

17 October 2011

# Securitization Reports

## Will PrimeX deliver the next big short miracle many of us missed in 2007?

### Commentary

*Despite weak fundamentals and technicals in the PrimeX market, we believe that the PrimeX indices are oversold at their current levels.*

- PrimeX has gained a great deal of attention, especially after Fitch's October 5 report on prime RMBS.
- The PrimeX indices have dropped sharply since the beginning of October, while the broader market had its best two-week rally since 2009.
- Despite weak fundamentals and technicals in the PrimeX market, we believe the PrimeX indices are oversold at their current levels.
- A massive decline from current price levels does not seem sustainable, given that future home price declines have been mostly priced in.
- The high running coupons of the PrimeX indices are significantly more expensive to carry for shorting the PrimeX.
- Prime jumbo mortgage delinquency rates have steadily increased, diverging from other mortgage sectors.
- Majority of loans in PrimeX were originated in the worst housing markets, during the peak of the housing bubble.
- Over 50% of loans originated in the four "sand states," – California, Florida, Arizona and Nevada – during the peak of the housing bubble.
- Borrowers in FRM.2 and ARM.2 indices are experiencing a severe negative equity crisis similar to homeowners with Subprime and Alt-A loans.
- We find that underwater prime jumbo borrowers are more likely than other borrowers to exercise the strategic default options.<sup>1</sup> However, the negative impact of strategic default to the prime market is marginal, by our analysis.

<sup>1</sup> The Outlook in MBS and Securitized Products, Identifying mortgage strategic defaults, Shen, Y., and J. Wu, 5 October 2011.

Deutsche Bank Securities Inc.

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### Market Update

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The PrimeX indices<sup>2</sup> have experienced a sharp decline since the beginning of October despite an 11% rally of the Standard & Poor's 500 Index, the biggest two-week rally since 2009. The price drop can be viewed as a catch-up to the overall market selloffs following investors' growing fear over the sovereign debt crisis in Europe, increasing likelihood of a global recession, and a weak US housing market. The Fitch's report<sup>3</sup> on the prime RMBS sector published on October 5 and a subsequent article by ZeroHedge on October 7<sup>4</sup> fueled the panic selloffs in the last few days, during which we have received far more inquiries about PrimeX than the combined inquiries about PrimeX and ABX over the last two years. It appears to us that many investors have suddenly turned their attention to the PrimeX. Investors from around the world have been wondering whether the PrimeX of 2011 will repeat the ABX miracle of 2007.

There is a lot of evidence that suggests the fundamentals of the prime jumbo market continue to deteriorate based on metrics such as delinquency rate, loss severity, and percentage of underwater borrowers. The technical of the prime jumbo market is disturbingly weak. The cash market is still quite dysfunctional, given that most investors have chosen to remain on the sidelines. The PrimeX market is thinly traded so that it does not take much volume to cause a big PrimeX price move. Additionally, the weak US economy is struggling with uncertainties from the sovereign debt crisis in Europe, inflation in BRICS nations, a possible hard landing in China, and an increasing likelihood of global recession.

Despite all the evidence that favors bearish investors shorting the PrimeX indices, we believe that the ultimate driver of the PrimeX market is the future home price. More precisely, the PrimeX indices will likely be determined by difference between the realized and the market-expected home price.

Based on Deutsche Bank's loan-level models across the mortgage credit spectrum, we can estimate the 'implied future home price declines (HPD)' based on today's market price of the PrimeX indices. We believe the PrimeX indices have been oversold compared to home price projections by Deutsche Bank and most other firms. At their current levels, we believe a massive price decline would not be sustainable. Furthermore, the high running coupons of the PrimeX indices (442 bp for series 1 and 458 bp for series 2) are significantly more expensive to carry for shorts.

### **The PrimeX indices have declined sharply since the beginning of October**

The longs of the PrimeX indices must have had similar feelings to those who longed the ABX in 2007. The four PrimeX indices have plunged 6% to 10% during the last two weeks, while the Standard & Poor's 500 Index has gained 11%, capping its best two-week rally since 2009. More precisely,

- ARM.1 price has dropped from 102.44 on October 3 to 96.13 on October 14;
- FRM.1 price has dropped from 106.17 on October 3 to 99.69 on October 14;
- ARM.2 price has dropped from 92.93 on October 3 to 84.13 on October 14; and
- FRM.2 price has dropped from 97.81 on October 3 to 89.31 on October 14.

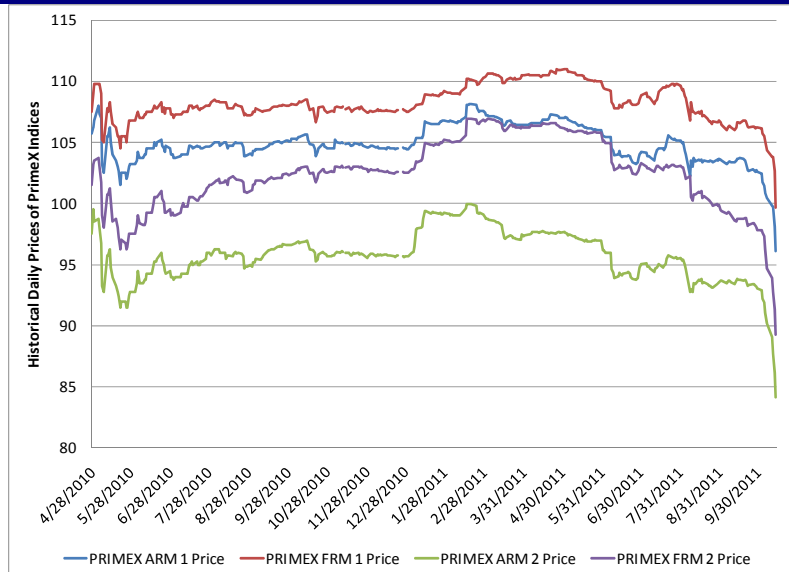
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<sup>2</sup> Securitization Reports, An Introduction to PrimeX Indices, Shen, Y., S. Abrahams, A. Rothschild, J. Wu, 26 April 2010.

<sup>3</sup> Fitch Ratings, U.S. Prime RMBS Performance Declines Continue –Negative Equity Drives Weak Performance, Special Report, 5 October, 2011.

<sup>4</sup> ZeroHedge, PrimeX – The Time for the Next "Subprime Trade" Has Come, 7 October, 2011, <http://www.zerohedge.com>.

**Figure 1: The PrimeX indices have experienced a sharp drop in prices since the beginning of October**



Source: Deutsche Bank and Markit

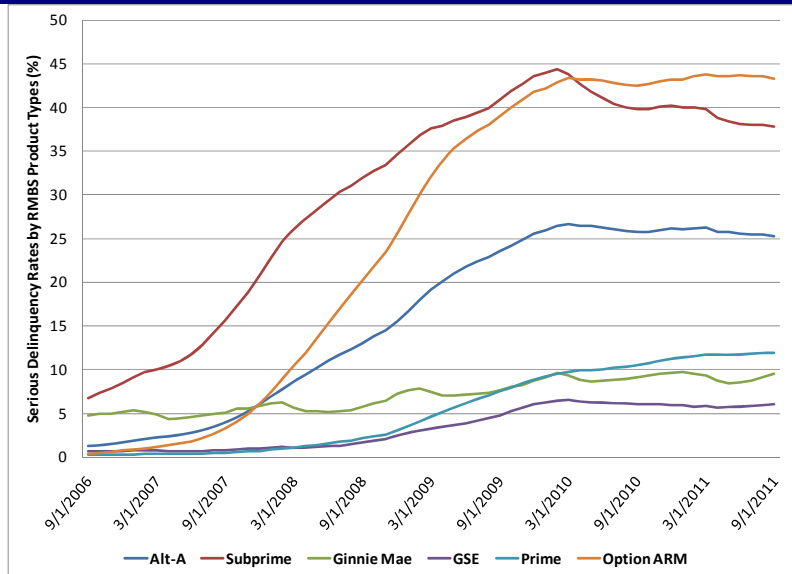
### Weak performance is driven by deteriorating mortgage fundamentals

The widely used metrics that measure mortgage credit performance are various delinquency rates, size of the negative home equity, and loss severities. Negative equity is a necessary condition to default because a borrower with positive equity can always sell the house at a profit and hence avoid default. However, negative equity is not a sufficient condition to default. Seriously delinquent borrowers with sizable negative equity will most likely head to the inevitable because they lack both means and incentives to fulfill their mortgage obligations. Once a loan is in default, it is the severity that matters to lenders or investors. Therefore, the actual bond cashflows to non-agency MBS investors depend on delinquency rates, percentage of negative equity and loss severities.

### Despite stabilization in other sectors, prime jumbo delinquency rates have steadily deteriorated

Delinquency rates of subprime, Alt-A and option ARM have stabilized recently, after a parabolic rise since the beginning of the Great Recession. However, the prime jumbo sector has diverged from other mortgage sectors in that the serious delinquency rate has been steadily increasing. At 14% as of September 2011, we expect that prime jumbo delinquency rate will continue its upward trajectory with no sign of that trend reverting soon (Figure 2).

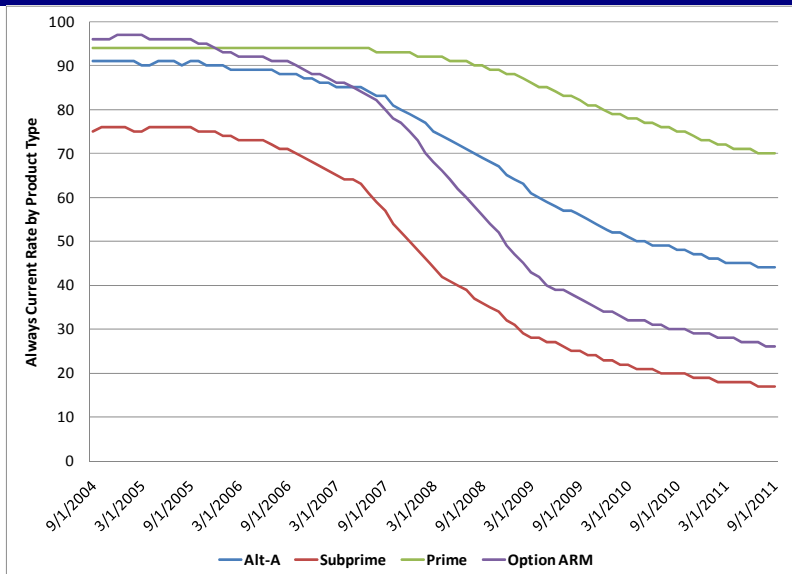
**Figure 2: Prime jumbo and Ginnie Mae serious delinquency rate continues to deteriorate despite stabilization in other mortgage sectors**



Source: Deutsche Bank and LoanPerformance

Another metric that measures borrower's payment history is the "always current" rate. A borrower is called always current if he or she has never missed any mortgage payment since its origination. Figure 3 shows that 70% of prime jumbo borrowers are always current. By comparison, less than 20% of subprime borrowers are always current.

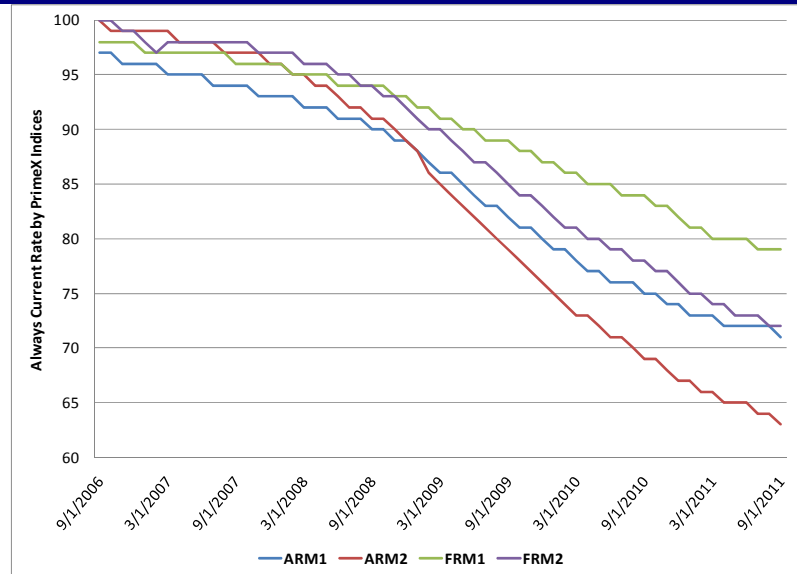
**Figure 3: 70% of prime borrowers have always been current on their mortgage payments**



Source: Deutsche Bank and LoanPerformance

Among the four PrimeX indices, FRM.1 has the best payment history and ARM.2 has the worst payment history measured by the "always current rate" (Figure 4).

**Figure 4: FRM1 performs the best and ARM2 performs the worst measured by the always current rate**

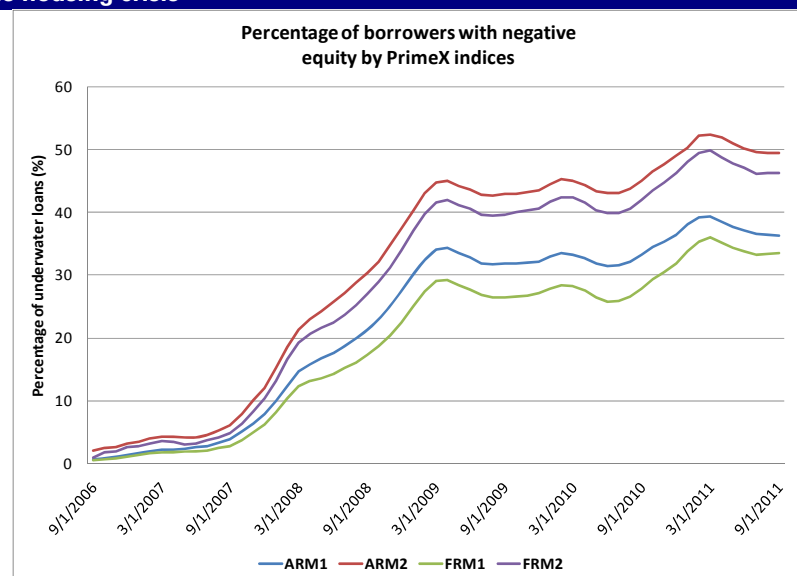


Source: Deutsche Bank, LoanPerformance and Markit

*High percentage of underwater borrowers should continue to have a negative impact on PrimeX, but strategic defaults have been marginal*

Prime jumbo borrowers are not immune to the worst housing crash since WWII. Most prime jumbo borrowers reside in high cost regions that have experienced worse home price declines from originations than typical Alt-A and subprime borrowers. However, prime borrowers generally had higher down payments that resulted in lower LTV. As of September 2011, more than 30% of outstanding prime jumbo loans had negative equity, that is significantly lower than subprime, Alt-A and option ARM loans.

**Figure 5: Percentage of underwater borrowers in PrimeX indices has risen sharply since the housing crisis**



Source: Deutsche Bank and LoanPerformance/CoreLogic and Markit

Borrowers in the PrimeX indices have worse negative equity problems than the average prime jumbo borrowers. That is primarily due to the fact that loans in referenced deals in each PrimeX index were originated between 2005 and 2007. Specifically, vintages of the referenced deals in each index are defined as follows:

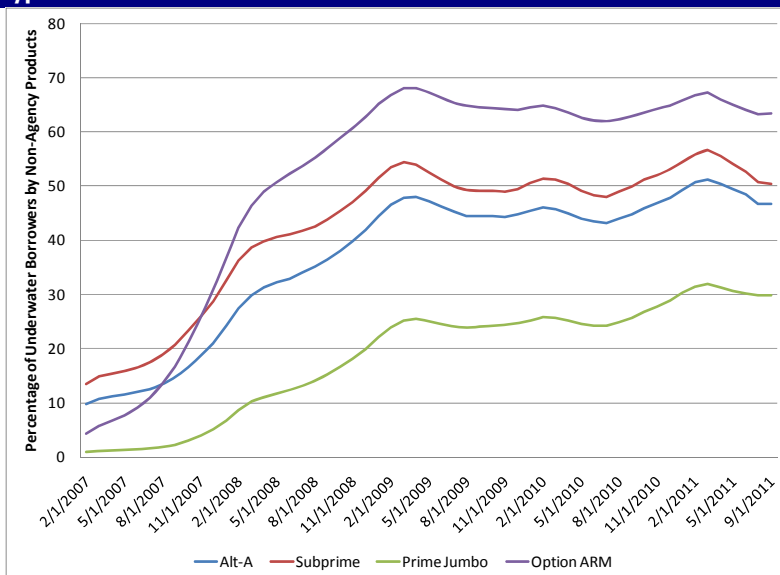
- PrimeX.FRM.1 and PrimeX.ARM.1 (issued between 1/1/2005 and 7/1/2006)
- PrimeX.FRM.2 and PrimeX.ARM.2 (issued between 7/1/2006 and 12/31/2007)

If we aggregate home price index (HPI) across the entire U.S., the peak of the HPI is Q2 2006. Consequently, loans originated around the housing peak most likely have seen their home equities turn upside down.

Furthermore, the majority of loans in PrimeX indices were originated in the four “sand states”: California, Florida, Arizona and Nevada (see our primer on PrimeX, An Introduction to PrimeX Indices, 26 April, 2010).

Therefore, it is fair to say that loans in PrimeX were originated in the wrong place at the wrong time. And loans in series 2 were originated in a worse time than loans in series 1. Figures 5 and 6 indicate that borrowers in FRM.2 and ARM.2 are experiencing a similar negative equity crisis to homeowners with subprime and Alt-A loans. As of September 2011, 46% and 49% of jumbo borrowers in FRM.2 and ARM.2 are underwater, respectively. By comparison, there are 47% and 50% of underwater borrowers with subprime and Alt-A mortgage loans, respectively (Figure 6).

**Figure 6: Percentage of underwater borrowers by various non-agency mortgage product types**



Source: Deutsche Bank, LoanPerformance/CoreLogic

Many people in the mortgage business, in academic research, and in the news media have paid a great deal of attention to strategic default given the elevated delinquency rates and high percentage of underwater borrowers. For borrowers who are deeply underwater, strategic default from a house with negative equity may make sound economic sense, even after the negative impact on borrower's credit score and potential legal consequences. But even when strategic default from underwater properties makes economic sense, many homeowners don't do it because of moral and social considerations, along with the fear of legal consequences. Moral and social considerations are important variables in underwater borrowers' default decision process. Recourse is another important variable in a

homeowner's strategic default decision process. The existence of recourse to assets other than the mortgaged property is a powerful disincentive for underwater borrowers to exercise their "in-the-money" default option.

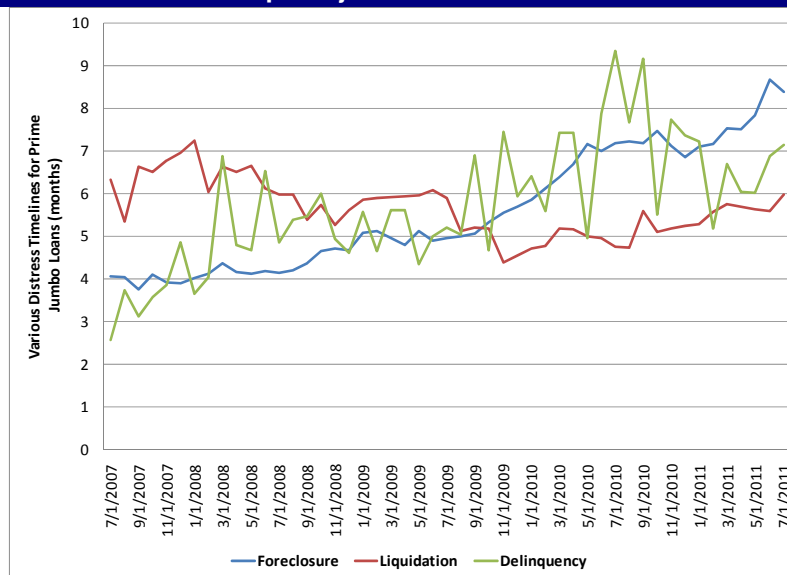
Our work shows that recourse has a significant deterrent effect on borrowers' default if negative equity is bigger than 10% of the house value.<sup>5</sup> In the absence of deficiency judgments, we found that underwater prime jumbo mortgage borrowers are more likely than other mortgage borrowers to exercise strategic default options. However, the magnitude of strategic defaults is generally less than 5% on a cumulative basis, not significant enough to cause a big PrimeX price move.

### Loss severity of the PrimeX indices should continue to rise

Severities of prime jumbo loans have increased sharply since the beginning of the housing crisis. There are two major components that ultimately determine the loss severity of a loan: the carry costs and the market value decline of the property. While market value decline is hard to predict, carry costs are generally easy to estimate. Most parts of the carry costs are usually fixed. For example, fixed costs usually consist of property tax, insurance, principal and interest payments, homeowner association fees, maintenance cost, clean up, foreclosure documents, legal costs, and sales commission.

The steady rise of delinquency rates should have negative impact on future loss severities. Elevated delinquency rates should result in longer delinquency, foreclosure and liquidation timelines (Figure 7). Both delinquency and foreclosure timelines of prime jumbo loans have extended significantly since the housing crisis.

**Figure 7: Distress timelines for prime jumbo loans have risen since the housing crisis**



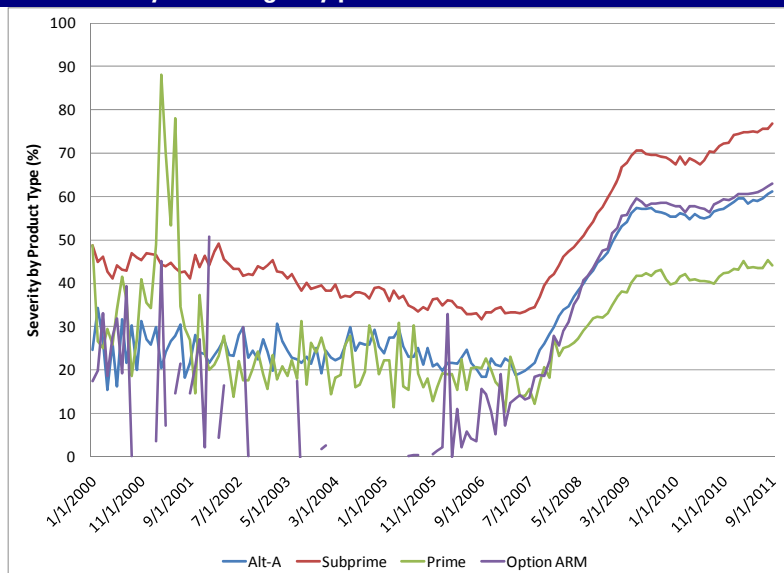
Source: Deutsche Bank and LoanPerformance

Longer distress timelines should imply greater loss severities because of servicing advance. It is also well-known that prime jumbo servicers have not implemented servicing strategies to stop advance. Therefore, distress timeline extensions should have greater negative effects on prime loss severities than on subprime loss severities.

<sup>5</sup> Identifying mortgage strategic defaults, Shen, Y. and J. Wu, The Outlook, 5 October 2011.

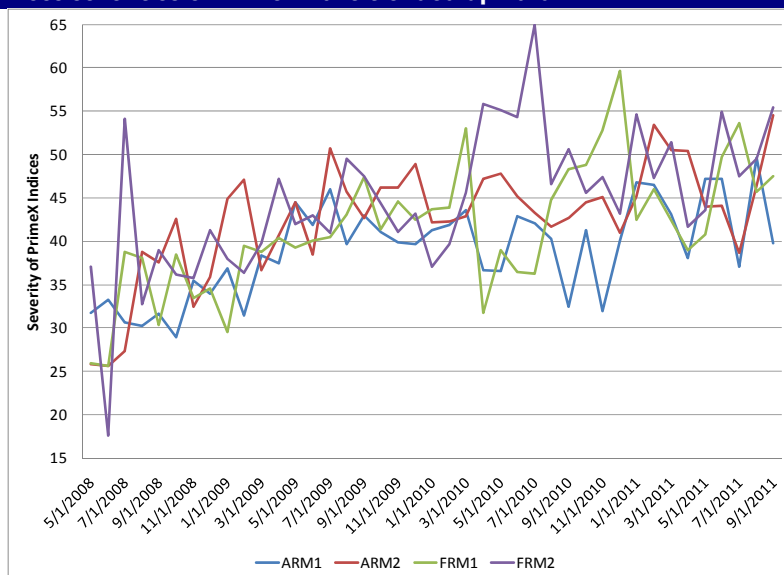
Elevated delinquency rates in a given geographic location should also hurt the local housing market. Therefore, we expect loss severities to increase given the rising delinquency rates among prime jumbo borrowers in PrimeX indices (Figures 8 and 9).

**Figure 8: Loss severity of non-agency products continue to rise**



Source: Deutsche Bank and LoanPerformance

**Figure 9: Loss severities of PrimeX have trended upward**



Source: Deutsche Bank and LoanPerformance

### Changing of conforming loan limit will have negative implications for PrimeX

The loan limit for many conventional mortgage loans has dropped by over \$100,000 in many high cost housing markets since October, following the expiration of the temporary limit of \$729,750 established by the Economic Stimulus Act of 2008. The new permanent conforming limit of \$625,500 was established by The Housing and Economic Reform Act. With the new limit for conventional loans, prime jumbo loan borrowers with outstanding balance between the old and new loan limit will see their refi-ability curtailed.



Additionally, we estimate that more loans in PrimeX indices will be negatively affected by the change of conforming loan limit than other jumbo loans.

In Figure 10, we list percentage of affected borrowers in PrimeX and the prime jumbo universe by their current combined LTV buckets.

**Figure 10: More than 10% of borrowers will face higher refi hurdles due to the change of conventional loan limit**

% of prime loans with balance between the new and the old conforming balance limit					
Current CLTV	ARM.1	ARM.2	FRM.1	FRM.2	Entire Jumbo Market
80_100	9.9	9.4	9.5	9.6	8.5
>100	12.7	14.6	12.2	12.3	12.1
<=80	7.9	7.1	7.9	6.0	5.6
<b>Overall</b>	<b>10.7</b>	<b>12.3</b>	<b>10.2</b>	<b>10.7</b>	<b>8.8</b>

Source: Deutsche Bank and LoanPerformance

Based on the competing risk hypothesis on default and voluntary prepayment, loans that are affected by the new limit should have their default probabilities increased. However, the aggregate negative impact of changing of conventional loan limits should not significantly increase the default expectation of PrimeX indices. For the 7.9% loans in ARM.1 with current CLTV <= 80%, many are not refi-able even under the old conventional loan limit because of past delinquency, employment status, mortgage note rate and documentation issues.

### The PrimeX market has mostly priced in the future housing price declines

Based on a distress scenario analysis, we believe our outlook of PrimeX fundamentals doesn't warrant massive price drops from their current levels. Using our mortgage credit models, the ultimate gain or loss from investing in PrimeX will likely be determined by the difference between the realized and the expected home price.

Our model is loan level. It depends on borrowers' future home price appreciation (HPA) or home price depreciation (HPD) trajectories. Changes in home price have the most significant impact on default probabilities and loss severities. Changes in home price have an important effect on borrowers' refi-ability.

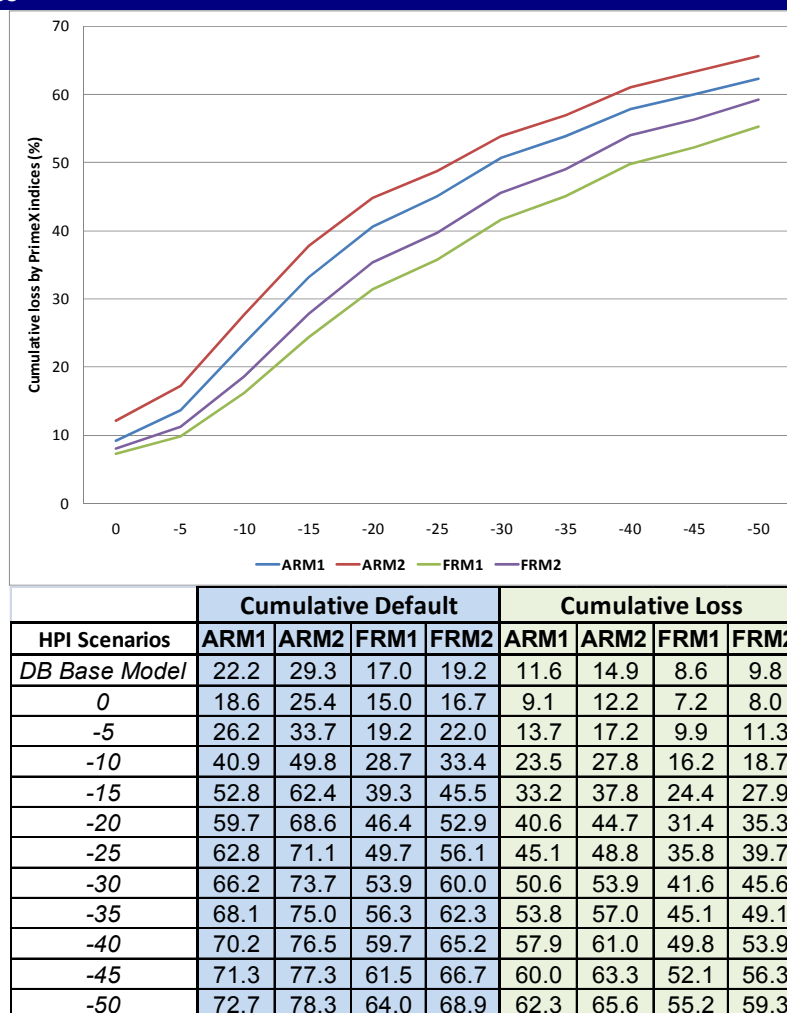
Our model also depends on borrowers' credit and equity profiles such as documentation type, loan purpose, current CLTV, loan balance, property type, geographic location, etc. The importance of modeling mortgage credit and prepayment at loan level cannot be over-emphasized. For example, borrower's geographic location is not only crucial to model the magnitude of default, it is essential to correctly model the timing of default. Everything else constant, two borrowers living in two regions with different judicial systems regarding real estate should expect to have vastly different default timelines.

### PrimeX collateral cumulative defaults and losses rise quickly under distressed HPD scenarios

In Figure 11, we simulate cumulative defaults and losses under various HPD scenarios. Based on our model, we can see that ARM.2 is the worst index with the highest cumulative default and cumulative loss. And FRM.1 is the best index with the lowest cumulative default and loss. Our model projects that the collaterals of the two fixed rate indices, FRM.1 and FRM.2, will experience less cumulative losses across all HPD scenarios.

As our HPD scenario becomes more stressful, cumulative defaults and losses increase non-linearly. From default and loss metrics, prime jumbo can quickly converge to subprime if home prices continue to plunge. This phenomenon is no longer surprising to many investors who experienced the subprime tsunami: asset values can exhibit a 100% correlation under extreme distress.

**Figure 11: Cumulative defaults and cumulative losses of PrimeX indices by various HPI scenarios**



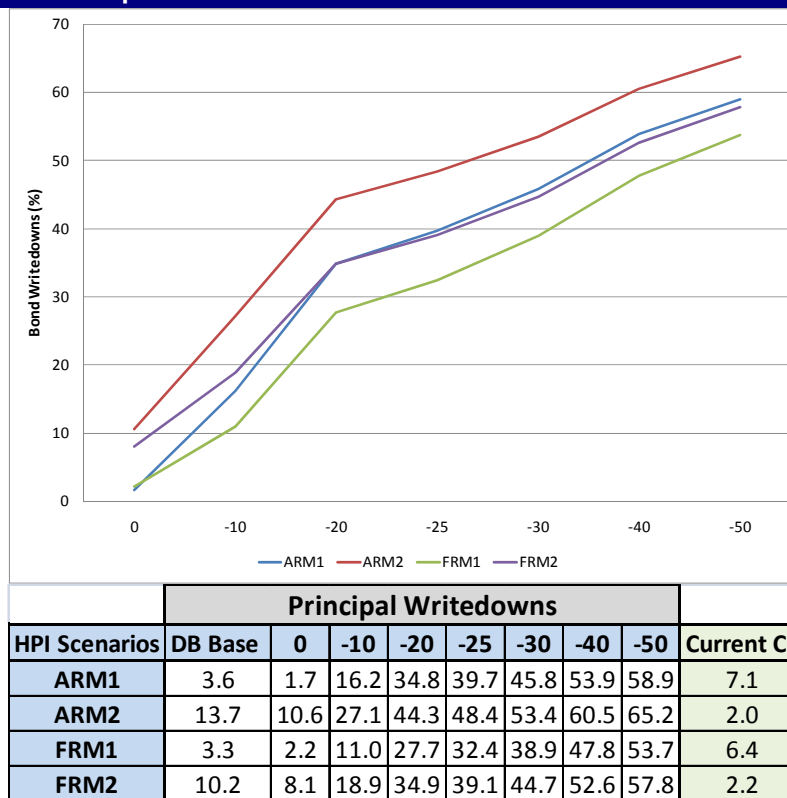
Source: Deutsche Bank, LoanPerformance and Markit

### Not all PrimeX indices were created equal: FRM.1 and FRM.2 will incur fewer writedowns than ARM.1 and ARM.2 under distressed HPD scenarios

Because of credit enhancement and other elements that are embedded in a deal structure, higher collateral loss may not lead to higher writedown of a referenced bond. We find there is a non-linear relationship between collateral loss and bond writedowns.

Measured by bond writedowns, our model favors the two series 1 PrimeX indices, FRM.1 and ARM.1, if HPD is below 20%. For example, our model projects that under our base case HPD scenario, FRM.1, ARM.1, FRM.2 and ARM.2 will have writedowns at 3.3%, 3.6%, 10.2% and 13.7%, respectively. This is consistent with the writedowns implied by the current market prices. Nonetheless, as HPD is above 20%, our model indicates that FRM.1 and FRM.2 offer better protection.

**Figure 12: Writedowns of referenced bonds by various HPI scenarios: FRM.1 and FRM.2 look better protected as HPD accelerates**



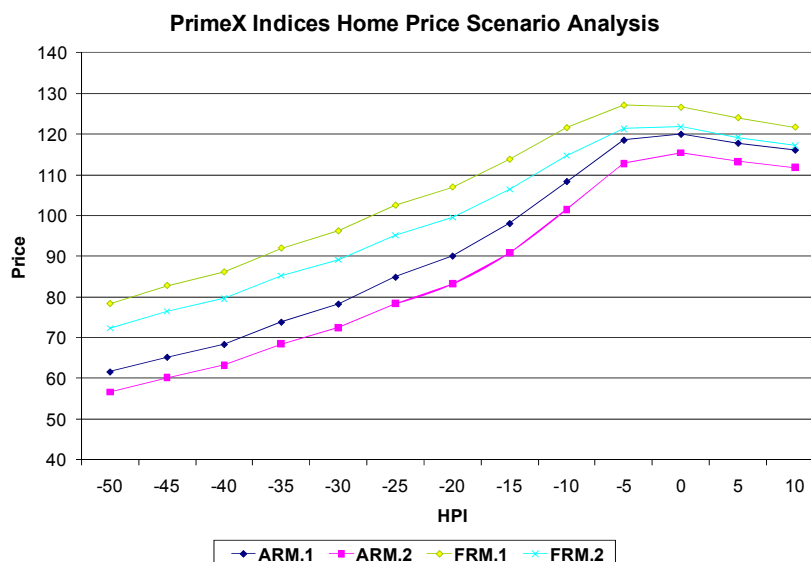
Source: Deutsche Bank, LoanPerformance and Markit

### PrimeX indices are oversold at current levels

A lot of investors have suddenly turned their attention to the PrimeX over the last week. Given the weak fundamentals and technicals of prime jumbo MBS, it is natural for us to wonder if PrimeX will bring us another big short opportunity.

Based on our fundamental loan-level model, we believe PrimeX indices are oversold and the current levels are quite attractive.

Ultimately, PrimeX prices depend on future HPD. A PrimeX index price is rich if we believe home prices will decline more than the market consensus. Conversely, a PrimeX index price is cheap if we believe home prices will decline less than the market consensus. Therefore, an equivalent way to analyze the cheap/richness of the PrimeX indices is to estimate the "market implied HPD" given the latest PrimeX prices. The fundamental of this analysis is the price sensitivity analysis to HPD scenarios (Figure 13).

**Figure 13: PrimeX price sensitivity analysis to various HPD scenarios**

Based on October 14's closing PrimeX prices, we estimate that the market implied HPDs for ARM.1, ARM.2, FRM.1 and FRM.2 are 16%, 19%, 27% and 30%, respectively. Those HPD scenarios are worse than most of the projections by market participants. Therefore, PrimeX indices are oversold at their current levels, according to our work.

## Conclusion

Despite all the weak fundamentals and technicals, we believe that the PrimeX indices are oversold at current levels. The market-implied HPD in our analysis suggests that a massive decline from current price level is not sustainable given the indication that future home price declines have been mostly priced in. Furthermore, the high running coupons of the PrimeX indices are significantly more expensive to carry for shorting the PrimeX.

# Appendix 1

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