVs and their bank guarantors.
- *Franchise preservation.* The reputation risks associated with allowing a bank-branded fund backed by third-party monies to fail has proved to be sufficiently high to see both Bear Stearns and Goldman Sachs orchestrate capital infusions into two of their struggling managed asset funds during 2007.

The new paradigm for economic credit transmission is founded, ultimately, on the warehouses' risk syndication capabilities. Against a backdrop of an increasingly disequilibrium US real estate market, this has dangerously eroded the due diligence standards at the loan origination coal face. Rather, end-investors have essentially contracted out credit due diligence to the agencies which rate their loan-backed paper. Risk takers have thus assumed a complex sensitivity to the agencies' mathematical parameterisation of defaults (and default correlations) — a sensitivity perennially

prone to the vulnerabilities inherent in calibrating future expectations from past data. Moreover, a lack of widespread modelling capability has induced a complacent reliance on ratings as the sole barometer for CDO risk. Importantly, ratings are based on the potential for cash-flow impairment as opposed to market or liquidity volatility, thereby dichotomising investors' (ratings-reliant) risk management practice from their mark-to-market accounting process.

The summer's collapse in the CDO market was a consequence of investors' dependence, by proxy, on statistical modelling techniques. These techniques failed to anticipate the unprecedented default contagion endemic in the loose lending practices of a housing bubble supercharged by a new fangled financing platform. When statistics failed, fire-sale liquidations of what are ultimately illiquid bundles of esoteric risk exacerbated the decoupling of credit rating from market value, which further undermined confidence in the myriad financing markets backing the modern-day credit transmission process (inter-bank money markets, conduit commercial paper, bond mutual funds, monoline insurers etc). A chronology of events is provided in the appendix.

Understanding the connectivity of risk vulnerabilities across a broad and complex business model is a critical lesson for risk managers. A corollary of this is a requirement for an appropriate process of aggregation of risk exposures through carefully parameterised stress-testing programmes. That much of the 2007 credit crunch's market risk was liquidity (counterparty) credit, and reputationally contingent, demonstrates the necessity for a broad integration of risks in stress-testing procedures (as

opposed to the industry's tendency to compartmentalise risk factors in separate stress tests). In its simplest form, a liquidity stress test should examine the market circumstances under which an SIV's term funding mismatches become vulnerable, and the implications of those circumstances on the market risks of underlying assets as they get back-stopped by the financial sponsor. The implications on the regulatory capital ratios of the sponsor and of similarly positioned sponsors are critical in specifying the severity of the stress test's parameters. Internal banks' capital models are currently maladapted to risks which are so entwined and need to be recalibrated to such holistically specified stress tests.

As a further key lesson, risk management techniques need to enhance their modelling of the behavioural dynamics of like-minded investors whose collective positioning distorts the availability of market liquidity. Large and diversified financial institutions are essentially operating in the same markets, and their retained risk profile is frequently an accurate microcosm of the broader distributions of risk across the industry. With this backdrop, a modicum of market intelligence readily provides institutions with insights into the scale of these risk distributions and the liquidity pressure points therein. Understanding and anticipating investors' behavioural responses to market volatility will prove increasingly important as such responses, in themselves, have proved to exacerbate illiquid volatility to extreme levels.

The abundance of liquidity left in the system following the collapse of the US technology investment bubble coupled with the securitisation model's financing

efficiencies broadened the accessibility of homeownership to the most economically-vulnerable reaches of society. This market proved to be unsustainably dependent on the continued appreciation of real-estate backing the loans. That financial institutions were left retaining material latent exposure to the ensuing credit crunch was, as with the 1980s savings-and-loans crisis, a failure of banks' internal governance practices to keep pace with risk innovation. In an environment where the macro economy is slowing and the inter-bank risk premium is rising, this failure is likely to constrain that all-important commercial bank conduit of liquidity from the Federal Reserve to the US consumer, rendering dysfunctional a monetary policy response to future recessionary pressures. Memories of a deflating, non-performing loan (NPL) saddled Japan linger.

APPENDIX: THE 2007 CREDIT CRUNCH — A CHRONOLOGY OF MAYHEM

June 2007: Bear Stearns High-Grade Structured Credit Fund and Bear Stearns High-Grade Structured Credit Enhanced Leverage Fund reported a significant acceleration in performance losses due to the deterioration in leveraged credit holdings backed by subprime mortgage assets. To meet margin calls and forestall a fire-sale liquidation of collateral, Bear Stearns injected US\$1.6bn into the former, less-leveraged fund.

Valuation issues began to emerge as bid lists of structured credit investments collateral got circulated by creditors. It became apparent that illiquidity and risk premium demanded far greater bid concessions than expected for the

product. As the crisis unfolded, this would become a recurring theme: the lack of a liquid market to ascertain value of esoteric bundles of finically-engineered credit risk led to a collapse in investor confidence, forcing down asset prices in a vicious cycle.

July 2007: Basis Capital Fund Management in Sydney told investors that they could lose 50 per cent of their equity should creditors continue to liquidate seized structured collateral after having missed margin calls. Ultimately the fund became insolvent. At this early stage of the crisis it became apparent how securitisation had globally dispersed risk exposure to the US subprime market.

August 2007: German specialist lender IKB was forced to consolidate its off balance sheet conduit, Rhinebridge, on balance sheet to facilitate a capital injection of US\$110m as subprime-related losses in the conduit mounted. The proliferation of banks' off balance sheet contingent exposures to US subprime residing in their SIVs and conduits began to emerge.

August 2007: Asset-backed derivative indices collapsed as credit markets' volatility surged with contracting liquidity: as risk aversion took hold, dealers de-leveraged commonly held risk positions resulting in a proliferation of anomalous dislocations.

Goldman Sachs orchestrated a US\$3bn rescue of its Global Equity Opportunities Fund in the aftermath of 30 per cent losses in a week. Hedge funds faced a systemic de-leverage risk event. Particularly hard hit were the algorithmic, model-based 'statistical arbitrage' funds. Equity volatility rose sharply indicating a broadening of crisis contagion across asset classes as macro

funds caught up in the credit crisis exited their more liquid equity strategies.

September 2007: A lack of transparent risk disclosure of underlying asset collateral led commercial paper investors to balk at rolling their SIV-issued short-term commitments, resulting in banks being called on their liquidity backstop facilities. The premium demanded for availability of banks' balance sheets manifested in the (negative basis) widening of cash bonds relative to credit default swap spreads.

It also became apparent that struggling Canadian conduits were large investors in the super senior tranche of the capital structure, driving senior spreads wider on anticipated liquidations. Notwithstanding emergency liquidity provisions by the Federal Reserve and the ECB, Libor rates continued to set higher marking increases in nervousness in the inter-bank unsecured lending markets.

October 2007–November 2007: The triple A credit rating of thinly capitalised monoline insurers' came under pressure in the face of potential liabilities due on collapsed structured credit notes. Municipal bond spreads widened as a consequence of the underwritten guarantees provided by the same monolines.

The announcement of a US Treasury-sponsored plan to create a super-SIV did little to reassure the credit markets. After some stabilisation of the markets following the Federal Reserve's 75 basis points of interest rate cuts, large-scale write-downs for banks across an array of credit and credit-related businesses saw a re-emergence of credit tensions.

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