Confidence must be earned

Amundi Pioneer
ASSET MANAGEMENT

Securitized Assets: A Primer

Executive Summary

- Securitized assets are financial instruments that are backed by residential mortgages, commercial mortgages, consumer loans and other diverse assets.
- Because securitized assets provide concentrated exposure to specific and unique risks, they can be an important tool in constructing an efficient fixed income portfolio.
- Benchmark-focused investors are sometimes under-allocated to the securitized sectors that offer greater yield potential and diversification benefits.[1]
- Securitized assets were at the epicenter of the 2008 global financial crisis. Though much has changed, the asset class remains misunderstood.
- With over 30 years of history in this asset class, we believe the secret to pursuing success in securitized assets is experience and agility.

1. Diversification does not assure a profit or protect against a loss.

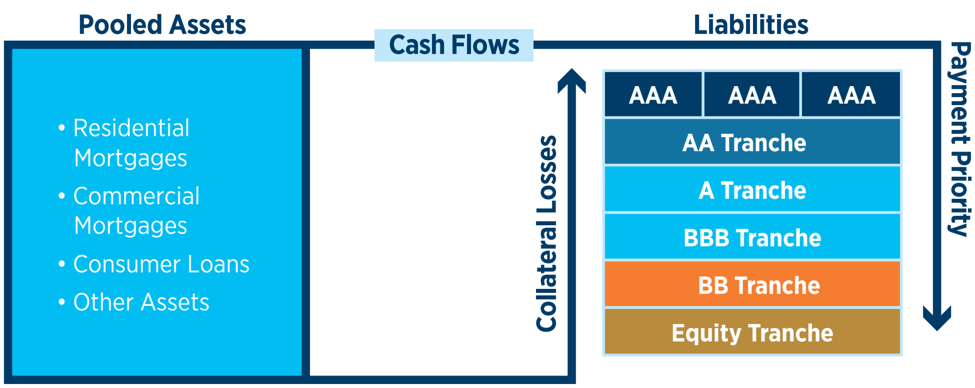
What Are Securitized Assets?

Securitized assets is a broad category for any financial instrument whose cash flows are derived from and secured by specific underlying assets. In a securitization transaction, assets are sold into a trust, which then issues securities backed by those assets. The assets included in securitizations are diverse, but the objective for investors is always the same: to lower the cost of capital by reducing and transferring risk. In the private (non-agency) market, this objective is primarily pursued in three ways:

Securitized assets are financial instruments backed by residential mortgages, commercial mortgages, consumer loans and other assets.

- First and foremost, investors in securitized assets benefit from the bankruptcy-remote nature of the securitization trust, which helps insulate their investment from the unrelated activities of the transaction's sponsor.
- Second, liquidity risk and idiosyncratic risk are reduced by placing hundreds of heterogeneous assets into a trust whose securities can be analyzed and transacted more efficiently, once pooled.
- Finally, while the timing and amount of cash flows for the assets in the trust is uncertain, the securitization's pre-defined payment rules shift these risks to the investors more willing and able to bear them.

Securitizations use predefined payment rules to shift risks to the investors more willing and able to bear them.



Source: Amundi Pioneer. For illustrative purposes only.

In the United States, the most common private securitization involves residential mortgages. In this example, a bank may sell hundreds of mortgages into a trust that issues securities backed by those mortgages (mortgage-backed securities, or MBS).

Though the bank is undoubtedly involved in other activities, the securitization is a bankruptcy-remote vehicle, whose sole source and use of cash are the mortgages and the securities backed by them. Though any individual mortgage is small, illiquid and exposed to idiosyncratic risk, a security backed by hundreds of mortgages can be analyzed using statistical techniques and bought and sold in large, liquid markets. Finally, though each individual mortgage is exposed to the risk that the borrower prepays or does not pay at all, these risks can be redirected to the parties with the most appetite for them by creating various "tranches" with differing payment priorities.

Differentiating the Past from the Present

Subsequent to the success of the mortgage-backed securities market in the 1980s, securitization has expanded to consumer loans, commercial loans, corporate assets, and various esoteric assets. In 2008, this powerful technology led to disastrous results. In our view, rating agencies and investors became complacent with their use of statistical tools. The liquidity of securitizations allowed investors to apply imprudent levels of financial leverage. At every step of the process, conflicts of interest were ignored. The most egregious activities took place in housing, where cumulative loss rates ultimately exceeded 30% on the lowest quality mortgages, but as the market unraveled, prices plummeted for all securitized assets regardless of their fundamental performance. The magnitude of these mistakes culminated in the most severe financial crisis since the Great Depression. Over ten years later, the financial markets and the real economy are still recovering from the fallout.

Subsequent to the crisis, the world has changed.

At its peak in 2005, the non-agency mortgage market exceeded $1 trillion in annual issuance, reflecting an unsustainable 40% market share.[2] Lending practices were predicated on stated incomes, faulty home price appraisals and an untested assumption that home prices never decline in the aggregate. For all of this risk, investors were rewarded with meager risk premiums. Subsequent to the crisis, the world has changed. The non-agency mortgage market is a fraction of its former self, and the unintentionally ironic “affordability products” are now illegal or economically implausible. Even sectors that did not experience credit issues have seen structural enhancements. Despite all of the improvements, memories of the last crisis have kept risk premiums elevated. Having once earned the moniker “toxic assets,” the reputation is hard to shake.

Securitized Assets Are Not Subprime Mortgages

Securitized Sector	Financial Crisis	Today
Subprime Mortgages	30% collateral losses	Pre-crisis underwriting practices are now illegal
Traditional Mortgages	2% collateral losses	Incomes and appraisals are now verified
Commercial Mortgages	5% collateral losses	Securitization structures offer enhanced protection
Credit Card ABS	Zero defaults on senior bonds	US households have de-levered
Auto Loan ABS	Zero defaults on any bonds	Rating agencies have imposed conservativism

Source: SIFMA, Amundi Pioneer.

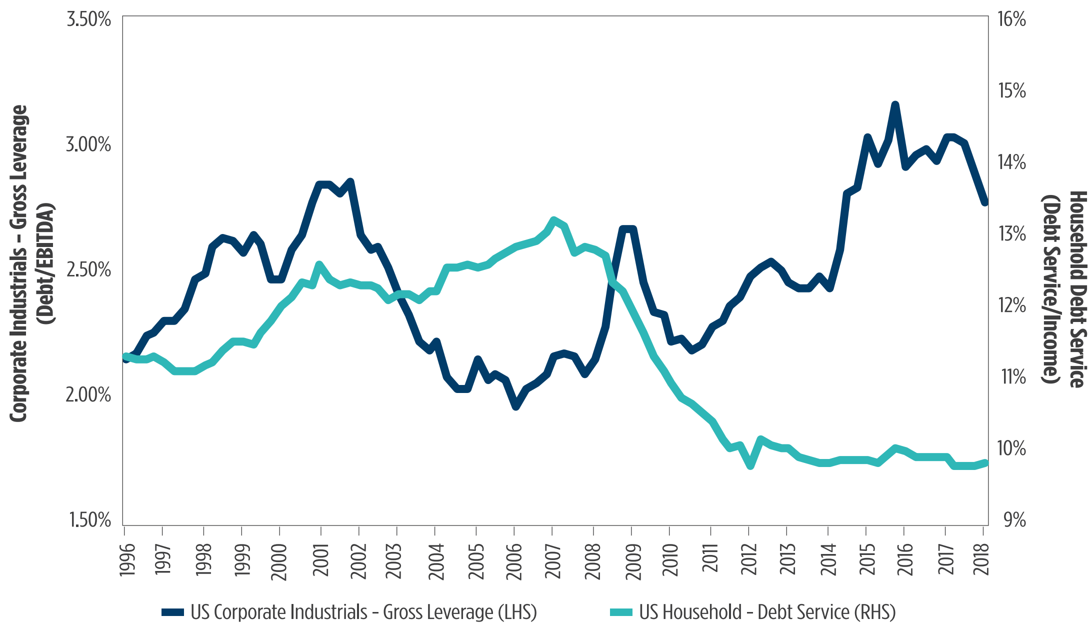
2. Standard and Poor’s as of April 2018.

Post-Crisis Positioning

We believe fixed income investors can position themselves to benefit from the financial health of the US household through investments in securitizations of residential mortgages and consumer loans.

It is said that every general fights the prior war, and in capital markets, it has been rare for the same sector to be the driver of two downturns in a row. With so many market participants focused on the most recent crisis, we believe it is unlikely that securitized assets will be the cause of the next one. Securitized assets, particularly residential mortgages, were the epicenter of the global financial crisis, but after over ten years of highly accommodative monetary policy, it is not the US household that appears to have lost its discipline. We believe fixed income investors can position themselves to benefit from the financial health of the US household through investments in securitized assets.

US Household vs US Corporate Debt



Source: US Federal Reserve, Amundi Pioneer. 12/31/96 to 12/31/18

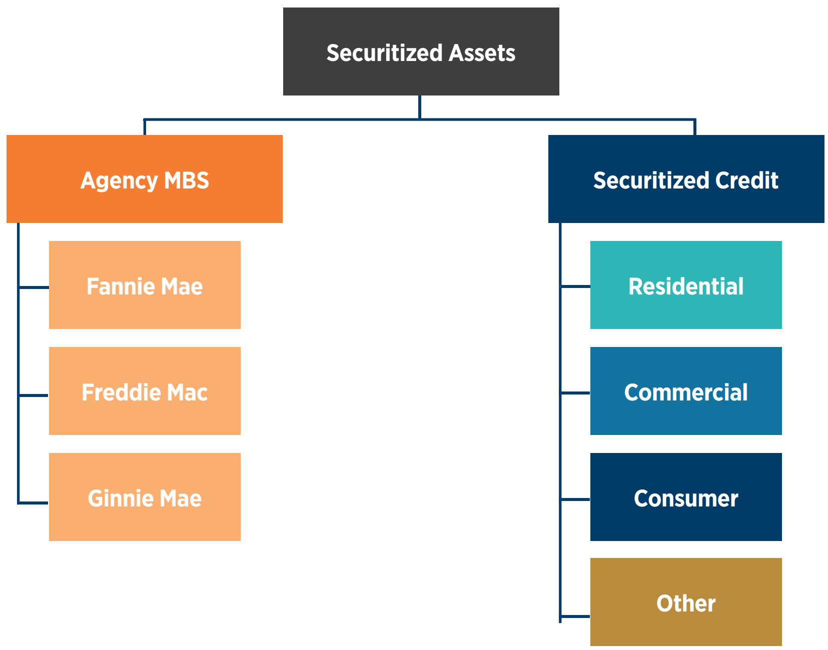
Within securitized assets, investors must also avoid extrapolating the past to forecast the future. In the years after the financial crisis, timely purchases of distressed non-agency mortgage-backed securities enabled outsized returns, but yields on these securities have since compressed to levels that more appropriately compensate owners for their risks. Though this opportunity has subsided, the asset class is still recovering from the crisis. We believe overreactions from rating agencies and regulators have resulted in persistent market inefficiencies. Creditworthy borrowers have been left behind by banks who only recently paid $243B in fines[3] for their pre-crisis sins. Finally, new sectors that emerged from the crisis have remained overlooked or misunderstood, particularly by large or overseas investors.

3. Keefe, Bruyette and Woods, February 2018.

The Role of Securitized Assets in Fixed Income

- *Securitized assets provide concentrated exposure to specific and unique risks, making them an important tool in constructing an efficient fixed income portfolio.*
- *Securitized assets span the full spectrum of credit quality.*
- *We believe securitized credit investors should pair the liquidity of the assets with the liquidity of the investment vehicle.*

Securitized assets provide concentrated exposure to specific and unique risks, making them a tool in constructing an efficient fixed income portfolio. For example, a securitization backed by medical equipment loans has little in common with a securitization backed by a loan on hotel building in New York City, and neither directly overlaps with the interest rate and credit risks already present in a securitization-free portfolio. Further, the risks monetized in securitized assets need not be credit related. In the largest securitization sector, Agency Mortgage-Backed Securities (Agency MBS), investors pursue incremental return through exposure to interest rate volatility risk. By thoughtfully including securitized positions in a portfolio, investors can potentially enhance their position on the efficient frontier of risk and return.



Source: Amundi Pioneer. For illustrative purposes only.

One common misconception is that securitizations are inherently low quality. In fact, constructing a high quality credit portfolio is difficult without the inclusion of securitized assets. Using the ICE BofA ML indices[4] as a guide, there are roughly 100 AAA-rated assets in the US Corporate Index, while the corresponding ABS/CMBS Index offers roughly 2,600 AAA-rated assets. As an extreme example, the Agency MBS market includes over six trillion dollars in securities whose credit quality and liquidity can serve as an alternative to US Treasuries. On the other end of the spectrum, securitized credit offers a diversity of historically higher yielding exposures, particularly in out-of-benchmark sectors and securities.

4. Source: Bloomberg, as of 4/30/19. ICE Bank of America Merrill Lynch (BofA ML) Indices cited as follows: ICE BofA ML US Corporate Index, a broad measure of the performance of US corporate bonds; ICE BofA ML US ABS/CMBS Index, an indicator of asset-backed and collateralized mortgage backed securities; ICE BofA ML US Agency MBS Index, a measure of US agency mortgage backed security performance. Indices are unmanaged, and it is not possible to invest in an index.

Another misconception is that securitizations are illiquid. During the financial crisis, prices plummeted for securitized assets after investors who had applied layers of leverage through short term "repo" financing were forced to liquidate their securitized positions when banks did not renew those facilities. Today, post-crisis regulations have largely prevented investors from reaching the leverage levels capable of generating this type of market dislocation.

Discussions of liquidity are most informative when they differentiate between transaction cost and transaction volume, and securitized assets offer liquidity profiles that span the spectrum across these two dimensions. While Agency MBS and high quality ABS offer liquidity profiles bested only by US Treasuries, by nature of their smaller issuance size and lower transaction volume, it is true that higher yielding securitized assets can exhibit lower liquidity than comparably rated corporate credit. Like any investment strategy, it is critical to price this risk and properly pair the liquidity of the assets with the liquidity of the investment vehicle.

Liquidity in Securitized Assets

	Avg Daily Volume (Billions)	Avg Bid-Ask
Agency MBS	$ 222.67	$ 0.07
Commercial MBS	$ 0.30	$ 0.16
Non-Agency MBS	$ 2.82	$ 0.58
Consumer ABS	$ 1.93	$ 0.09
Corporate Bonds	$ 38.57	$ 0.35

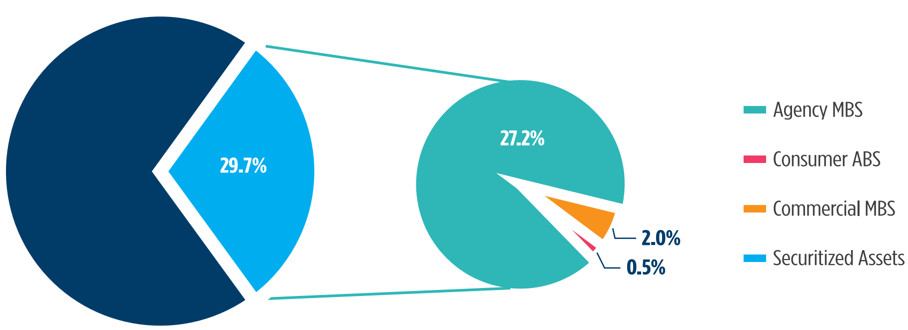
Source: FINRA, June 2017. Most recent data available.

Blocked by the Benchmark

For benchmark-focused investors, securitized assets present a conundrum.

For benchmark-focused investors, securitized assets present a conundrum. Because they compose roughly 30% of the Bloomberg Barclays US Aggregate Index, securitized assets are simply too big to ignore. However, the vast majority of this exposure is to Agency MBS, and the remainder is dominated by a handful of asset types such as car loans, credit cards and commercial real estate. Unfortunately, there are no publicly available benchmarks that adequately capture the full opportunity set of securitized assets. As a result, benchmark-focused investors can be under-allocated to the securitized sectors that offer greater yield potential and diversification benefits.

Bloomberg Barclays US Aggregate Index



Source: Bloomberg, as of June 30, 2019.

Absent a representative benchmark, investors may struggle with how to determine asset allocation and measure manager performance within this sector.

Absent a representative benchmark, investors may struggle with how to determine asset allocation and measure manager performance within this sector. In our view, the answer to the benchmark problem depends upon which question is being asked. With respect to asset allocation, securitized assets can be viewed as an alternative to comparably rated corporate credit exposure. Though the lack of a representative benchmark creates an obstacle to the traditional quantitative asset allocation approach, the intuition of mean-variance[5] optimization suggests modest to moderate exposure is appropriate for securitized strategies that can demonstrate potential yield and diversification benefits with arguably less credit risk versus comparably rated corporate credit. For measuring manager performance, we believe peer group evaluation is most revealing. Manager styles will differ, but much can be learned by comparing the historical returns, volatility and correlations of ostensibly similar strategies. Of course, past performance is no guarantee of future results.

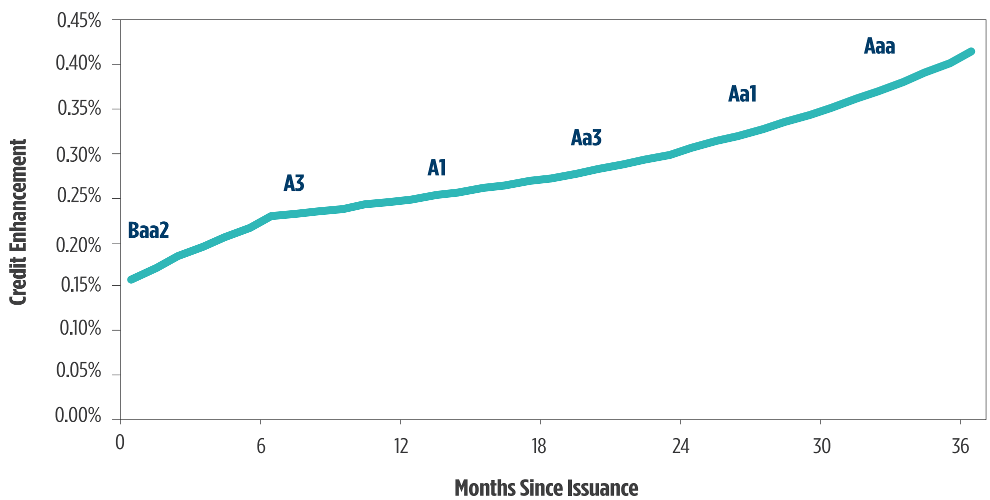
Rolling Down the Credit Curve

Securitizations include payment rules that typically require that principal proceeds, if any, will first be applied to the most senior bonds in the capital structure, while potential asset losses will be first applied to the most junior bonds in the capital structure. While this has the near-term effect of concentrating the credit risk in the junior bonds, as the senior bonds pay down, the remaining risk to the junior bonds declines. As a result, securitizations that have performed well over time can often experience credit rating upgrades and concomitant credit spread compression. Though this process is arguably predictable, persistent inefficiencies, such as investor credit rating constraints, can prevent prices from fully reflecting the market's expectations. By positioning for this process, fixed income investors can pursue total returns in excess of the yield on their portfolio.

Investors in securitized assets can pursue total returns in excess of their portfolio's yield by "rolling down the credit curve".

De-Leveraging Through Time

Example: XYZ Security



Source: Bloomberg and Amundi Pioneer Analytics. Data is shown for illustrative purposes only. Credit quality will vary.

Credit enhancement reduces the credit risk/default risk of a debt, thereby increasing the overall credit rating.

5. Mean-variance analysis is the process of weighing risk against expected return.

Our Approach to Securitized Assets

Amundi Pioneer has managed securitized assets for over 30 years.

Amundi Pioneer has managed securitized assets for over 30 years.[6] We blend sophisticated quantitative tools with common sense qualitative analysis in a bottom-up security selection process that pursues alpha, while also informing our top-down sector and risk positioning. We believe the secret to success in securitized assets is experience and agility. Consequently, each member of our seasoned team of eight experts specializes in an asset class, not a job function. By concentrating the roles of sector strategist, credit analyst and trade execution, we seek to make each investment decision an informed one while we avoid the inefficiencies and inertia that can commonly befall a vertical silo approach in securitized assets.

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6. As of 6/30/19

Securitized assets may increase or decrease more than other fixed-income securities during times of fluctuating interest rates. Mortgage-backed securities are also subject to pre-payments.

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