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**Michael V. Salm**  
Co-Head of  
Fixed Income



**Michael P. Wands, CFA**  
Senior Investment Director



**Robert J. Costello, III, CFA**  
Investment Director,  
Team Leader

# The future opportunity in securitized mortgages

## Key takeaways

**The residential mortgage securities market faces uncertainty in the near future, but the demand for homes and the financing behind it is here to stay.**

**Changes in the regulation and risk architecture of the residential mortgage system will create securitized debt that may offer attractive risk/return characteristics.**

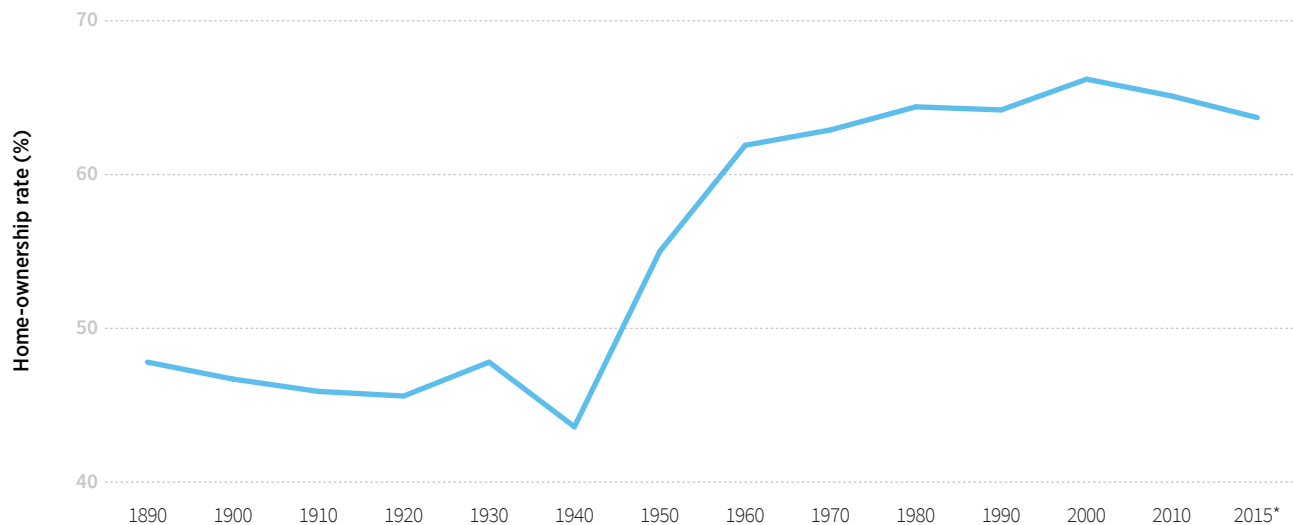
**For investors, we believe this opportunity will present an attractive return potential with low correlation to credit or equity risk.**

The 2008 financial crisis reshaped the landscape of the supply and demand for mortgage securities, and spurred changes in the political and regulatory framework that will govern it going forward. Just how securitized markets will evolve in this new regime remains unsettled, but we expect that changes in the regulation and risk architecture of the residential mortgage system will facilitate new growth in the securitized debt markets. Most importantly, we believe securitized debt markets are likely to offer attractive return potential that competes with corporate high-yield and emerging-market debt.

In this paper, we focus on the regulatory and market-driven steps that may lead to changing supply/demand dynamics in mortgage debt markets. We affirm the long-term need for mortgage credit and look at how changing regulations may create new opportunities for mortgage demand by non-bank entities. Against the backdrop of potential growth in private-label mortgages, we examine how securitized debt markets have offered breadth and diversity, low correlations, and attractive risk/return characteristics to investors in the years since the financial crisis. In our view, the securitized sector offers a fundamentally different risk-adjusted return opportunity, particularly to investors who have the resources and expertise to analyze and potentially exploit this sector.

**Figure 1**

Since the Great Depression, mortgage market reforms have helped boost U.S. home ownership



\*2015 data as of 3/31/15.  
Source: U.S. Census Bureau.

**Mortgage markets here to stay, but with a difference**

As we consider opportunities across the spectrum of fixed-income risk, we analyze three different balance-sheet types: government, corporate, and household. Since the global Great Depression of the 1930s, home ownership has become a fixture in the U.S. economy (Figure 1). Accordingly, mortgage debt constitutes a huge portion of the overall balance-sheet equation. This is particularly the case with households and financial institutions, for which residential mortgages have been of first-order importance for decades. In our view, this fundamental importance of mortgages, as an asset on the balance sheet of financial institutions and as a liability for households, will not change any time soon. At the same time, pools of mortgage debt, we believe, will continue to be a staple for the capital markets and comprise a portion of the overall asset allocation for investors.

This is not to say that mortgage debt markets or the investors who rely on them are free of uncertainty. In the world after 2008, investor risk preferences have undergone massive adjustments, banks and various market makers have dealt with changing market dynamics, and the regulatory landscape is experiencing a dramatic transformation under Dodd-Frank in the United States and Basel III in Europe.

**Rising housing demand in the absence of traditional credit supply**

In the aftermath of the crisis, residential debt outstanding has been declining despite population growth and a recovering economy. Lending rates have declined as banks have focused on lending to, predominantly, the highest-quality borrowers. The post-crisis tightening of lending standards will eventually have to bend to demographic forces. With a population growth rate of just under 1% and an average household size of 2.4 people, the United States needs to create approximately 1.2 million homes each year just to absorb organic demand for housing.

Cyclical factors are also providing additional impetus for a reassertion of demand. The economy has worked through its excess housing stock created in the years before the crisis. Vacancy rates are dropping, owner's equivalent rents have ticked up, and home prices as of the end of 2014, in aggregate, have risen. As the employment picture improves, household formation rates should get another tailwind from eager new homebuyers as they prepare to exit multi-generational living arrangements for their own homes.

As these structural and cyclical demand factors converge, a key question to ask is how the demand for mortgage credit will be met in a new regulatory framework. Following from that, investors should ask how securitized debt markets themselves may evolve and determine the degree to which they may offer compelling risk/reward characteristics relative to other fixed-income sectors.

### **Regulatory impact on mortgage debt markets**

Perhaps an inescapable effect of fundamental regulatory change has been the discouragement of market-making activity by banks. For financial institutions, regulatory reform has raised the blended cost of capital — or the weighted average of the costs of debt and equity financing components — and given rise to much more stringent capital requirements relevant to pre-crisis levels. As a result, banks have come up with two basic methods of passing on these costs: raising the cost of credit for consumers and corporations, and lowering the availability of private-sector credit.

Under such conditions in the wake of economic crisis, the U.S. government has come to play an even more dominant role in the mortgage market, with over 90% of all new origination guaranteed by the government. By contrast, non-agency loan origination has slowed dramatically in the post-crisis world, as only the highest-quality credit borrowers have been able to secure mortgage financing. Additionally, quantitative easing

expanded the Fed's balance sheet with the direct purchase of agency mortgage-backed securities (MBS). Thus, financial regulation and experimental monetary policy have transformed the market, ultimately bringing a greater share of mortgage assets onto the government's balance sheet or backed by an implied government guarantee. With the end of quantitative easing by the Federal Reserve and the potential for government-sponsored enterprise (GSE) reform, we believe this trend has begun to reverse.

### **Basel III: Pushing European banks to the margin**

Basel III, the third installment of the Basel Accords issued by the Basel Committee on Banking Supervision in Europe, had three basic goals: increase minimum capital requirements for banks, increase bank liquidity, and tighten certain gaps through which banks contribute to systemic market risks. With these objectives, Basel III has had much success with financial market de-risking, but it has also pushed banks away from participating in mortgage debt market functions.

For example, under Basel III, mortgage-servicing rights are capped at representing 10% of banks' Tier 1 capital. In addition, proposed changes to leverage ratio calculations, such as the elimination of "netting" for repurchase agreement (repo) positions, will likely reduce the degree to which banks hold mortgage debt on their balance sheets.

Given this backdrop, we believe that non-bank lenders such as real estate investment trusts (REITs) may seek to exploit the fact that they are not subject to these costly capital requirements. This could allow them to become even larger participants in the mortgage debt markets than they currently are, where estimates show that they own over \$300 billion in agency MBS.

## **Dodd-Frank Act of 2010: Fundamental changes to mortgage origination**

The Dodd-Frank Act of 2010 was a multi-layered approach to regulating mortgage loan origination. Additionally, the law created new disclosure requirements for hedge funds, bans on proprietary trading by commercial banks, and a series of investor protections pertaining to securitized debt transactions — all of which have served to alter mortgage debt market dynamics.

Moreover, mortgage reform under Title XIV promises even more dramatic changes for the mortgage brokerage industry. In particular, Title XIV addresses widespread and controversial mortgage-origination practices, such as steering incentives and non-traditional mortgage arrangements that were perceived to have facilitated high-risk lending and contributed to the economic turmoil. The ramifications of these aspects of Dodd-Frank are dramatic as they will impact which loans qualify as agency versus non-agency debt and the type of capital that will be required by originators.

Dodd-Frank will also institute new distinctions on both the origination and securitization of loans. Under the Qualified Mortgage (QM) standard, Dodd-Frank defines lending criteria that will help to ensure that a borrower has a “reasonable ability to repay the obligation,” and will restrict the origination of loans with the riskiest features — such as a lack of income documentation and loans with interest-only or balloon payments. On the securitization side, Dodd-Frank sets underwriting guidelines for mortgages that will be exempted from requirements that a portion of credit risk — at least 5% — be retained by the securitizer. This is known as the Qualified Residential Mortgages (QRM) rule.

## **GSE reform: Fixing Fannie and Freddie**

Since 2008, almost 50 bills have been introduced into Congress to reform Fannie Mae and Freddie Mac. Some of the bills have sought to reduce costs to the taxpayer, while others have sought to change GSE charters if or when the agencies leave government conservatorship — including the possibility of completely eliminating them. In addition to the pending legislation, there are more than 26 proposals published by industry groups, think tanks, academics, and Federal Reserve economists that attempt to refashion the mortgage finance system in a manner consistent with one of three models:

- **Government-backed market** This model would seek to replicate key attributes of the current market with explicit government guarantees of MBS.
- **Private model** The second type of proposal envisions privatizing mortgage financing by eliminating government guarantees of mortgage principal for investors.
- **Hybrid model** In the typical hybrid proposal, the private sector bears principal loss up to a certain loss level (e.g., 10%) before the government guarantee kicks in; the government provides reinsurance in the event that losses exceed this threshold.

In our view, the hybrid model would be the least disruptive to the supply of mortgage credit. It has the potential to utilize much of the efficient and evolved infrastructure already in place to promote market liquidity and transparency. Furthermore, it could also preserve the preferential capital treatment desirable to certain large investor pools.

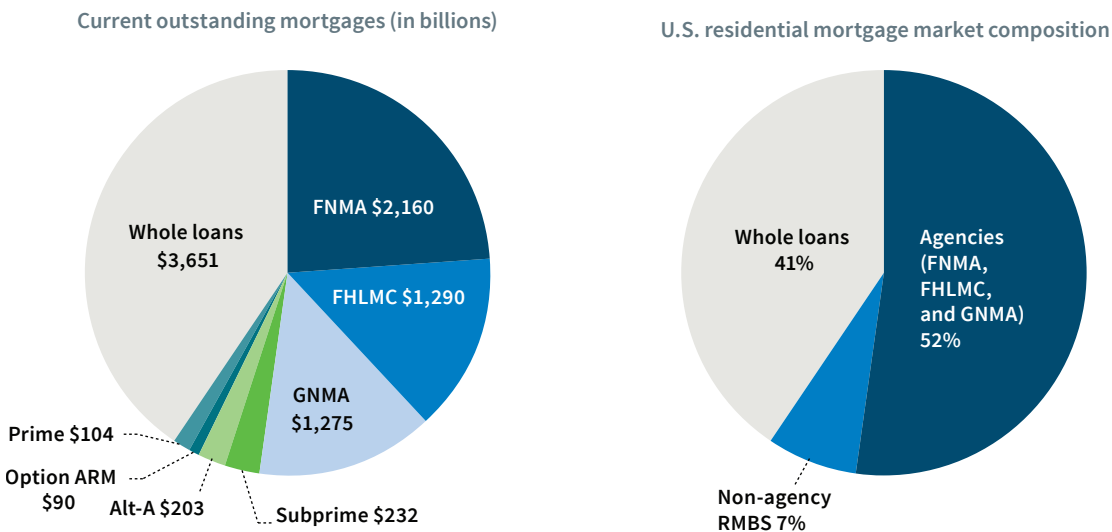
Regardless of which course is taken, we see two undeniable implications of GSE reform: rising costs to borrowers and declining access to government-backed credit. In the first case, so-called “guarantee fees,” or fees targeted by the GSEs for guaranteeing mortgage debt principal, have been described as being lower than would be anticipated in a market oriented more toward the private sector, especially given the uncertainties that we know the housing market can contain. According to the Federal Housing Finance Agency (FHFA), the GSEs are not charging sufficient guarantee fees for certain kinds of risky loans.

In addition, there is the question as to the cost of the unwinding of the Fed’s quantitative easing program. Today, 45% of the \$5 trillion agency mortgage market is held by Fannie, Freddie, or the Federal Reserve. Ultimately, this significant share of mortgage debt will need to be absorbed by the private sector. The private sector does not fund itself at the same level as does the U.S. government; thus, all else being equal, this shift to private-sector funding will likely mean higher mortgage rates.

Second, with respect to access to government-backed credit, we believe an explicit goal of GSE reform is to protect taxpayers from substantial losses from a future housing downturn. In the context of this goal, we expect to see the emergence of a “private guarantee” for the new agency model, the cost of which would be borne by the private sector going forward. Under the proposed hybrid model, the private sector would essentially be able to use its available capital to provide first-loss protection for agency MBS.

Depending on the level of credit enhancement required to step in front of the government guarantee (referred to as the “attachment point”), this could result in between \$250 billion and \$500 billion of additional mortgage credit that the private sector would need to absorb. In 2013, Fannie Mae and Freddie Mac began to engage in so-called credit risk transfer (CRT) transactions. Also known as “agency credit risk transfer” deals, these securities offer private investors higher return potential in exchange for exposure to principal losses from the pools of single-family mortgages that serve as collateral. The success of this market should encourage further steps by policymakers to reduce taxpayer exposure while maintaining broad access to mortgage credit.

**Figure 2**  
Residential mortgages — a \$9 trillion market



Sources: Barclays, Amherst Securities Group (as of 3/31/15).

### Key features of the opportunity

We believe the changing regulatory landscape is likely to have a substantial effect on supply/demand dynamics of securitized debt. Concurrently, investors are looking to achieve their return objectives through a more efficient capture of risk premiums and more effective methods of diversification within their portfolios. The general lack of familiarity with securitized debt on the part of some investors is perhaps attributable to the fact that, unlike investment-grade credit, high-yield bonds, or emerging-market debt, many areas of the securitized debt market lack a long history and broadly followed indexes. However, we believe we can identify three distinct attributes that make securitized debt attractive. The sector’s breadth and diversity, low correlations to other risky assets, and attractive return potential suggest that investors would do well to consider the asset class as part of their fixed-income allocation, and as a complement to other higher-yielding sectors.

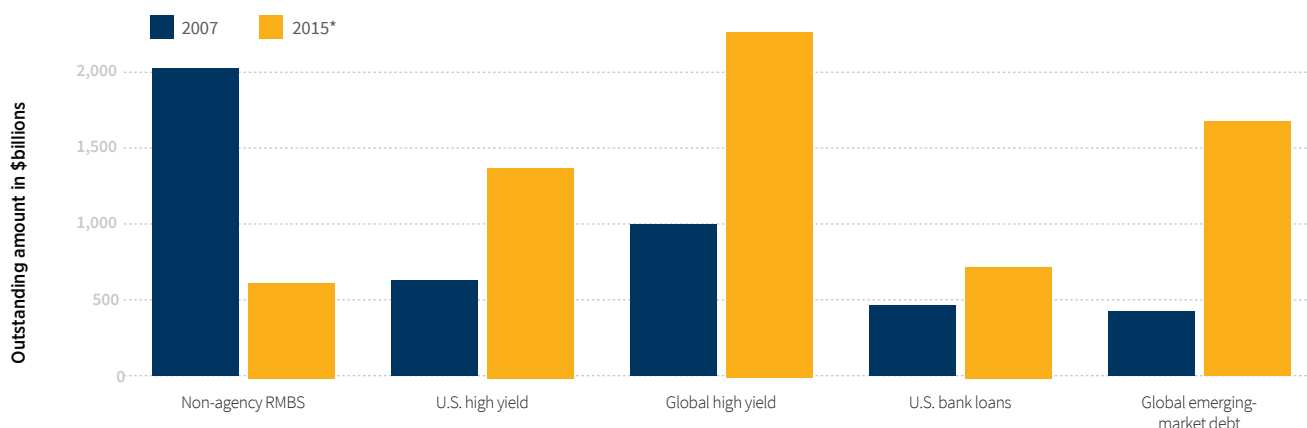
### Breadth and diversity

The U.S. residential MBS market is the largest representation of the securitized sector. It is a broad and diverse market, with different collateral, structural, and liquidity characteristics. In total, the residential mortgage market comprises approximately \$10 trillion in outstanding mortgages, with approximately half composed of agency pass-throughs. Within that agency market exist securities with more structured cash flows such as agency collateralized mortgage obligations (CMOs), and include niche markets such as interest-only (IO) strips. The whole loan and non-agency RMBS markets are typically less liquid than the agency pass-through market, representing approximately \$3.7 trillion and \$630 billion in outstanding mortgages, respectively (Figure 2).

To put this in perspective, the non-agency RMBS market (including prime, pay option ARM, Alt-A, and subprime loans), which is where we continue to see relative value for investors, is a market less than half the size of the U.S. high-yield corporate bond market (though currently shrinking), and slightly smaller than the current bank loan market (Figure 3).

**Figure 3**  
Size of non-agency RMBS market currently smaller than high-yield and emerging-market debt

Many investors now include RMBS in their “opportunistic credit” or “alternative” allocation



Sources: Barclays, Amherst Securities Group. Figures are based on index data: Barclays U.S. High Yield Index, Barclays Global High Yield Index, Barclays U.S. High Yield - Loan Index, and Barclays EM Hard Currency Aggregate. Where there is no available representative index, data are based on a universe of securities selected by Putnam that are representative of various fixed-income sectors and subsectors within the mortgage market. Indexes are unmanaged and do not incur expenses. You cannot invest directly in an index.

\* 2015 data as of 3/31/15.

While we estimate that the non-agency RMBS market will continue to shrink by approximately 10% to 15% per year as a result of paydowns and liquidations, we think this decline could eventually reverse with the development of a new issue private-label MBS market with different collateral and structural features than those that existed prior to the financial crisis.

In our view, non-traditional mortgage credit that is outside the agency universe will always need a source of capital. Satisfying the credit needs of large loan balances and still-emerging rental demand is both vital to housing-market health and for the future development of securitized debt markets. Broad and consistent access to mortgage credit across communities and during varying economic conditions remains a goal of policymakers and should be supportive of this development. Moreover, greater stability in mortgage finance, transparency and standardization of mortgage products, and securitized debt that can be understood and accurately priced by investors may enhance the liquidity characteristics of these sectors.

### **Low correlations of securitized debt**

As we stated at the outset of this paper, the balance sheets of different debt issuers constitute different forms of risk, which supports the basis for a better form of fixed-income diversification. For example, a residential MBS deal with a large number of underlying mortgage loans functions like a large portfolio that exposes investors to many individual household balance sheets. Compare this risk with that of a corporate bond, which exposes the investor to the balance-sheet risk of an individual corporation. In this way, idiosyncratic risk is diversified away from the mortgage security, leaving only systematic exposure to those risk factors that are unique to the broader household sector and not dependent on any individual asset or agent, such as a corporation (or a country, as in the case of sovereign credit risk).

For this reason, securitized debt contains a different type of risk than corporate or sovereign credit risk and can thus be understood as a strong potential diversifier relative to other types of balance-sheet exposures that are found within an investor's fixed-income portfolio. Of course, the underlying collateral and deal structure can vary substantially, which implies different forms of prepayment and default risk within the universe of securitized debt. Various tranches of residential and commercial real estate debt have different cash flow characteristics, which imply a deeper level of diversification potential within the securitized sector.

Looking at a correlation matrix of excess returns from the various sectors within the corporate bond market, the hard-currency emerging-market debt (EMD) sector, and the residential and commercial securitized sectors is a revealing exercise (Figure 4). Significantly, corporate credit correlations were relatively high in the five years ended March 31, 2015. The primary driver of this, we believe, is the fact that the financial crisis had the effect of clearing the ground of weaker credits. Since that time, corporations have, by and large, conservatively managed their balance sheets, which has kept default rates near historic lows. This indicates that the "systematic" credit factor has exerted a strong influence on returns in recent years and caused correlations between credit buckets to increase.

In Figure 4, we have included four distinct subsectors or strategies within the securitized markets: non-agency residential mortgage-backed securities (NA RMBS), agency IOs, commercial mortgage-backed securities (CMBS), and agency mortgage-backed securities (MBS). According to our research, excess returns from the various subsectors of the securitized market have a relatively low correlation to both corporate credit (investment grade and high yield) and emerging-market debt, and also a significantly lower correlation to the equity market. In addition, it is particularly noteworthy that the

intra-securitized sector correlations are remarkably low, and in the case of CMBS versus prepayment strategies, negatively correlated (see data in bold in lower right of chart). In our view, this strongly indicates the presence of systematic securitized risk factors that differ from those found in various types of corporate credit risk. It is also notable that our investigation of the most recent three-year period does not materially change the correlation picture, with two exceptions: CMBS does appear to track equivalently rated corporate spreads, and somewhat more closely, the CMBS subsector tracks non-agency RMBS.

**Figure 4**  
Securitized debt excess returns display low correlations with other asset types

Since 2009, securitized debt has had low correlations to equities as well as to investment-grade and emerging-market debt

Excess return correlation data

	INVIG	HIYLD	Loans	AAA	AA	A	BBB	BB	B	CCC	EM HFX	S&P	NA RMBS	Agency IO	CMBS	Agency MBS
INVIG	1.00															
HIYLD	0.90	1.00														
Loans	0.83	0.88	1.00													
AAA	0.67	0.44	0.37	1.00												
AA	0.97	0.82	0.75	0.72	1.00											
A	0.99	0.89	0.81	0.68	0.97	1.00										
BBB	0.99	0.92	0.87	0.58	0.93	0.97	1.00									
BB	0.89	0.97	0.87	0.40	0.81	0.87	0.92	1.00								
B	0.91	0.99	0.87	0.43	0.83	0.90	0.92	0.98	1.00							
CCC	0.86	0.97	0.85	0.46	0.78	0.85	0.86	0.89	0.94	1.00						
EM HFX	0.85	0.90	0.73	0.49	0.77	0.82	0.88	0.89	0.89	0.85	1.00					
S&P	0.50	0.61	0.37	0.44	0.48	0.50	0.47	0.51	0.57	0.69	0.62	1.00				
NARMBS	0.40	0.28	0.28	0.36	0.42	0.39	0.38	0.32	0.29	0.23	0.31	0.10	1.00			
Agency IO	0.36	0.45	0.48	0.18	0.28	0.34	0.39	0.41	0.40	0.50	0.40	0.25	0.18	1.00		
CMBS	0.56	0.43	0.44	0.39	0.63	0.55	0.54	0.40	0.43	0.39	0.36	0.18	0.32	(0.09)	1.00	
Agency MBS	0.22	0.21	0.23	(0.04)	0.20	0.18	0.27	0.24	0.23	0.18	0.27	(0.01)	0.19	0.15	0.26	1.00

Sources: Barclays, Putnam, as of 3/31/15. For illustrative purposes only. Calculations are based on index data and a broad universe of securities selected by Putnam that are representative of various fixed-income sectors and subsectors within the mortgage market. Please see the disclosures at the end of the article for a list of indexes for these calculations. Indexes are unmanaged and do not incur expenses. You cannot invest directly in an index.



Another powerful illustration of the securitized sector's diversification potential is evident in a comparison of pairwise returns during extreme periods. Visualizing joint distributions can be a useful way to determine if a sector provides diversification, even in extreme events. In Figure 5, we plot distributions of return rankings for various fixed-income sectors compared with S&P monthly returns since 2009.

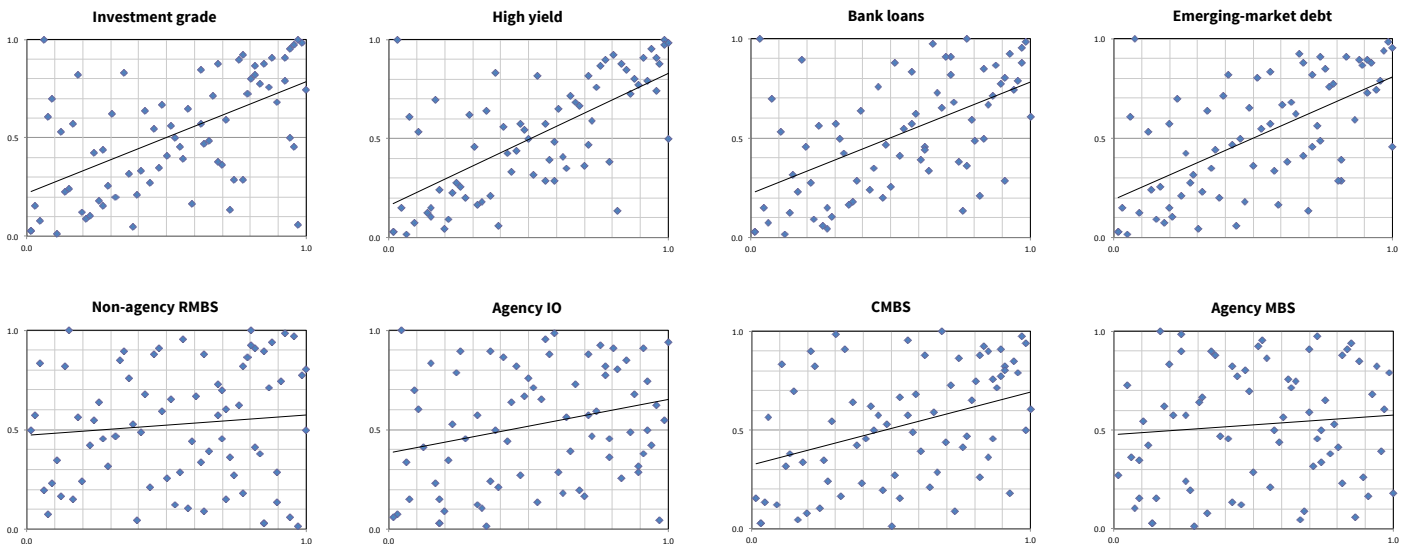
Rank-order methods enable us to smooth out the presence of outliers by correlating the rankings of a data set instead of the values themselves. Therefore, it allows us to see the relative positioning of a data point

within its data set. More steeply sloping lines indicate the clustering of results around the extremes ( $[0,0]$  and  $[1,1]$ ), which denote high correlation. From a diversification standpoint, the more desirable result is a flatter line with a correspondingly broad distribution of correlation rankings. As Figure 5 illustrates, investment-grade and high-yield credit, bank loans, and emerging-market debt all exhibit relatively high correlations, as evidenced by the upwardly sloping line. Compare this with the securitized sectors, which display a form of diversity that other risky fixed-income sectors did not achieve during the post-crisis period.

**Figure 5**

## Securitized debt has been an attractive source of diversification

Even under extreme circumstances, securitized debt has provided diversification



## Attractive return potential

While diversification is desirable, it is not the only portfolio objective, as investors typically focus on maximizing returns in the context of constraints on risk. For securitized debt, the excess return story is particularly compelling as we again look back over the current recovery period (Figure 6).

As Figure 6 demonstrates, according to our research, the securitized sector delivered impressive risk-adjusted returns in the period since the crisis. The prepayment subsector (i.e., interest-only collateralized mortgage obligations) was the top-performing area, though it did carry correspondingly high volatility, while the non-agency RMBS and CMBS subsectors displayed the best risk-adjusted returns — with approximately twice the information ratio of intermediate-term investment-grade bonds. It is worth noting that bank loans also had an information ratio close to 2.0 during this period, which compares favorably with the securitized strategies.

Adjusting the lens to cover the most recent three-year period, which excludes the significant performance rebound that occurred in 2009 and 2010, non-agency RMBS and CMBS continue to display high risk-adjusted returns (Figure 7).

The prepayment sector notably underperformed other areas within the securitized sector over the past three years, which we attribute to the unprecedented government policy response to unclog the mortgage credit channel and promote homeowner refinancing, programs that have been reasonably successful as the housing market has rebounded. However, in our view, the recent rise in mortgage rates suggests that prepayment-risk-related securities, such as interest-only collateralized mortgage obligations, are entering a period of more promising conditions in the coming year to two years.

**Figure 6**

## Securitized debt excess returns in the post-crisis period

Strongest risk-adjusted results have been in CMBS credit and non-agency RMBS

Since 2009	INV GR	HIYLD	Loans	AAA	AA	A	BBB	BB	B	CCC	S&P	EM HFX	NA RMBS	Agency IO	CMBS Credit	MBS AAA
Annual excess	4.23	12.73	12.00	0.65	2.40	4.10	6.21	11.17	10.97	16.74	13.97	9.90	12.40	21.50	15.24	0.86
Annual vol	4.62	9.73	6.33	1.17	3.43	4.94	6.09	8.14	8.98	13.99	14.47	8.86	5.83	15.43	7.20	1.45
Info ratio	0.92	1.31	1.90	0.56	0.70	0.83	1.02	1.37	1.22	1.20	0.96	1.12	2.13	1.39	2.12	0.59

Sources: Barclays, Putnam, as of 3/31/15. For illustrative purposes only. Calculations are based on index data and a broad universe of securities selected by Putnam that are representative of various fixed-income sectors and subsectors within the mortgage market. Please see the disclosures at the end of the article for a list of indexes for these calculations. Indexes are unmanaged and do not incur expenses. You cannot invest directly in an index.

**Figure 7**

## Securitized debt excess returns without the first leg of the market recovery

Prepayment risk may do increasingly better should rates rise

Past 3 years	INV GR	HIYLD	Loans	AAA	AA	A	BBB	BB	B	CCC	S&P	EM HFX	NA RMBS	Agency IO	CMBS Credit	MBS AAA
Annual excess	1.72	5.46	4.91	0.44	0.83	1.84	2.14	5.37	5.30	6.28	10.61	6.98	14.34	7.38	8.47	(0.40)
Annual vol	2.39	4.52	1.94	0.58	1.61	2.30	3.26	4.13	4.53	5.81	8.55	7.90	5.57	8.08	2.02	1.54
Info ratio	0.72	1.21	2.54	0.76	0.51	0.80	0.66	1.30	1.17	1.08	1.24	0.88	2.57	0.91	4.19	(0.26)

Sources: Barclays, Putnam, as of 3/31/15. For illustrative purposes only. Calculations are based on index data and a broad universe of securities selected by Putnam that are representative of various fixed-income sectors and subsectors within the mortgage market. Please see the disclosures at the end of the article for a list of indexes for these calculations. Indexes are unmanaged and do not incur expenses. You cannot invest directly in an index.

**Figure 8**

## Non-agency RMBS offer competitive yields

Non-agency RMBS loss-adjusted yields compare favorably with other higher-yielding fixed-income sectors

	<b>Non-agency RMBS</b>	<b>U.S. high yield</b>	<b>Global high yield</b>	<b>U.S. bank loans</b>	<b>Global emerging-market debt</b>
Yield to worst	4% to 9%	6.18%	6.27%	5.23%	4.95%
Duration	0 to 5 years	4.2 years	4.3 years	4.2 years	6.0 years

Sources: Barclays U.S. High Yield Index, Barclays Global High Yield Index, Barclays U.S. High Yield - Loan Index, Barclays EM Hard Currency Aggregate. Data as of 3/31/15. Where there is no available representative index, data are based on a universe of securities selected by Putnam that are representative of various fixed-income sectors and subsectors within the mortgage market. Yield to worst for non-agency RMBS is loss adjusted to a conservative home-price scenario.

Duration shown for bank loans is spread duration.

When comparing yields across the various sectors within the fixed-income market, many of the subsectors within the securitized debt market exhibit attractive characteristics. Yields for non-agency RMBS, for example, are quite competitive relative to other fixed-income asset types, even adjusting for future expected losses and as individual loans default despite an improving housing market (Figure 8).

### Conclusion

The securitized sector is a viable alternative to other traditional fixed-income asset types. It has highly desirable portfolio diversification qualities and can compete with other sectors along the risk-return spectrum. Against the backdrop of regulatory change, and what we believe are promising conditions for the advent of a new private-label mortgage market, the securitized sector represents one of the most attractive portfolio options to investors today — particularly for those investors who have generally turned to high yield and emerging markets to pursue returns.

Furthermore, we believe the securitized sector can become more global in nature, both in the opportunity set as well as in terms of investor interest. Emerging economies could potentially be the largest source of housing debt on the globe. With regulatory focus on securing depository institutions while removing taxpayer liability from private-sector risk-taking, the capital markets will only grow as a provider of long-term, permanent capital for housing. It is our expectation that investors will continue to have the potential to realize attractive risk-adjusted returns from the securitized sector for the foreseeable future.

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Indices used in Figures 4–7 include the Barclays U.S. Corporate Index, Barclays U.S. High Yield Index, Barclays U.S. High Yield - Loans Index, Barclays U.S. Credit: AAA, Barclays U.S. Credit: AA, Barclays U.S. Credit: A, Barclays U.S. Credit: BBB, Barclays U.S. Credit: BB, Barclays U.S. Credit: B, Barclays U.S. Credit: CCC, and the Barclays EM USD Sovereign Indices. Where there is no available representative index, data is based on a universe of securities selected by Putnam that are representative of various fixed-income sectors and subsectors within the mortgage market. You cannot invest directly in an index.

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