



Banking Observatory

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The Future of Securitization: Born Free, but Living With More Adult Supervision

- Bond issuance and home mortgages will lead this process, while commercial real estate and commercial paper will act as a drag
- Financial regulatory reform's outcome will be tough, but fair
- Shorter intermediation chains will be the norm going forward

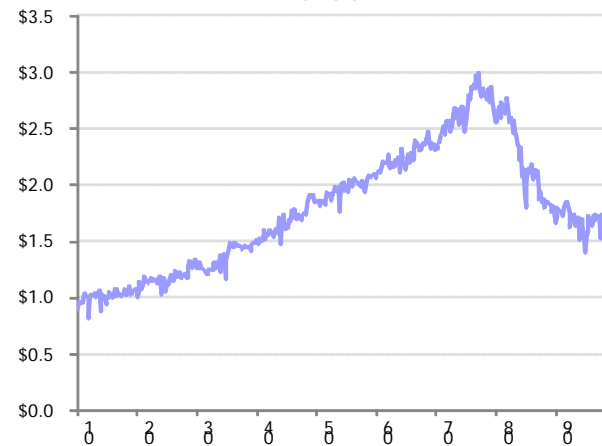
The Elusive Jumbo Returns, but Uncertainty Remains

On April 21, 2010, the Redwood Trust filed with the Securities and Exchange Commission (SEC) the first private-label non-conforming Residential Mortgage-Backed Security (RMBS) issuance since the financial crisis. The Sequoia Mortgage Trust 2010-H1 deal consists of prime jumbo RMBS with an average loan-to-value (LTV) ratio of 56.6%, measurably lower than LTVs during the boom years. This is the first mortgage issuance outside the protective hug of the Federal government's housing agencies. The repurchase market, where lenders of funds are given collateral as a security for a short-term loan, remains below its early 2008 peak. The securitization markets' conflicting directions leave many observers with considerable feelings of uncertainty as to the future. However, in this brief we aim to set aside these uncertainties and detail the supply and demand foundations of securitization going forward. Although securitization will not return with the same gusto as the first decade of this century, it will clear the hurdles of crisis and regulation. Securitization in the future will involve shorter intermediation chains, more diverse instruments, and higher regulatory requirements. However, securitization will return as a driving force in American finance.

A Primer on Securitization

The world of securitization involves high levels of jargon, so this section will provide a quick overview of the basics. A general definition of securitization is the process through which firms conduct off-balance-sheet operations to transfer financial risks related to illiquid financial instruments they currently hold on their balance sheet. This is typically achieved through the creation of a legal vehicle called a "special purpose entity" (SPE). A financial firm originates a loan and transfers the loan to the SPE, where an investor takes a stake on securities issued by the SPE. The SPE is designed such that the originator is legally-separate from the SPE as to avoid the chance that the investor becomes embroiled in bankruptcy proceedings related to the originator. During the crisis, some firms felt compelled to rescue their sponsored SPE due to reputation risk or moral suasion. Additionally, the SPE may be indirectly financially dependent on the originator, for example, if the originator is the designated servicer of loans transferred to the SPE.

Primary Dealer Repurchase Agreements
In trillions



Source: Federal Reserve Bank of New York

Special Purpose Entity Structure

Assets	Liabilities
Pool of illiquid financial claims	A-class notes
	B-class notes
	C-class notes
	First-loss notes ("equity")
	Equity

This is the essential idea: a car loan to a consumer gets transferred from a bank to an off-balance-sheet construct that creates securities from pools of homogenous loans. Investors therefore benefit from economy of scale and firms benefit from the transfer of risk from the balance sheet. Asset-backed securities (ABS) are generally pools of credit card receivables or car loans, while mortgage-backed securities (MBS) are pools of mortgage loans.

Now things get a little more complicated. Different SPEs entail specific asset themes, as we mentioned above, one can be dedicated to consumer loans while another can be dedicated to mortgage loans. The specific characteristics of these loans and the needs of investors seeking to invest in these loans may differ. As a result, it is often the case that the administrators of SPEs manage the principal and interest of the underlying loans to cater to investor demand through four structures: pass-through, pay-through, revolving and asset-backed commercial paper (ABCP). A pass-through structure means payments collected from assets pass directly to the final investor. Some investors do not prefer this type of arrangement due to prepayment and delinquency risk. A pay-through structure takes excess principal and reinvests such principal into safe assets. If a lot of prepayment occurs, this excess principal's reinvestment into safe assets becomes "negative carry" and lowers the return of the total. A revolving structure is mainly for consumer finance. A long-term security is issued against a short-term pool of consumer receivables which is periodically "refilled" with similar consumer receivables. ABCP works in the opposite manner as firms issue short-term securities backed by long-term financial claims. In addition to these structures, the SPE may offer other details to cater to investors' needs by structuring different levels of seniority, credit or liquidity enhancements, or tranching.¹

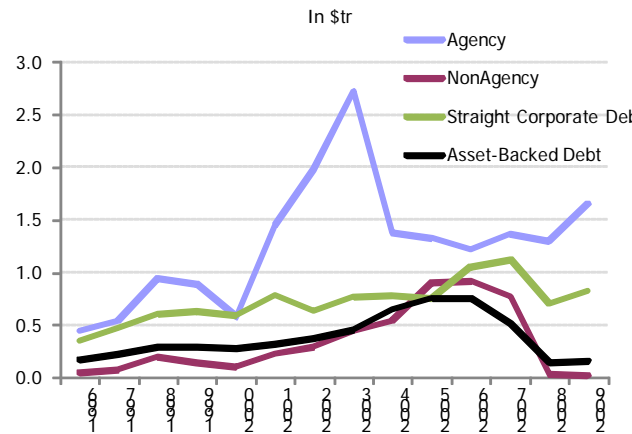
Now things get even more complicated. Given the establishment of an SPE and the subsequent securities, some investors want a vehicle designed for arbitrage opportunities. "Generic" SPEs take balance sheet items and turn them into securities. "Synthetic" SPEs are comprised of items merely linked to other securities and are often called collateralized debt obligations (CDOs). A SPE in this case does not actually own a portfolio of assets, but instead enters into credit default swaps (CDS) that refer to the performance of a given portfolio of assets. CDS may be considered as a kind of insurance contract against default. The synthetic SPEs or CDOs therefore allow market participants to speculate on the probability of default of securities, thereby stretching the elastic band of financial assets in the economy.²

Securitization as outlined above started in 1970 when the Government National Mortgage Association (GNMA) sponsored the issuance of the first MBS, with private-label issuance beginning in 1977. During the 1980s, different mortgage products emerged based on the same MBS theme, but in the same decade equipment leases, auto loans, student loans, home equity loans and credit cards became securitized as well. CDS first became operational in the early 1990s, a development that opened the door for the creation of synthetic SPEs. Now that we understand the jargon and structure of securitization, we next turn to the fundamental demand and supply factors surrounding securitization.

Supply and Demand for Securitization

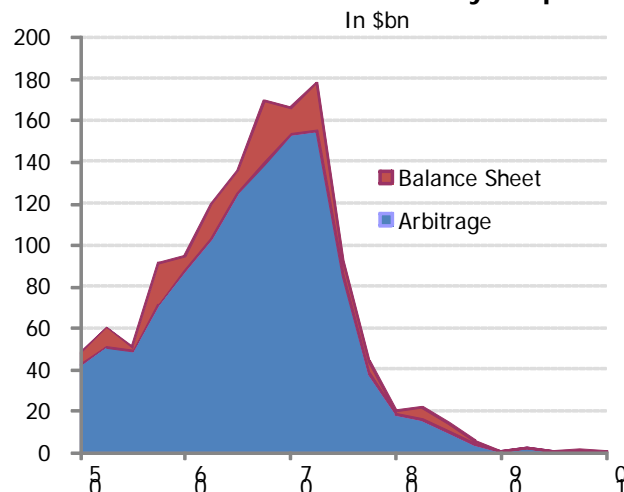
Demand for securitization relies on the quality of everyone's balance sheet, what everyone thinks about everyone else's balance sheet and the ability of

Annual US Securitization Issuance



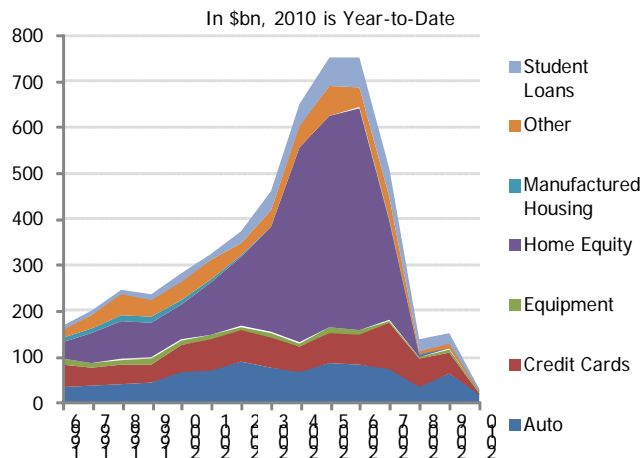
Source: SIFMA

Global CDO Issuance by Purpose



Source: SIFMA

Annual US ABS Issuance



Source: SIFMA

¹ Tymoigne, E, (2009) "Securitization, Deregulation, Economic Stability and Financial Crisis," *Levy Economics Institute Working Paper No 573*

² Stulz, R, (2010) "Credit Default Swaps and the Credit Crisis," *Journal of Economic Perspectives*, 24:1:73-92

everyone to sell something to buy something else, conditional on the first two. We can expect breakdowns in securitization when these elements erode. Alternatively, the supply side represents the structure of production of credit. The US financial system is unique because of its public markets rather than a dependence on bank financing alone, which is the case in most of the world. In other words, because the US financial system is the most modern, the structure of credit production relies more on funding from outside the banking system. The non-bank funding increases the total supply of credit to borrowers through intermediaries. Intermediaries' production of credit is also affected by leverage, the probability of default, equity and the number of intermediaries.

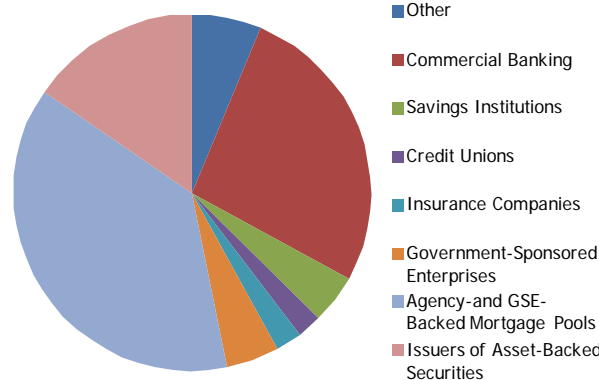
Securitization Demand: The Balance Sheet Effect

From an antiseptic and academic perspective, lenders generally cannot perfectly ascertain the health of borrowers. This is what is termed an agency cost in economics: lenders need to expend time and money investigating potential borrowers. However, wealthy borrowers do not entail high agency costs; their savings and ability to co-invest with lenders significantly lowers agency cost. In total, in an economy where borrowers are healthy there will exist lower agency costs, meaning all lenders summed together will need to expend less on verification of borrowers' health. A negative shock to a borrower's balance sheet reduces investment and pushes output lower. The rising agency cost is countercyclical: the worsening state of borrowers' balance sheets makes it increasingly difficult to borrow money, propagating the economic downturn.³ Put simply, the greater the borrower's balance sheet and the higher the credit-worthiness of the borrower, the higher is the demand for securitization.

Two other demand-side factors remain: first, the issue of liquidity and access to liquidity, and second, the issue of adverse selection in the market overall. With regard to liquidity, corporate financial management perennially deals with the lack of synchronicity between revenues and outlays. Firms may fund themselves as they proceed by tapping market financing or they may hoard liquidity. Since market funding results in agency costs, many firms take the liquidity hoarding route. Sometimes firms can engage in new projects because they have access to liquidity, but other times they may not. A similar tendency occurs in financial markets, but with more dire results. If everyone sells assets at the same time, it is extremely difficult to get out of a position, a process known as a "fire sale" or "cash-in-the-market pricing".⁴ A similar issue is the decline of collateral value during a shock to asset values. If your collateral is suddenly worth less, it is more difficult to sell assets to gather needed liquidity.⁵

Secondly, adverse selection occurs when someone cannot identify perfectly the quality or type of risk posed by an asset. In normal times, the information sensitivity of financial products may not entail significant costs to buyers and sellers. However, in abnormal times, when suspicion grows regarding the motives for trade and the market selection process requires more information-gathering and therefore less liquid and lower volume.⁶ This is why sometimes commentators discuss the role of trust in financial markets. When trust between traders breaks down, this imparts a multiplier effect on valuations of everyone's securities. Instead of a capital charge, we have a morale charge.

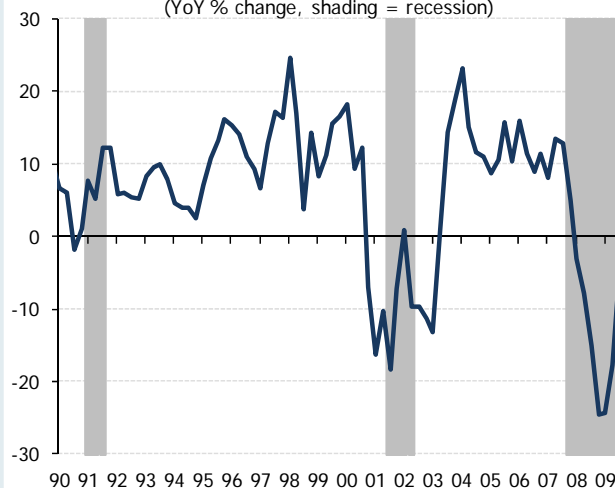
Exposure by Institution, 2009Q4



Source: Federal Reserve; Note: Other includes, pension and retirement funds, state and federal government, REITs, nonprofit, households and corporations.

Financial Net Worth

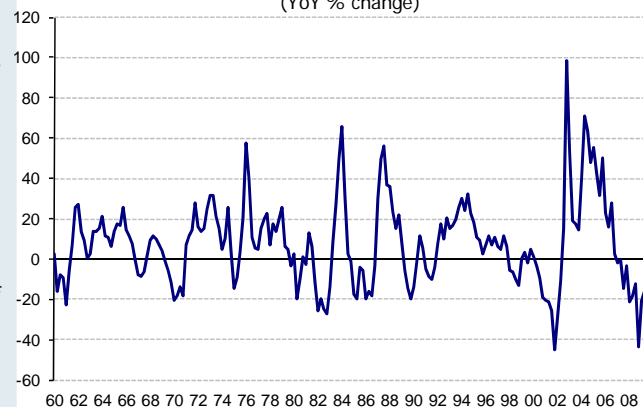
(YoY % change, shading = recession)



Source: Federal Reserve

Business Profits

(YoY % change)



Source: BBVA ERD and Federal Reserve

³ Bernanke, B, Gertler, M, (1989) "Agency Costs, Net Worth and Business Fluctuations," *American Economic Review*, 79:114-31.

⁴ Diamond, D, Rajan, R, (2010) "Fear of Fire Sales and the Credit Freeze," *BIS Working Papers No 305*

⁵ Fostel, A, Geanakoplos, J, (2008) "Leverage Cycles and the Anxious Economy," *American Economic Review* 98(4): 1211-1244

⁶ Tirole, J, (2010) "Illiquidity and all its Friends," *BIS Working Paper No. 303*

Securitization Supply: Factors Enabling Credit Production

Consider a financial system populated by financial intermediaries or banks that stand between borrowers and claim holders. The balance sheet of a bank holds loans to firms and households and claims on other banks, financed by deposits, equity and liabilities to other banks. In the aggregate, we can assume some of these liabilities and assets cancel one another out: first, borrowing and lending between banks, and secondly, loans to firms and households and deposits financing these loans. After deleting these accounting relationships we are left with lending to non-bank borrowers. This lending is funded by total financial intermediary equity and debt from non-banks (or entities outside the traditional banking system). Focusing on the channel of lending from outside funding to ultimate borrowers through financial intermediaries, there are five levers of the supply of securitization: equity, number of intermediaries, leverage, the probability of default, and the proportion of funding occupied by outside funding.

If intermediaries find themselves with surplus equity, they will raise more debt and lend more as they will find themselves with too much equity relative to their chosen value-at-risk. Instead of paying a dividend, most intermediaries will take the opportunity to expand lending and therefore remedy the inefficiency of having surplus equity relative to a chosen risk profile. Increasing the number of intermediaries raises the amount of lending to ultimate borrowers by increasing the number of participants in the system. Similarly, if intermediaries find outside funding increasingly available, intermediaries will increase their leverage. If the probability of default becomes lower, intermediaries increase lending due to the fall in value-at-risk. Interestingly, raising the amount of lending also lowers the probability of default in the short run. This is simply because a larger amount of loans makes the proportion of defaulting loans relatively smaller. This is often the reason why credit booms run out of control: the increased lending creates a false sense of safety as more loan output makes the default component smaller as a proportion of the total.⁷

Imagine, for instance, a new process of securitization that allows greater outside funding to enter the banking system. This causes a shift in the production of loans: the new security and greater outside funding generates more lending. This greater lending lowers the probability of default and increases economic output. A feedback loop ensues, with the improved macroeconomic activity further lowering default, generating higher bank equity and pushing outside funding into intermediaries.

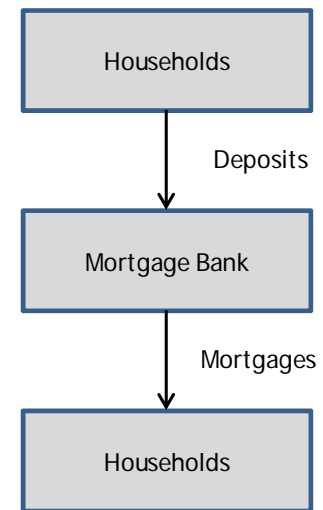
At this point, yet another feedback loop could occur, one that is separate from the macroeconomic linkage. More lending and activity is suddenly chasing a finite number of financial instruments. Greater risk-taking capacity and greater demand will push intermediaries to find or create assets in what is termed an expansion along an intensive margin. Given a set of securitized assets from SPEs, synthetic SPEs are created to allow for additional speculation or investment in these popular securities. Alternatively, new segments of the population – riskier, subprime borrowers, perhaps – are offered loans. This is exactly the process behind how intermediation chains became longer and longer.⁸ In a financial system with less demand for financial products and a supply-side with fewer intermediaries, synthetic products will not grow as quickly as during the boom years.

Hypothetical Intermediary Balance Sheet

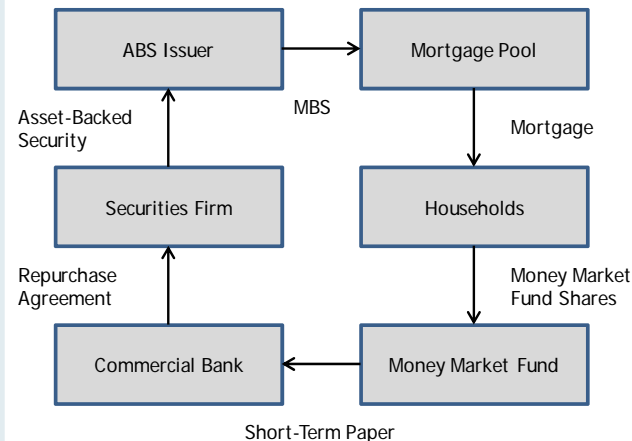
Assets		Liabilities	
Loans to firms and households	Claims on other banks	Liabilities to non-banks (deposits)	Liabilities to other banks
		Total equity	

Assets		Liabilities	
Total lending to ultimate borrowers		Total debt liabilities to nonbanks	
		Total equity	

Short Intermediation Chain



Long Intermediation Chain with Circular Reference



⁷ Shin, HS, (2009) "Securitization and Financial Stability," *The Economic Journal*, 119:309-332

⁸ Shin, HS, (2010) "Financial Intermediation and the Post-Crisis Financial System," *BIS Working Papers No 304*

Given the demand and supply side, it is important to note that markets do not operate within a vacuum. Ports require essential infrastructure to operate effectively: traffic buoys, piers, cranes, accepted practices, and good highway connections. The same is true for financial markets. Infrastructure in this case, however, deals with clear and transparent regulation, enforceable contracts and efficient exchanges and intermediaries. For example, large dealer banks enable intermediation in securities lending, repurchase agreements, derivatives, and prime brokerage. Government often strongly relates to the smooth functioning of securitization markets, most importantly with the invention of MBS. We should not overlook these infrastructural elements and we explore some of the regulatory issues in the next section.

Regulation's Outcome: Tough, but Fair

As this brief is published, the US government is considering provisions to wide-ranging financial regulatory reform legislation. Although specific details are not available, it is our expectation that changes will be important, but not radical to the financial system. Greater capital and liquidity requirements will be placed on different types of intermediaries and for certain lines of business. At the same time, the financial system will avoid forced divestment of activities or bans on activities surrounding derivatives, proprietary trading, private equity and others (known collectively as the Volcker Rule).

The return on equity of the financial industry became extremely high during the decade leading to the financial crisis, largely the result of cheap credit and deregulation. These two factors easily generated historically-high return on equity. While the return on equity of the financial system will not reach such highs as a result of more regulation, on the other hand the financial crisis wiped out a number of competitors, which raises the return on equity of survivors. Also, new regulations will make certain business models relatively less profitable. For example, credit risk retention raises the costs of an originate-to-distribute business model. In total, we expect the return on equity of the financial system to become lower, but not undesirable from an investor's standpoint.

Specifically to the process of securitization, current regulatory reform bills in the House and Senate generally aim for 5% credit risk retention unless underwriting and loan standards meet specific requirements or disclosures. The Securities and Exchange Commission (SEC) recently proposed similar changes that require issuers of consumer loan asset-backed securities (ABS) to retain 5% of their product on their books, a so-called "skin in the game" requirement. Consumer ABS typically represents pools of banks' credit card balances. The credit risk retention levels proposed in Congress will not end the act of securitization, but it will require originators to recalibrate their business models slightly due to higher levels of "skin in the game."

Although the political system is working on important changes to securitization, the independent regulatory bodies governing accounting created perhaps equally significant changes. Alterations to Financial Accounting Standards Board (FASB) Rules 166 and 167 are due to become in effect by the end of the year. These new accounting rules narrow the circumstances under which a transfer of financial assets in connection with a securitization may be considered a sale and expands the circumstances under which banks need to "consolidate" or place on their books entities to which financial assets have been transferred. As a result, more securitization will be treated as secured borrowing.

Previously a securitization to a trust entity (or SPE) would be considered "legally isolated" by the Federal Deposit Insurance Corporation (FDIC) in the case of a bank failure. However, the FDIC is considering changing its "safe harbor" rule meaning that investors in trusts may have to deal with the FDIC

Regulation Timeline

- 28 Jan 2008: Economic Stimulus Act of 2008 Proposed
- 13 Feb 2008: Economic Stimulus Act Signed into Law
- 7 Mar 2008: SEC Proposes Ban on Naked Short Selling
- 15 July 2008: Treasury Secretary Hank Paulson Requests Funds for Fannie Mae and Freddie Mac
- 7 Sept 2008: Fannie Mae and Freddie Mac are Placed in Government Conservatorship
- 19 Sept 2008: Treasury Establishes Money Market Guarantee Program, SEC Bans Short-Selling on 799 Financial Stocks
- 3 Oct 2008: Treasury Bailout Plan Approved by House of Representatives, FDIC Insurance Limit Increased to \$250k
- 14 Oct 2008: Treasury Announces \$250bn Capital Injection Plan, FDIC Insured Senior Debt of Regulated Institutions
- 12 Nov 2008: Treasury Statement on Assistance to Consumer ABS
- 29 Dec 2008: Treasury Injects \$5bn into GMAC
- 16 Jan 2009: Senate Releases Remaining TARP Funds, Bank of America Bailout
- 26 January 2009: Fannie Mae and Freddie Mac ask for \$51bn
- 4 Feb 2009: Treasury Announces Restrictions on Executive Pay at TARP Recipients
- 10 Feb 2009: Treasury Secretary Timothy Geithner Announces Financial Stability Plan
- 18 Feb 2009: Obama Announces Plan to Aid Homeowners with Mortgage Payments
- 23 Feb 2009: Bank Regulators Issue Statement on New Round of Capital Injections
- 25 Feb 2009: Treasury Announces Terms of the Capital Assistance Program

in the event of a failure. This caused high discontent in the securitization market, which resulted in the FDIC changing to the position that "safe harbor" would only be applied to those trusts meeting preconditions such as: capital structure, disclosure, documentation, and compensation.

One of the most controversial parts of securitization reform regards over-the-counter (OTC) derivatives. These instruments are termed OTC because they generally reflect private contracts between firms in order to hedge their price exposure to a price or credit risk. Industrial companies use such instruments to ensure a constant price of inputs for production. Reform efforts focus on taking standardized derivatives and clearing them through an exchange, but there exist possible iterations of reform that severely restrict nonstandard derivatives. Other reform legislation attempts to limit the scope and size of derivatives at financial intermediaries, perhaps even forcing them to divest their operations. We cannot perfectly judge the outcome of such a high-stakes political process, but we expect standardized derivatives to move to clearing houses and nonstandard derivatives to continue. More standardization could end up benefiting the industry as the transparency and supporting market infrastructure may expand participation. In general, this is a sign of a maturing financial instrument and it entails marginal changes to the existing regime. Nonetheless, more stringent derivatives legislation would force a complicated restructuring of the banking system.

All of these measures raise the cost of securitization marginally, but they do not entail radical changes to the existing system. Using the supply and demand framework outlined above, we also better understand the regulators. Regulators wish to apply new consumer protection laws to adjust for the balance sheet or demand side of securitization. Consumer protection aims to combat the collateral effects by preserving standards and ensuring transparent disclosure. Liquidity, leverage, and credit risk retention, on the other hand, affect the supply side of securitization. Overall, regulation today aims to curb excess in financial markets, something exceedingly difficult to accomplish given hundreds of years of financial crises.⁹

Two holes remain in the current dialogue regarding efficient financial regulatory reform. First, high-frequency electronic trading represents a poorly-understood and rapidly-growing area of the financial system. The high speed and enormous message traffic of automated trading systems may or may not pose a systemic risk to the financial system in the future. Part of this future is embodied by the fact that the New York Stock Exchange is building a new high-speed trading facility in New Jersey. High-frequency traders often pay a premium to collocate their servers in the same building as the exchange's servers in order to shorten latency. A second possible hole in reform efforts revolves around the role of broker-dealers. Large dealer banks continue to rely on large amounts of overnight repurchase agreement financing and large OTC derivatives exposures. Current reform legislation does not address the fact that large broker-dealers remain exposed to runs by short-term secured lenders and OTC derivatives counterparties.¹⁰ This remains a clear systemic risk in the economy.

What the Credit System is Telling Us

From a close inspection of the Federal Reserve's Flow of Funds tables, corporate bonds, CRE mortgages, household mortgages and trade credit represent 77% of all credit in the US economy. The bond market is already registering a recovery. This is a positive development after the bond market

Regulation Timeline (Continued)

- 1 Mar 2009: AIG Receives \$30bn from Gov't
- 3 Mar 2009: Treasury Releases TALF Details
- 23 March 2009: Treasury Announces Details of the Public-Private Investment Program
- 7 May 2009: Supervisory Capital Assessment Program to Stress Test Major Banks
- 8 May 2009: Fannie Mae asks for \$19bn from the Treasury
- 13 May 2009: US Treasury Releases Proposal to Regulate OTC Derivatives
- 17 June 2009: President Barack Obama Proposes Financial Regulatory Reform
- 26 June 2009: Treasury Releases CPP Warrant Repurchase Rules
- 8 July 2009: Government Agencies Announce Start of PPIP Programs
- 26 Aug 2009: FDIC Clarifies Qualifications for Acquiring Failed Banks
- 17 Sept 2009: SEC Proposes Flash Orders Ban, New Rules to Govern Rating Agencies
- 29 Sept 2009: FDIC Requires 3 Years of Prepayment for Deposit Insurance
- 22 Oct 2009: Treasury Issues First Ruling on Executive Compensation for TARP Recipients
- 17 November 2009: Obama Establishes Financial Fraud Enforcement Task Force
- 24 Dec 2009: Treasury Announces Unlimited Funds for Fannie Mae and Freddie Mac
- 14 Jan 2010: Obama Proposes Financial Crisis Responsibility Fee (the "Bank Tax")
- 27 Jan 2010: SEC Issues New Rules for Money Market Fund Portfolio Composition
- 24 Feb 2010: SEC Approves Restrictions on Short-Selling

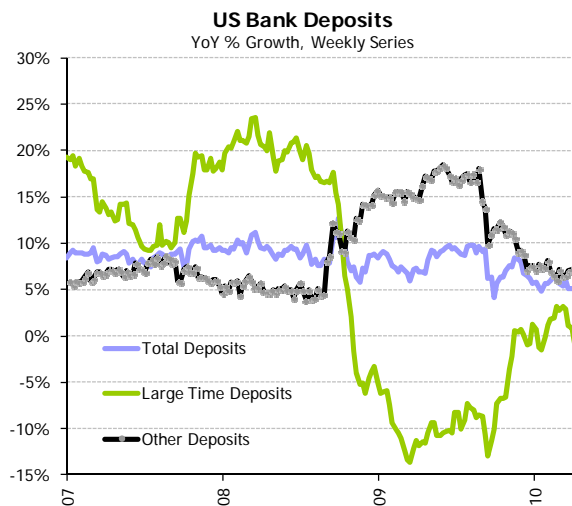
⁹ Greenspan, A, (2010) "The Crisis," *Greenspan and Associates LLC Working Paper*

¹⁰ Duffie, D, (2010) "The Failure Mechanics of Dealer Banks," *Journal of Economic Perspectives*, 24:1:51-72.

reached a standstill from 2008Q4 to 2009Q2. Bonds will therefore help to lead the credit system back to growth and securitization. CRE and household mortgages will begin to support securitization in a similar manner in 2011. Trade credit is only now recovering from a negative shock from 2008Q4 to 2009Q3 and is showing positive growth in 2009Q4. There will not be one quarter where the securitization lights get turned back on. Instead we will witness creeping recovery in different segments at different peaks and troughs until we find liquidity in the markets returning to normal levels.

Bottom Line

Improved fundamentals and a restructuring of intermediaries' credit production through regulation and competitive pressures will support the return of securitization. A more sustainable securitization system will ensue for two reasons. First, the crisis shocked standards back to reality. Second, regulators are awake to the dangers of a lack of adult supervision in long securitization chains. All of these regulatory measures raise the cost of securitization marginally, suggesting these will be incremental rather than radical changes to the system. Given the shrinking of the supply side and the damage to balance sheets, the longest securitization chains will not return for some time. On the production side, institutions cannot view securitization as an extremely cheap technology for loan generation, but it will still exist as part of the financial system and other funding sources like unsecured corporate debt and deposits will see slightly improved usage. On the demand side, economic activity, prices and liquidity will begin to support a healthier securitization market with more disclosure and simplicity. Evidence of this is already present in the return of private-label RMBS and new focus on using simplified products like covered bonds in the US.



Source: Federal Reserve