

# **Sponsor Risk and the Performance of Asset-backed Securities**

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## **ABSTRACT**

Asset-backed securitization transforms assets into securities and in the process separates the credit risk of a pool of assets from the credit risk of the securitization's sponsor, which gives securitization several important advantages over issuing corporate debt. Recent research, however, suggests a link between the financial condition of the sponsor and the performance of its ABS. If market participants do not fully understand the link between the sponsor's financial condition and the future performance of its ABS, rating agencies may improperly rate these securities, investors may improperly price the risk of these securities, and regulators may require inadequate capital against potential losses in these securities. The results presented in this paper suggest a strong link between the financial condition of the sponsor and the subsequent performance of the securitization. Securities sponsored by a higher-rated sponsor retain their initial rating longer before being downgraded than securities sponsored by a lower-rated sponsor. Securities sponsored by better capitalized, more diversified, or vertically integrated firms also perform better. Finally, securities sponsored by banks tend to be downgraded later than ABS sponsored by foreign banks or by nonbanks. Importantly, we find many of these relationships existed in ABS issued well before the financial crisis.

## I. INTRODUCTION

Asset-backed securitization transforms assets such as loans into securities and in the process separates the credit risk of a pool of assets from the credit risk of the securitization's sponsor. Because securitization separates these risks, it has several important advantages over issuing corporate debt. First, in the event of a sponsor bankruptcy, the sponsor's creditors generally cannot claim the pool of assets backing the asset-backed securities (ABS). Second, ABS investors who have stopped receiving coupon payments can usually access the collateral without going through the bankruptcy process. Third, the rating on the top ABS tranches can exceed the corporate rating of the sponsor because investors in these tranches hold the first claim on the cash flow generated by the assets. In our sample of more than 110,000 ABS issued in the last two decades, only about 1.3 percent were sponsored by a firm rated AAA by Standard & Poor's (S&P), yet almost 60 percent of ABS representing 92 percent of the dollar value of the ABS were rated AAA (Tables 2 and 4). Because of these advantages, many lenders raised funds more cheaply through securitization than through issuing corporate debt.

Securitization reduced funding costs for a wide variety of lenders and increased competition in sectors that had once been dominated by banks or credit unions. Non-bank entities such as Ford Motor Credit, GMAC, Countrywide, or New Century Financial Corporation sponsored many early securitizations. Between 1999 and 2008, non-banking entities such as finance companies, investment banks, and insurance companies sponsored more than one-half of all securitizations rated by S&P.<sup>1</sup> In addition, securitization enabled foreign banks to enter the large and fast-growing US lending markets without raising deposits locally, which is a slow process that involves building local branches and introducing their own brand names to consumers. For example, foreign banks such as HSBC, Nomura, and Credit Suisse quickly became large players in the US residential and commercial mortgage markets. While foreign lenders sponsored only five percent of securitizations in 1999, they sponsored about one-quarter of securitizations by 2004 (Table 6). In addition, specialized regional banks such as Indy Mac and Golden West used securitization to grow their mortgage lending businesses far faster than

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<sup>1</sup> The reliance on securitization later created problems for some sponsors of these specialized lenders. For example, GMAC was initially created to provide auto loans for purchasers of General Motors cars. However, the enhanced access to credit through securitization may have allowed GMAC to expand to commercial and subprime mortgages. When the subprime mortgage market collapsed, problems at GMAC made it much harder for buyers of GM cars to obtain credit relative to buyers from rivals Toyota, Chrysler, and Ford, whose specialized lenders did not significantly expand beyond their primary purpose of providing auto loans.

they could have using traditional deposits. Dodd (2007), Mason and Rosner (2007), and Brunnermeier (2009) discuss this trend towards the “originate to distribute” model and its implications for lending standards.

Because securitizations purportedly separated the credit risk of the pool of assets from that of the sponsor, investors, regulators, and rating agencies focused on the quality of the pool rather than the financial condition of the sponsor as the key determinant of a security’s performance and treated these securities accordingly. Recent research, however, suggests a link between the financial condition of the sponsor and the performance of its sponsored ABS. For example, Moody’s Investor Service (2006) concluded that lower-rated sponsors are associated with higher ABS spreads and weaker credit performance. Gorton and Souleles (2006) found that credit card backed securities sponsored by riskier sponsors (as measured by the sponsor’s bond rating) command higher yields, suggesting that the market recognizes sponsor risk as determinant of security risk. Similarly, Adelino (2009) shows that all else equal higher-yielding ABS are downgraded more quickly than lower-yielding ABS. In addition, Downing, Jaffee, and Wallace (2009) find that some residential mortgage-backed securities trade in a market for lemons in which originators use private information to determine which mortgage pools to securitize, implying that originators are able to influence the future performance of securities through their choice of pools to securitize.

If market participants do not fully understand the link between the financial condition of the sponsor and the future performance of its sponsored ABS, rating agencies may improperly rate these securities, which may lead some investors to purchase securities that they would not have otherwise purchased. Investors may also improperly price the risk of these securities, which may lead to lower returns than had been expected. Finally, regulators may require inadequate capital against potential losses in these securities, which may lead to more financial distress among regulated institutions than is desired.

In this paper, we examine the relationship between a broad array of characteristics of the sponsor at the time of the securitization and the subsequent performance of their sponsored ABS. To do this, we constructed a database of information on public, domestic, asset-backed securitizations that closed between 1995 and 2008. We began with a dataset from ABSNet of security characteristics, including underlying asset type, issuance date, initial rating and the date of any subsequent upgrade or downgrade. We linked each security’s characteristics with its

sponsor's characteristics by identifying the parent company of the listed sponsor through individual internet and database searches and merging in the parent's S&P issuer credit rating at the time of deal closing. In addition to credit rating, we categorized sponsors by type of financial institution using data from the National Information Center (NIC) and North American Industrial Classification System (NAICS) classifications. Finally, we collected data on insider sales of the sponsor's stock from the Thomson Financial Insider Filings (TFIF) database.

Our results suggest a strong link between the financial condition of the sponsor and the subsequent performance of the securitization. Securities sponsored by a higher-rated sponsor retain their initial rating longer before being downgraded than securities sponsored by a lower-rated sponsor. Securities sponsored by better capitalized, more diversified, or vertically integrated firms also perform better. Finally, securities sponsored by banks tend to be downgraded later than ABS sponsored by foreign banks or by nonbanks. Importantly, we find that many of these relationships existed in ABS issued well before the financial crisis.

In a closely related paper, Titman and Tsyplakov (2010) examined the role of originators in the future performance of commercial mortgages underlying CMBS and find that mortgages originated by institutions with large negative stock returns prior to origination tend to have higher credit spreads and default rates. These mortgages also tend to perform worse ex post and are sold into CMBS more quickly. Titman and Tsyplakov's results are most comparable to the results in this paper in cases where the originator also sponsors the securitization. That said, our paper finds that characteristics beyond stock performance matter and expands upon Titman and Tsyplakov by finding an effect of sponsor characteristics in a broader array of asset types.

The next section describes how we constructed the dataset used for the analysis, while the subsequent section describes the econometric model and presents our main results, as well as some robustness tests. A brief discussion follows.

## **II. DATA**

Lewtan Technologies' ABSNet securitization database is the basis of our analysis dataset and provides information on public, domestic, asset-backed securitizations that closed between 1995 and 2008.<sup>2</sup> The ABSNet database records important characteristics of the securities such as

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<sup>2</sup> Some securitizations are treated as private, where information on the underlying securitization and their ratings are only available to a very restricted group of actual and potential investors. This private structure was particularly

the type of asset underlying the securities, the initial rating of the security, the date of the security's issuance, and the date of any subsequent upgrade or downgrade.

Securities backed by home equity loans make up half of the ABS in the dataset (Table 1). These ABS include securities backed either by second liens on real estate or by subprime first liens on real estate. Home equity ABS are smaller on average than securities in the other asset classes, and so the dollar share of outstanding home equity ABS is a bit less than half. Residential mortgage-backed security deals (RMBS) make up another third of the ABS in the dataset and the remainder of the dataset is made up of commercial mortgage-backed securities (CMBS), auto loan-backed securities, collateralized debt obligations (CDOs), and a few smaller asset types.<sup>3</sup> We excluded master trusts from the sample because the sponsors of securities with this structure have an ongoing role in the securitization that sponsors of other types do not have.<sup>4</sup> The distribution of deals across asset classes is somewhat similar to that widely reported by Bloomberg; however, Bloomberg contains a much larger portion of CDO deals (23 percent), which reflects the large fraction of private CDO deals that are not included in our sample.

Securities rated AAA by S&P at issuance make up the majority of the securities in our dataset (59 percent), and lower ratings were evenly distributed among the remaining securities (Table 2). Because of their large size relative to the other tranches, AAA-rated securities represent an overwhelming share (92 percent) of the dollar value of the securities. In contrast, non-investment grade securities (those rated BB or below) represent only 0.6 percent of the dollar value of the securities in our dataset. The share of AAA-securities is large because financial institutions with a below-AAA corporate rating benefit from sponsoring AAA securities. These highly rated securities were in great demand for investors in part because many institutional investors are restricted from buying securities below a certain rating, other investors valued the capital treatment of highly rated securities, and finally, some investors focused mainly on ratings when purchasing securities.

Relatively few deals in the dataset were initiated in 2008, but three-quarters were originated in the five years prior (Table 3). Securitization volume expanded rapidly between

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prevalent for CDOs, but is sometimes used for other asset types. Thus CDOs are likely substantially under-represented in our sample.

<sup>3</sup> This category includes student loans, small business loans, manufactured housing, auto leases and auto dealer floorplans.

<sup>4</sup> The exclusion of master trusts implies that we dropped all credit card ABS from the sample.

2003 and 2005 as the total number of securities issued grew by about 60 percent and the dollar volume of securitizations nearly doubled.

To proxy for the yield spread for these securities at issuance, we used the coupon spread because these securities are predominantly priced at par at issuance. The median issuance price in the 37 percent of the sample for which an issuance price is provided by Bloomberg was par and 95 percent of this subsample had an issuance price greater than 99.8 percent of the par value.

We constructed the coupon spread for fixed-rate securities using the coupon at issuance and the expected maturity, the latter of which was only available for only about 19 percent of the fixed-rate securities in the sample. For securities with missing maturity data, the expected maturity was proxied by the average expected maturity for securities in the same asset class and with the same initial rating. Because the expected maturity was missing from the approximately 500 securities in the dataset backed by manufactured housing, we dropped these securities for specifications in which the coupon spread appears. The coupon spread equals the initial coupon less the comparable-maturity Treasury yield.

We also constructed the coupon spread for floating-rate securities using the coupon at issuance and expected security, the latter of which was available for only about 22 percent of floating-rate securities in the sample. For floating-rate securities, the coupon spread equals the initial coupon less the appropriate benchmark yield. For those floating-rate securities without a known index benchmark, the modal benchmark for securities in the same asset class proxied for the benchmark yield. About 63 percent of the securities with a coupon spread are floating-rate securities and the mean coupon spread is 0.81 percentage points (Table 4).

We linked these security characteristics with seven types of sponsor's characteristics at the time of issuance, which were obtained from various sources: credit rating, entity type, whether it is a foreign or domestic entity, measures of financial condition other than credit rating, number of securitization markets the sponsor participates in, whether it services the assets underlying the securitization, and the level of insider sales of its stock. Consistent with SEC Regulation AB, we defined the sponsor as the entity that "organizes and initiates an asset-backed securities transaction by selling or transferring assets, either directly or indirectly, including through an affiliate, to the issuing entity."<sup>5</sup> According to this definition, the sponsor may or may not be the originator of the receivables.

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<sup>5</sup> 17 C.F.R. § 229.1101.

ABSNet listed the sponsor of each security, and we identified this sponsor's parent company through individual internet and database searches.<sup>6</sup> In the case of mergers or other consolidations, we used the name and attributes of the parent at the time of the security origination. We then merged in the parent's Standard & Poor's (S&P's) issuer credit rating at the time of deal closing from S&P's RatingsXpress database. About 85 percent of securities in the dataset were sponsored by an institution whose parent was rated by S&P and 90 of those parents with ratings were rated investment-grade (Table 5).

In addition to credit rating categories, we also placed sponsors into financial institution categories using data from the National Information Center (NIC) and North American Industrial Classification System (NAICS) classifications. All sponsors in the dataset appeared in the NIC database. We classified as a bank those entities that the NIC database classified as a US-based financial holding company, a bank holding company, a federal savings bank, or a national bank. We classified as a nonbank all other firms, including finance companies, securities brokers and dealers, insurance companies, other financial and nonfinancial firms. NIC classified two firms in the sample, Countrywide Financial Corporation and Capital One Financial Corporation as nonbanks early in the sample but later acquired bank subsidiaries. However, due to their history as finance companies and their limited retail banking operations, we classified them in our dataset as nonbanks for the entire sample.

We further classified sponsors into foreign and domestic entities using data from NIC. Domestic entities sponsored eighty percent of the securities in our dataset, with banks sponsoring about one-third of securities sponsored by domestic entities and nonbanks sponsoring about two-thirds, whereas foreign entities sponsored the remaining twenty percent of the securities, with the bulk of those securities sponsored by banks (Table 6). These shares have changed over time. Prior to 2002, domestic institutions dominated the securitization market, with non-banks sponsoring more than one-half of all securitizations (Table 7). However, foreign banks quickly entered the US market, issuing between 20 and 23 percent of securitizations between 2003 and 2006.

For domestic entities, we incorporated two measures of financial condition other than credit rating. For domestic banks, we identified the tier 1 capital ratio of the sponsor's parent

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<sup>6</sup> In the less than 1 percent of deals where several sponsors were identified, the first listed sponsor was assumed to be the primary sponsor associated with the deal.



company, and for domestic nonbanks, we calculated Altman's Z-score (Altman 1968). The mean tier 1 capital ratio for domestic banks in the sample is 8.6 and the mean Z-score is 0.3 (Table 8). The low mean Z-score reflects low reported sales at finance companies, and in turn a low capital-turnover component of the Z-score (sales divided by total assets).

We also calculated the number of securitization markets the sponsor participates in, which may be a potential indicator of the financial stability of the parent. Firms that operate in more markets are likely to be more diversified and less susceptible to financial shocks. It also may serve as a proxy for the experience of the sponsor and its reputation in the market. Parents who specialize in securities of a single collateral type sponsored about one-fifth of securities (Table 9). On the other extreme, diversified parents who operate in more than four securitization markets sponsored about one-quarter of securities. Most of the highly diversified parents are domestic or foreign banks.

The ABSNet database identifies the name of the servicer for approximately 90 percent of the securities. Among those with the servicer identified, the sponsor also services the loans for about 55 percent of the securities, which we will refer to as vertical integration (Table 10).

Finally, we collected data on insider sales to examine the extent to which managers are able to anticipate problems in their firms and securitizations. We used the Thomson Financial Insider Filings (TFIF) database and cleaned the data as in Lakonishok and Lee (2001). We included open market or private market sales or purchases and exclude amended records. For each sponsor we calculated the monthly net volume of insider sales occurring in the previous three months and transform this value into three dummy variables indicating whether insiders were net sellers, buyers, or neither. Table 11 shows the distribution by security of insider sales or purchases in the quarter prior to security issuance. For about 89 percent of securities, managers were net sellers in the previous quarter. This high share is not surprising given that managers who are compensated with stock are much more likely to sell stock than to purchase stock in their own firms.

### **III. EMPIRICAL RESULTS**

We begin our analysis by presenting our main model of deal performance using the survival time of a security until a downgrade as our measure of performance. We constructed

the time to first downgrade using the Standard & Poor's (S&P's) rating history provided by ABSNet for each security. Although most ABS have at least two ratings, we analyzed S&P ratings only because S&P rated the highest share of ABS, and its ratings history was the most complete. S&P downgraded thirty percent of the securities in the database during our sample period, and we treated as right censored the remaining seventy percent of securities, which S&P had not downgraded as of the fourth quarter of 2009. Among securities that were downgraded, the average time to downgrade is 27 months from origination, and the probability of a downgrade peaks two years after issuance at about 1.2 percent, as shown in Figure 1. Figure 1 also suggests that the underlying survival distribution is lognormal. The peak after two years was driven by downgrades among securities sponsored in 2004 or later. The hazard rate for these securities peaks at about 1.9 percent two years after their issuance, whereas the hazard rate for securities sponsored in 1995 through 2003 peaks nearly five years after issuance. The difference in the timing of the peaks between the two periods suggests that it is important to control for the time period in our regressions.

The determinants of our main model of the survival time until downgrade are of two kinds: those related to the security itself, such as the underlying asset class, and those related to the sponsor of the security, such as issuer rating. In many cases, we will present both point estimates of these determinants' effect on time to downgrade, as well as survival curves predicted by the model that illustrate these determinants' effect. We then tested the robustness of the main model's findings by estimating the model on several subsamples of the data (by vintage, collateral type, and initial rating), and by changing the measure of performance first to severe downgrades and then to upgrades. Finally, we tested whether investors anticipated the securities' performance by adding coupon spread to the model and whether the sponsors themselves anticipated the securities' performance by adding a measure of insider sales.

#### **A. Main Model of Survival Time to Downgrade**

As a preliminary step, we determined whether the sponsor characteristics we observe at the time of issuance played a role in the initial rating of the security. Rating agencies state that they base their ratings on the collateral and deal structure, and consistent with these claims, we find that the initial ratings of the securities are uncorrelated with the characteristics of the sponsor, including parent rating, sector, diversification, and capital (see Appendix Table 1).

To discern whether the characteristics of the sponsor influence subsequent performance, we estimated a lognormal survival time model of the length of time between the issuance of a security and its first downgrade (if any). In this model, a security is at risk of a downgrade while its rating is at or above its initial rating, and the security experiences a failure at time  $t$  if its rating falls one or more intermediate ratings below its initial rating between period  $t-1$  and period  $t$ . Under this definition, a security downgraded from AA to AA- and a security downgraded from AA to BBB experience the same failure.<sup>7</sup> If S&P had not downgraded a security by the end of the sample period, we considered the observation censored.

The determinants of a security downgrade are related either to the security or to the sponsor.<sup>8</sup> Those related to the security include the asset type underlying the security, the initial rating of the security, and its date of issuance. Those related to the sponsor include the sponsor's issuer rating, the sponsor's sector, its vertical integration and specialization, and measures of financial condition.

The first security characteristic is the type of asset underlying the security. The omitted collateral type in the regression is CMBS, which accounts for about 6.4 percent of the securities (see Table 1). The survival curves predicted by the model show a gap between the survival curves of CMBS and those of the other asset classes and imply that holding all else constant CMBS is downgraded later than other asset classes (Figure 2).<sup>9</sup> Securities backed by manufactured housing were clearly more likely to be downgraded sooner than other asset classes, followed by CDOs, home equity, RMBS, equipment loans, auto loans and student loans. These findings generally result from concentrated periods of stress for each of these asset classes: for example, manufactured housing and subprime auto ABS in the mid-1990s, and CDOs, home equity, and RMBS in 2006 - 2008.

The second security characteristic is the security rating at the time of issuance, which we controlled for using a set of dummy variables; the omitted initial rating in the regression is BB and below, which accounts for about 8 percent of the securities. The effect of initial rating on predicted time to downgrade is as one would expect. All else equal, securities rated BB or above are downgraded significantly later than securities rated below BB and the predicted survival

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<sup>7</sup> We will test the robustness of our results to this definition of downgrade in section IIIC.

<sup>8</sup> Our base model also controls for the 6-month period the security was issued and year dummies for the 2005-2007 time period when ratings downgrades became quite common. Appendix Table 2 reports coefficients on these basic controls.

<sup>9</sup> Our data do not extend to the S&P downgrades of CMBS in the third quarter of 2009.

curve are generally monotonic in which higher rated securities are less likely to be downgraded (Figure 3).

The third security characteristic is its issue date, which we controlled for with a set of dummy variables for the half-year of its issuance; the omitted issue date is the first half of 1999. ABS sponsored in later years have a shorter time to downgrade than those sponsored in earlier years. As shown in Figure 4, the predicted survival curves for securities sponsored in 2004 and earlier lie clearly above those for securities sponsored in 2006 and later. This is consistent with the differences in hazard functions between the earlier and later time periods noted above. Moreover, ABS sponsored in 2005-2007 show a consistent deterioration; each successive vintage's survival curve lies below the one before it. Performance improved in 2008, which may reflect the fact that the burgeoning financial crisis had made issuance difficult for all but the highest-quality ABS.

Turning to characteristics of the sponsor, securities whose servicer is also the sponsor perform better than those whose servicer is independent of the sponsor. When the sponsor services the underlying assets (vertical integration), a security maintains its rating about 9 percent longer than when the servicer is a separate entity. Recently, rating agencies have formally recognized the important role of the servicer and have begun issuing servicer ratings. In addition, the bonds of diversified sponsors who sell securities in many asset classes (more than 4 collateral types) survive about 10 percent longer prior to being downgraded.

With respect to the credit risk of the sponsor, it has often been argued that securitization separates the credit risk of assets from the credit risk of the sponsor, which allows lower-rated sponsors to access the capital markets at a lower cost than unsecured corporate debt. Although, as noted earlier, the initial rating of the security does not appear to depend on the credit rating of the sponsor, we find that subsequent performance does depend on this credit rating.<sup>10</sup> In our base regression (Table 12, column 1 and Figure 5), we find that the survival time of a security until downgrade generally increases with the rating of the sponsor. Securities whose sponsor was rated investment grade at the time of issuance maintain its rating longer before being downgraded than a security whose sponsor was non-investment grade (BB or lower). In most specifications, the coefficient on each rating dummy is statistically significant from zero except for the AAA

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<sup>10</sup> ABS are generally structured with a senior, AAA-rated tranche and several subordinated tranches that range in rating from AA to B. Although the initial rating of an ABS may not depend on the rating of the sponsor, the tranches' subordination may.

dummy variable. This may be due to the relatively small number of AAA-rated parents in the sample (only about one percent of the securities are sponsored by an institution rated AAA).

To gain a better sense of what aspect of a sponsor's financial condition is driving our results, we added additional characteristics of the sponsor. The first of these are dummy variables for the type of sponsor (domestic bank, domestic nonbank, foreign bank, or foreign nonbank). The point estimates suggest that securities sold by domestic banks maintain their initial rating longer than those sold by any other type of institution. ABS sold by foreign banks are downgraded 14 percent sooner than domestic banks, whereas those sponsored by US nonbanks are downgraded 15 percent sooner. Securities whose sponsor is a foreign nonbank perform the worst, and are downgraded 23 percent sooner than domestic banks. Figure 6 plots survival times for various sectors evaluating the remaining variables at their mean values. It shows that securities sponsored by domestic banks may maintain their initial rating up to 2 years longer than those sponsored by foreign nonbanks may.

Adding the sponsor's sector to the specification reduced the coefficients on the parent rating variables because a parent's sector is correlated with its rating; however the coefficients on parent rating are still predominantly significant. The coefficients on vertical integration and diversification drop in magnitude, but remain statistically significant with 90 percent confidence.

Next, we examined the effect of other measures of the sponsor's financial condition. For domestic banks, we included the amount of tier 1 capital held by the bank, and for domestic nonbanks, we included the Altman Z-score. Because these measures are not available for all the domestic entities in the sample, the sample size is about 20 percent smaller than in the base regression, but many of our earlier results continue to hold in this smaller sample (Table 12, column 4). The hazard model suggests that a one standard deviation rise in the tier 1 capital ratio is associated with a 4 percent increase in security survival time. In addition, a one standard deviation rise in the Altman Z score is associated with a 3 percent increase in security survival time. Despite the correlation between these alternative measures of financial situation and credit ratings, many of the coefficients on credit rating remained significant when these measures were included.

In summary, regulated banks, especially those with greater capital, nonbanks with lower likelihood of bankruptcy, sponsors with higher credit ratings, and more diversified sponsors issue securities that retain their initial ratings longer before being downgraded. These results suggest

that rating agencies, investors, and regulators all may benefit from considering the financial condition of the sponsor when rating, purchasing, or making policy regarding ABS.

## **B. Subsample Results by Vintage, Initial Rating, and Collateral Type**

Because the survival time to first downgrade of securities sponsored after 2004 is much shorter than those sponsored prior to 2004, these results may be driven by this later period, which was characterized by heightened rating agency competition and (according to some) particularly inaccurate ratings (Bolton, et. al., 2009). However, we do not find this to be the case. In a specification that includes only securities sponsored from 1999 to 2003, many of the same conclusions can be drawn (Table 13).<sup>11</sup> Securities sponsored by parents with a higher credit rating and those whose servicer was the same entity as the sponsor perform much better than the overall sample of ABS. While the amount of tier 1 capital is insignificant in this specification, the Z-score coefficient becomes larger and retains its statistical significance. Therefore, the evidence that sponsors matter for securitization has been present well before the current time period.

In a specification that includes only securities sponsored in the later 2004 to 2008 time period, the coefficients on parent rating are no longer statistically significant, but securities sponsored by banks still perform much better, as do securities sponsored by diversified firms and those where the sponsor services the loans (Table 14). The coefficients on tier 1 capital and Altman Z also remain positive and statistically significant in this time period.

Turning to initial ratings, security and sponsor characteristics may play different roles in security performance depending upon the seniority of the security. For example, effective servicing can have a disproportionate impact on lower-rated securities because losses affect those securities first. In addition, in a weak economic environment junior tranches will perform poorly regardless of the quality of a deal's collateral so an increase in overall deal quality will have a disproportionate effect on the performance of more senior securities. To examine these hypotheses, we estimate our survival time model first using only securities rated AAA at issuance and then only using those securities rated below AAA at issuance. The dummy variable indicating whether the sponsor is also the servicer is only significant for lower-rated securities,

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<sup>11</sup> During this time, overall survival times were much longer, so we would expect that coefficients in the lognormal survival function would be much larger in magnitude for an equivalent sized economic effect as in the specification in Table 10 that includes the later time period as well.

which is consistent with the importance of effective servicing for these securities (Table 15). In addition, sponsor credit rating, tier 1 capital, and Z-score are larger and much more significant for AAA securities (Table 16).

Finally, we focused on collateral type. Because RMBS and home equity together constitute about 65 percent of the dollar volume of securities in our sample, we also investigate to what extent the overall results hold for this subsample alone. When restricting estimation to these collateral types, results are very similar (see Table 17).<sup>12</sup> The parent rating, vertical integration, and diversification variables are similar and significant. Sector dummy variables are similar with the exception that nonbanks performed better in this subsample. The only notable differences are the lack of significance and flip in sign of the coefficients on the financial distress variables. The whole-sample coefficients on these variables seem to be driven by the other collateral types.

### **C. Severe Downgrades**

Our baseline measure of security performance does not account for the severity of downgrades. To test our results for robustness with respect to the definition of a downgrade, we estimated a hazard model in which a security is at risk while its rating is at or above its initial rating and the security experiences a failure at time  $t$  if its rating falls nine or more ratings below its initial rating between period  $t-1$  and period  $t$ . Unlike our baseline measure, a security downgraded from AA to AA- does not experience a failure, but a security downgraded from AA to BB experiences a failure. This reduces the number of failures available for estimation in half (see Table 18). The parent rating, servicing, and diversification variables are again significant in this specification. The sponsor type results also still hold. Securities sponsored by domestic banks, and by domestic entities in particular, experience severe downgrades later than securities sponsored by other entities. The Altman Z-score is modestly significant with a positive sign when we exclude the parent rating; however, the financial distress variables are generally small and insignificant in this specification. That said, overall it appears that sponsor characteristics have similar effects on both modest and severe downgrades.

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<sup>12</sup> Note that we combined the AAA and AA sponsor rating categories because there are only three AAA sponsors in this subsample.

## **D. Upgrades**

The baseline specification focused on time to downgrade, but presumably many of these security and sponsor characteristics can also predict upgrades. We estimate a hazard model in which a security is at risk for upgrade while its rating is at or below its initial rating and the security is upgraded at time  $t$  if its rating rises above its initial rating between time  $t$  and time  $t+1$ . The number of upgrades is only about one quarter of the number of downgrades in our sample so we were unable to estimate the same number of coefficients. We collapsed the sponsor rating dummy variables for all ratings between AAA and BBB into one investment-grade sponsor dummy variable.

We find that many of the same sponsor characteristics that predict downgrades also predict upgrades (see Table 19). In the base specification, a security issued by an investment-grade sponsor will be upgraded about 15 percent sooner than a non-investment-grade sponsor and securities issued by sponsors that participate in many markets are upgraded about 18 percent sooner. The coefficient on sponsors who also service the ABS is small and insignificant, but this is consistent with the fact that effective servicing cannot improve performance beyond the initial quality of the loans, and the primary benefits of effective servicing involve mitigating losses when loan quality deteriorates.

Sector results are weak for the most part but securities sponsored by foreign nonbanks were upgraded about 50 percent later relative other sponsor types. While tier 1 capital is not particularly informative, the Altman Z-score is highly significant with a one standard deviation improvement in Z-score implying an 8 percent shorter time to upgrade.

## **E. Coupon Spread at Issuance**

To some extent, market participants likely had additional information about the quality of the ABS. To determine how much ABS prices reflected this information, we included, where available, the initial coupon spread and spread squared in the regression (Table 20). The coefficient on the spread is negative and significant, which indicates that higher spreads at issuance predict a shorter time-to-downgrade, and that the market priced in some downgrade risk for the ABS in this sample. However, the coefficients on all of the other explanatory variables change very little in magnitude and maintain their significance, which indicates that the price does not reflect sponsor characteristics (see also Faltin-Traeger, Johnson and Mayer, 2010). This



result suggests that neither the rating agencies nor market participants fully appreciated the sponsor's influence on ABS performance.

Securities with a floating coupon rate also tended to be downgraded sooner than securities with a fixed rate. We included a dummy variable that equals one if a security has a floating-rate coupon; and the coefficient on this variable is negative and significant in every specification. To the extent that floating-rate collateral backs floating-rate securities, this may indicate floating-rate loans have significantly underperformed fixed-rate loans. Indeed, Standard & Poor's noted that in the case of CMBS, floating-rate securities performed poorly in 2009 in part because "floating-rate loans are typically collateralized by 'unstable' properties and are generally originated with the assumption that cash flows will increase to a stabilized level after the property is complete and operational. However, achieving stabilization has been difficult for many of these properties due to the weak economy and deteriorating property fundamentals."<sup>13</sup> In addition, Pence, Sherlund, and Mayer (2009) note that within subprime and alt-A delinquencies during the recent housing crisis were "particularly pronounced for loans that include an adjustable interest rate component."<sup>14</sup>

## **F. Insider Sales**

Finally, we consider the possibility that managers might have also anticipated the success or failure of the securities sponsored by their firm. Some have claimed that executives sell stock in anticipation of the failure of their firms; we examine whether executives also sell stock in anticipation of the failure of their ABS. The findings suggest that managers are at least to some degree able to anticipate the success of their firm's ABS. In particular, if executives of the sponsoring firm sold stock in the sponsor, on net, in the 3 months prior to issuance of a security, our results imply the security is downgraded about 10 percent more quickly than a security for which there were no insider sales or purchases of sponsor stock prior to the ABS issuance (Table 21).<sup>15</sup> This effect is significant for securities issued between 2004 and 2008, but not in the

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<sup>13</sup> Standard & Poor's Press Release. "Lower Property Valuations Drove 2009 Floating-Rate CMBS Downgrades." February 18, 2010.

<sup>14</sup> Pg. 33

<sup>15</sup> These regressions include all other variables in the full specification from Table 12 that do not include sponsor characteristics (columns 1, 3, and 5) and those in the specification with all sponsor variables besides Tier 1 Capital and Altman's Z-score (columns 2, 4, and 6).

earlier subsample, which indicates that perhaps insider sales became more informative as issuance volume began to peak.

#### **IV. CONCLUSIONS**

We find that the financial condition of an ABS sponsor is strongly related to the performance of its securities, challenging the widely held view of securitization as a means of separating the credit risk of assets from the credit risk of the sponsor. Securities sponsored by investment-grade institutions are downgraded up to 20 percent later and upgraded up to 15 percent sooner than securities (with an identical rating) that are sponsored by a lender with a non-investment grade credit rating. Securities sponsored by domestic nonbanks are downgraded sooner than those sponsored by banks. Within domestic nonbanks, financial condition also matters. Securities sponsored by a nonbank with a low likelihood of default – as measured by the Altman’s Z-score – retain their initial rating longer than securities sponsored by a nonbank with a higher likelihood of default. Within domestic banks, measures of capital also matter. Securities sponsored by a domestic bank with relatively high tier 1 capital retain their initial rating longer than securities sponsored by a domestic bank with a lower tier 1 capital.

Two explanations for these results are plausible. The first arises from the well-known result that reputation is an imperfect mechanism to discipline corporate performance, especially when firms face a risk of failure. Reputation may play an important role in the ABS market because, sponsors know more about the assets underlying their own securitizations than rating agencies or investors. Sponsors have the incentive to issue high-quality ABS because investors may punish firms that issue poorly performing securities by raising spreads on future issuance. However, as the financial condition of a sponsor deteriorates, the benefit of future business opportunities falls relative to the expected cost of bankruptcy, and the force of the investors’ “threat” declines. Financially troubled sponsors might meet the short-term demands of staying in business by lowering lending standards, increasing origination, and originating troubled securities, even if issuing these securities comes with a significant reputational cost.

Another explanation for these results is that sponsors with low ratings may operate in lines of business where assets are more likely to be impaired over time. Although our analysis attempts to control for lines of business using asset-type controls, these lines of business may be even more specialized (e.g. prime versus subprime auto loans) than the controls in our regression

can account for. Because our dataset does not include the performance of the underlying assets, we were unable to control for this level of specialization. That said, to the extent that this information may have been available to the rating agency and incorporated into their rating methodology, this specialization would have been captured by our rating dummy variables. Some might point to excessive competition to rate ABS that led the rating agencies to a “race to the bottom” to issue inflated ratings.<sup>16</sup> In this case, competition might have led agencies to inadequately factor in sponsor quality in rating securities.

This analysis also suggests that securities perform better when sponsors service their own securities, consistent with work by Ashcraft and Schuermann (2008) and Gan and Mayer (2006) showing that agency conflicts can serve as an important barrier to security performance.

Finally, there is some indication that both investors and insiders acted upon additional information related to the quality of these securities. Controlling for security rating, securities with a higher coupon spread were downgraded sooner than securities with a lower coupon spread, suggesting that ABS investors priced in the low quality of some of the securities. However, its inclusion does not appreciably weaken the effects of the other variables, indicating that investors may not have fully accounted for these sponsor-related performance risks. In addition, securities in which the manager of the sponsoring firm sold stock in the firm also perform worse, all else equal, suggesting that managers also appear to be able to anticipate security performance. Insiders’ stock sales are predictive beyond the security’s rating and any additional public information about the sponsoring firm, further highlighting the role of asymmetric information in securitization markets. All of these results are robust to the inclusion of controls for year of issuance, the type of collateral, and the initial credit rating of the security.

In summary, our work demonstrates that many characteristics of an entity are correlated with the future performance of the ABS it sponsors, and we have suggested several plausible reasons for these correlations. Whether one of these explanations, or yet another explanation, is the dominant reason for the link between sponsors and their securitizations and measuring the costs of overlooking this link remain topics for future research.

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<sup>16</sup> For example, see Bolton et al. (2008), Becker and Milbourn (2010), Faltin-Traeger (2009), and Sangiorgi et al. (2008).

## REFERENCES

- Adelino, Manuel. 2009. "Do Investors Rely Only on Ratings? The Case of Mortgage-Backed Securities." Working paper.
- Altman, Edward. 1968. "Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy." *The Journal of Finance*, 23(4): 589-609.
- Ashcraft, Adam B. and Til Schuermann. 2008. "Understanding the Securitization of Subprime Mortgage Credit." *Foundations and Trends in Finance*, 2(3): 191-309.
- Becker, Bo and Todd Milbourn. 2010. "How Did Increased Competition Affect Credit Ratings?" NBER Working Papers: 16404.
- Bolton, Patrick, Xavier Freixas, and Joel Shapiro. 2009. "The Credit Ratings Game." NBER Working Papers: 14712.
- Brunnermeier, M. 2009. "Deciphering the Liquidity and Credit Crunch 2007-2008." *Journal of Economic Perspectives*, 23(1): 77-100.
- Dodd, Randall. 2007. "Subprime: Tentacles of a Crisis." *Finance & Development*, 44(4): 15-20.
- Downing, Chris, Dwight Jaffee, and Nancy Wallace. 2009. "Is the Market for Mortgage Backed Securities a Market for Lemons?" *Review of Financial Studies*, 22(7): 2457-2494.
- Diamond, Douglas W. 1991. "Monitoring and Reputation: The Choice between Bank Loans and Directly Placed Debt." *The Journal of Political Economy*, 99(4): 689-721.
- Faltin-Traeger, Oliver. 2009. "Picking the Right Rating Agency: Sponsor Choice in the ABS Market," Columbia Business School mimeo.
- Faltin-Traeger, Oliver, Kathleen W. Johnson, and Christopher Mayer. 2010. "Issuer Credit Quality and the Price of Asset-Backed Securities." *American Economic Review*, 100(2): 501-505.
- Gan, Yingjin and Christopher Mayer. 2006. "Agency Conflicts, Asset Substitution, and Securitization." NBER Working Papers: 12359.
- Gorton, Gary and Nicholas Souleles. 2006. "Special Purpose Vehicles and Securitization." In *The Risks of Financial Institutions*. M. Carey and R. Stultz, eds., University of Chicago Press.
- Lakonishok, Josef, and Inmoo Lee. 2001. "Are Insider Trades Informative?" *Review of Financial Studies*, 14(1): 79-111.

Mason, Joseph R. and Josh Rosner. 2007. "Where Did the Risk Go? How Misapplied Bond Ratings Cause Mortgage Backed Securities and Collateralized Debt Obligation Market Disruptions." SSRN Working Paper #1027475.

Moody's Investor Service. 2006. "Deal Sponsor and Credit Risk of U.S. ABS and MBS Securities."

Sangiorgi, Francesco, Jonathan Sokobin, and Chester Spatt. 2008. "Credit-Rating Shopping, Selection and the Equilibrium Structure of Ratings." Carnegie Mellon working paper.

Titman, Sheridan and Sergey Tsyplakov. 2010. "Originator Performance, CMBS Structures, and the Risk of Commercial Mortgages." *Review of Financial Studies*, 23(9): 3558-3594.

**Table 1: Collateral Type**

<b>Collateral Type</b>	<b>Securities</b>	<b>% of Securities</b>	<b>% of Dollar Volume</b>	<b>Notes</b>
Auto loans	2,143	1.9%	5.9%	
CDOs	4,030	3.6%	4.2%	
CMBS	7,082	6.4%	15.5%	Omitted
Equipment	434	0.4%	0.6%	
Home equity	57,232	51.8%	45.4%	
Manuf. housing	572	0.5%	0.4%	
RMBS	37,753	34.2%	24.1%	
Student loans	1,287	1.2%	3.8%	
<b>Total</b>	<b>110,533</b>	<b>100.0%</b>	<b>100.0%</b>	

**Table 2: Security Initial Rating**

<b>Security Initial Rating</b>	<b>Securities</b>	<b>% of Securities</b>	<b>% of Dollar Volume</b>	<b>Notes</b>
AAA	65,500	59.3%	91.9%	
AA	12,592	11.4%	3.7%	
A	11,829	10.7%	2.1%	
BBB	12,443	11.3%	1.7%	
BB and below	8,169	7.4%	0.6%	Omitted
<b>Total</b>	<b>110,533</b>	<b>100.0%</b>	<b>100.0%</b>	

**Table 3: Vintage**

<b>Half-year of Initial Rating</b>	<b>Securities</b>	<b>% of Securities</b>	<b>% of Dollar Volume</b>	<b>Notes</b>
1999h1	1,115	1.0%	1.0%	Omitted
1999h2	832	0.8%	1.0%	
2000h1	3,205	2.9%	2.2%	
2000h2	1,488	1.3%	1.7%	
2001h1	1,963	1.8%	2.0%	
2001h2	2,463	2.2%	2.5%	
2002h1	3,287	3.0%	3.2%	
2002h2	4,043	3.7%	3.6%	
2003h1	6,507	5.9%	4.5%	
2003h2	7,192	6.5%	5.3%	
2004h1	7,262	6.6%	5.6%	
2004h2	8,514	7.7%	7.1%	
2005h1	9,524	8.6%	8.7%	
2005h2	13,449	12.2%	12.4%	
2006h1	10,833	9.8%	9.8%	
2006h2	11,052	10.0%	10.6%	
2007h1	11,328	10.2%	10.5%	
2007h2	5,713	5.2%	7.0%	
2008h1	763	0.7%	1.2%	
<b>Total securities</b>	<b>110,533</b>	<b>100.0%</b>	<b>100.0%</b>	

**Table 4: Coupon Spread and Floating-rate Dummy Variable**

<b>Variable</b>	<b>Securities</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Coupon spread	94,052	0.81	1.78	-6.77	27
Floating-rate security fixed effect	94,052	0.63	0.48	0	1

**Table 5: Sponsor Rating at Issuance**

<b>Sponsor Rating at Issuance</b>	<b>Securities</b>	<b>% of Securities</b>	<b>% of Dollar Volume</b>	<b>Notes</b>
AAA	1,457	1.3%	1.7%	
AA	26,105	23.6%	23.5%	
A	48,940	44.3%	42.8%	
BBB	9,384	8.5%	8.2%	
BB and below	8,888	8.0%	8.5%	Omitted
NR/Not in S&P	15,759	14.3%	15.4%	
<b>Total</b>	<b>110,533</b>	<b>100.0%</b>	<b>100.0%</b>	

**Table 6: Sponsor Sector**

<b>Sector</b>	<b>Firms</b>	<b>Percent</b>	<b>Securities</b>	<b>Percent</b>	<b>Notes</b>
Domestic bank	49	11.4%	27,596	25.5%	Omitted
Domestic nonbank	298	69.3%	58,652	54.1%	
Foreign bank	42	9.8%	20,262	18.7%	
Foreign nonbank	41	9.5%	1,870	1.7%	

**Table 7: Percent of Securities by Vintage and Sponsor Sector**

<b>Year Initial Rating</b>	<b>Domestic Bank Share</b>	<b>Domestic Nonbank Share</b>	<b>Foreign Bank Share</b>	<b>Foreign Nonbank Share</b>	<b>Total</b>
1999	38%	57%	2%	3%	100%
2000	16%	77%	4%	3%	100%
2001	28%	57%	13%	2%	100%
2002	31%	50%	16%	3%	100%
2003	31%	48%	20%	1%	100%
2004	24%	51%	23%	2%	100%
2005	23%	56%	20%	2%	100%
2006	24%	54%	20%	1%	100%
2007	27%	54%	17%	1%	100%
2008	28%	50%	17%	5%	100%

**Table 8: Tier 1 Capital Ratio and Altman Z-score Summary Statistics**

<b>Variable</b>	<b>Securities</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Tier 1 capital (Domestic banks only)	27,501	8.60	2.97	5.78	92
Altman Z-score (Domestic nonbanks only)	38,592	0.30	0.74	-1.69	18

**Table 9: Diversification**

<b>Number of Collateral Types Issued</b>	<b>% of All Securities</b>	<b>Domestic Bank Share</b>	<b>Domestic Nonbank Share</b>	<b>Foreign Bank Share</b>	<b>Foreign Nonbank Share</b>	<b>Total</b>
1	22%	3%	90%	3%	4%	100%
2	15%	16%	47%	37%	0%	100%
3	19%	28%	33%	36%	4%	100%
4	21%	4%	89%	6%	0%	100%
5	16%	60%	9%	31%	0%	100%
6	7%	100%	0%	0%	0%	100%

Note: Percent of securities by number of collateral types issued by sponsor during the five years prior to issuance



**Table 10: Vertical Integration**

<b>Variable</b>	<b>Securities</b>	<b>Percent</b>	<b>Notes</b>
Sponsor is the servicer	60,692	54.9%	
Sponsor is not the servicer	38,875	35.2%	Omitted FE
Servicer unidentified	10,966	9.9%	
<b>Total securities</b>	<b>110,533</b>	<b>100.0%</b>	

**Table 11: Insider Sales Fixed Effect Distribution by Security**

<b>Variable</b>	<b>Securities</b>	<b>Percent</b>	<b>Notes</b>
No insider sales or purchases	6,401	6%	Omitted
Net insider sales	98,489	89%	
Net insider purchases	5,643	5%	

**Table 12: Lognormal Survival Time Regression Results**

Dependent variable – Time to first downgrade

Variables	Whole Sample				
	(1)	(2)	(3)	(4)	(5)
	base	+ sector	distress measures observed	+ distress measures	without sponsor rating
<b>Sponsor rated AAA</b>	0.119 (0.087)	0.116 (0.086)	0.061 (0.090)	0.043 (0.091)	
<b>Sponsor rated AA</b>	0.132*** (0.032)	0.084** (0.037)	0.106** (0.043)	0.104** (0.043)	
<b>Sponsor rated A</b>	0.103*** (0.026)	0.078*** (0.027)	0.077** (0.033)	0.075** (0.033)	
<b>Sponsor rated BBB</b>	0.115*** (0.039)	0.101** (0.041)	0.181*** (0.053)	0.172*** (0.053)	
<b>Sponsor not rated or not in S&amp;P Database</b>	0.109*** (0.032)	0.099*** (0.032)	0.145*** (0.041)	0.130*** (0.042)	
<b>Domestic bank</b>		0.147*** (0.033)	0.127*** (0.034)	0.018 (0.053)	-0.003 (0.055)
<b>Domestic nonbank</b>		0.023 (0.030)	0.026 (0.031)	0.019 (0.031)	0.005 (0.025)
<b>Foreign nonbank</b>		-0.114 (0.075)	-0.141* (0.073)	-0.130* (0.072)	-0.103 (0.066)
<b>Sponsor = servicer</b>	0.090*** (0.020)	0.042* (0.023)	0.065*** (0.025)	0.063** (0.025)	0.056** (0.024)
<b>Servicer unidentified</b>	0.031 (0.043)	0.027 (0.048)	0.062 (0.054)	0.059 (0.054)	0.061 (0.054)
<b>Sponsor issued more than 4 collateral types</b>	0.107*** (0.024)	0.049* (0.026)	0.063** (0.028)	0.064** (0.028)	0.059** (0.027)
<b>Tier 1 capital (Domestic banks only)</b>				0.013*** (0.005)	0.016*** (0.005)
<b>Altman Z-score (Domestic nonbanks only)</b>				0.037** (0.016)	0.046*** (0.016)
<b>Observations</b>	582654	569585	453384	453384	453384
<b>Log pseudolikelihood</b>	-49950	-48448	-39291	-39272	-39318
<b>Vintage half-year FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Collateral type FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Initial rating FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Failure year FE included</b>	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Table 13: Lognormal Survival Time Regression Results – Subperiod 1999-2003**  
 Dependent variable – Time to first downgrade

Variables	1999-2003				
	(1)	(2)	(3)	(4)	(5)
	base	+ sector	distress measures observed	+ distress measures	without sponsor rating
<b>Sponsor rated AAA</b>	1.084*** (0.405)	0.951** (0.410)	0.948** (0.453)	0.840* (0.457)	
<b>Sponsor rated AA</b>	1.485*** (0.273)	0.890*** (0.289)	0.787*** (0.289)	0.759*** (0.289)	
<b>Sponsor rated A</b>	1.156*** (0.233)	0.894*** (0.224)	0.712*** (0.216)	0.708*** (0.216)	
<b>Sponsor rated BBB</b>	0.769*** (0.235)	0.486** (0.236)	0.963*** (0.283)	0.944*** (0.282)	
<b>Sponsor not rated or not in S&amp;P Database</b>	0.731*** (0.244)	0.721*** (0.242)	0.705*** (0.259)	0.592** (0.260)	
<b>Domestic bank</b>		0.428** (0.211)	0.289 (0.220)	0.429 (0.290)	0.442 (0.279)
<b>Domestic nonbank</b>		-0.600*** (0.206)	-0.445** (0.225)	-0.524** (0.229)	-0.684*** (0.192)
<b>Foreign nonbank</b>		-1.106*** (0.426)	-1.429*** (0.420)	-1.343*** (0.423)	-1.400*** (0.407)
<b>Sponsor = servicer</b>	0.590*** (0.135)	0.567*** (0.135)	0.600*** (0.147)	0.560*** (0.148)	0.535*** (0.145)
<b>Servicer unidentified</b>	0.138 (0.225)	0.073 (0.247)	0.298 (0.311)	0.256 (0.309)	0.262 (0.311)
<b>Sponsor issued more than 4 collateral types</b>	0.256** (0.127)	0.006 (0.148)	0.167 (0.171)	0.116 (0.172)	0.058 (0.163)
<b>Tier 1 capital (Domestic banks only)</b>				-0.014 (0.022)	-0.009 (0.021)
<b>Altman Z-score (Domestic nonbanks only)</b>				0.254* (0.136)	0.282** (0.138)
<b>Observations</b>	248509	240457	178625	178625	178625
<b>Log pseudolikelihood</b>	-6728	-6198	-4386	-4379	-4398
<b>Vintage half-year FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Collateral type FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Initial rating FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Failure year FE included</b>	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 14: Lognormal Survival Time Regression Results – Subperiod 2004-2008**  
 Dependent variable – Time to first downgrade

Variables	2004-2008				
	(1)	(2)	(3)	(4)	(5)
	base	+ sector	distress measures observed	+ distress measures	without sponsor rating
<b>Sponsor rated AAA</b>	0.051 (0.070)	0.047 (0.070)	-0.026 (0.072)	-0.038 (0.072)	
<b>Sponsor rated AA</b>	0.062** (0.027)	0.044 (0.032)	0.057 (0.038)	0.056 (0.038)	
<b>Sponsor rated A</b>	0.041* (0.022)	0.029 (0.023)	0.025 (0.028)	0.024 (0.028)	
<b>Sponsor rated BBB</b>	0.048 (0.038)	0.042 (0.040)	0.077 (0.048)	0.070 (0.048)	
<b>Sponsor not rated or not in S&amp;P Database</b>	0.069** (0.028)	0.062** (0.028)	0.092*** (0.035)	0.082** (0.036)	
<b>Domestic bank</b>		0.107*** (0.030)	0.089*** (0.030)	-0.034 (0.052)	-0.044 (0.058)
<b>Domestic nonbank</b>		0.035 (0.027)	0.040 (0.027)	0.036 (0.028)	0.024 (0.022)
<b>Foreign nonbank</b>		-0.031 (0.062)	-0.030 (0.062)	-0.022 (0.062)	-0.019 (0.056)
<b>Sponsor = servicer</b>	0.059*** (0.018)	0.024 (0.020)	0.046** (0.022)	0.045** (0.022)	0.037* (0.022)
<b>Servicer unidentified</b>	0.060 (0.039)	0.061 (0.044)	0.090* (0.048)	0.087* (0.048)	0.089* (0.047)
<b>Sponsor issued more than 4 collateral types</b>	0.092*** (0.022)	0.054** (0.024)	0.064*** (0.025)	0.066*** (0.025)	0.063*** (0.024)
<b>Tier 1 capital (Domestic banks only)</b>				0.014*** (0.005)	0.015*** (0.006)
<b>Altman Z-score (Domestic nonbanks only)</b>				0.026* (0.014)	0.032** (0.014)
<b>Observations</b>	334145	329128	274759	274759	274759
<b>Log pseudolikelihood</b>	-39777	-38935	-32109	-32091	-32121
<b>Vintage half-year FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Collateral type FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Initial rating FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Failure year FE included</b>	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 15: Lognormal Survival Time Regression Results – AAA Securities Only**  
 Dependent variable – Time to first downgrade

Variables	Securities Initially Rated AAA				
	(1)	(2)	(3)	(4)	(5)
	base	+ sector	distress measures observed	+ distress measures	without sponsor rating
<b>Sponsor rated AAA</b>	0.565*** (0.125)	0.529*** (0.121)	0.575*** (0.163)	0.551*** (0.162)	
<b>Sponsor rated AA</b>	0.167*** (0.041)	0.150*** (0.043)	0.189*** (0.056)	0.185*** (0.056)	
<b>Sponsor rated A</b>	0.096*** (0.028)	0.084*** (0.030)	0.099** (0.039)	0.095** (0.039)	
<b>Sponsor rated BBB</b>	0.061 (0.039)	0.049 (0.041)	0.179*** (0.057)	0.175*** (0.057)	
<b>Sponsor not rated or not in S&amp;P Database</b>	0.184*** (0.041)	0.153*** (0.039)	0.161*** (0.050)	0.143*** (0.050)	
<b>Domestic bank</b>		0.112*** (0.043)	0.094** (0.045)	0.034 (0.053)	0.028 (0.055)
<b>Domestic nonbank</b>		0.052 (0.037)	0.053 (0.040)	0.044 (0.040)	0.004 (0.034)
<b>Foreign nonbank</b>		-0.012 (0.067)	-0.032 (0.068)	-0.020 (0.068)	-0.034 (0.061)
<b>Sponsor = servicer</b>	0.018 (0.026)	-0.022 (0.029)	0.004 (0.032)	0.002 (0.032)	-0.018 (0.031)
<b>Servicer unidentified</b>	0.002 (0.061)	-0.037 (0.066)	-0.002 (0.073)	-0.005 (0.073)	0.002 (0.072)
<b>Sponsor issued more than 4 collateral types</b>	0.091*** (0.033)	0.048 (0.034)	0.056 (0.037)	0.056 (0.037)	0.067* (0.038)
<b>Tier 1 capital (Domestic banks only)</b>				0.007** (0.003)	0.008** (0.004)
<b>Altman Z-score (Domestic nonbanks only)</b>				0.051*** (0.018)	0.069*** (0.021)
<b>Observations</b>	363660	357439	286387	286387	286387
<b>Log pseudolikelihood</b>	-19415	-18974	-15835	-15823	-15901
<b>Vintage half-year FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Collateral type FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Failure year FE included</b>	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 16: Lognormal Survival Time Regression Results -- Below AAA Securities Only**  
 Dependent variable – Time to first downgrade

Variables	Securities Initially Rated Below AAA				
	(1)	(2)	(3)	(4)	(5)
	base	+ sector	distress measures observed	+ distress measures	without sponsor rating
<b>Sponsor rated AAA</b>	0.016 (0.103)	0.023 (0.102)	-0.001 (0.107)	-0.009 (0.108)	
<b>Sponsor rated AA</b>	0.070* (0.037)	-0.015 (0.044)	0.014 (0.051)	0.014 (0.051)	
<b>Sponsor rated A</b>	0.067** (0.032)	0.026 (0.033)	0.037 (0.039)	0.037 (0.039)	
<b>Sponsor rated BBB</b>	0.126** (0.051)	0.108** (0.053)	0.139** (0.068)	0.130* (0.068)	
<b>Sponsor not rated or not in S&amp;P Database</b>	0.044 (0.037)	0.047 (0.038)	0.113** (0.048)	0.106** (0.049)	
<b>Domestic bank</b>		0.163*** (0.037)	0.144*** (0.038)	0.054 (0.061)	0.031 (0.075)
<b>Domestic nonbank</b>		-0.021 (0.034)	-0.018 (0.036)	-0.020 (0.037)	0.002 (0.029)
<b>Foreign nonbank</b>		-0.195** (0.088)	-0.218** (0.087)	-0.211** (0.087)	-0.145* (0.078)
<b>Sponsor = servicer</b>	0.128*** (0.023)	0.080*** (0.025)	0.104*** (0.028)	0.104*** (0.028)	0.106*** (0.027)
<b>Servicer unidentified</b>	0.059 (0.044)	0.094* (0.049)	0.130** (0.054)	0.128** (0.054)	0.127** (0.054)
<b>Sponsor issued more than 4 collateral types</b>	0.109*** (0.027)	0.047 (0.030)	0.061* (0.032)	0.062* (0.032)	0.057* (0.031)
<b>Tier 1 capital (Domestic banks only)</b>				0.011* (0.006)	0.015* (0.008)
<b>Altman Z-score (Domestic nonbanks only)</b>				0.016 (0.019)	0.025 (0.019)
<b>Observations</b>	218994	212146	166997	166997	166997
<b>Log pseudolikelihood</b>	-28242	-27233	-21682	-21678	-21698
<b>Vintage half-year FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Collateral type FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Initial rating FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Failure year FE included</b>	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 17: Lognormal Survival Time Regression Results – RMBS & Home Equity Only**  
 Dependent variable – Time to first downgrade

Variables	RMBS & Home Equity				
	(1)	(2)	(3)	(4)	(5)
	base	+ sector	distress measures observed	+ distress measures	without sponsor rating
<b>Sponsor rated AAA/AA</b>	0.076*** (0.028)	0.026 (0.032)	0.033 (0.037)	0.038 (0.037)	
<b>Sponsor rated A</b>	0.047** (0.022)	0.023 (0.023)	0.008 (0.028)	0.010 (0.028)	
<b>Sponsor rated BBB</b>	0.069** (0.034)	0.053 (0.036)	0.112** (0.047)	0.133*** (0.051)	
<b>Sponsor not rated or not in S&amp;P Database</b>	0.082*** (0.028)	0.077*** (0.028)	0.074** (0.035)	0.091** (0.037)	
<b>Domestic bank</b>		0.125*** (0.030)	0.107*** (0.031)	0.410* (0.230)	0.165 (0.208)
<b>Domestic nonbank</b>		-0.004 (0.026)	-0.002 (0.027)	0.008 (0.028)	0.005 (0.023)
<b>Foreign nonbank</b>		-0.103* (0.061)	-0.124** (0.062)	-0.134** (0.063)	-0.082 (0.056)
<b>Sponsor = servicer</b>	0.071*** (0.018)	0.036* (0.020)	0.060*** (0.022)	0.064*** (0.022)	0.056** (0.022)
<b>Servicer unidentified</b>	0.071* (0.041)	0.069 (0.048)	0.084* (0.051)	0.087* (0.051)	0.090* (0.051)
<b>Sponsor issued more than 4 collateral types</b>	0.104*** (0.022)	0.044* (0.024)	0.054** (0.024)	0.053** (0.024)	0.048** (0.024)
<b>Tier 1 capital (Domestic banks only)</b>				-0.036 (0.027)	-0.006 (0.024)
<b>Altman Z-score (Domestic nonbanks only)</b>				-0.057** (0.028)	-0.034 (0.025)
<b>Observations</b>	491587	487094	393592	393592	393592
<b>Log pseudolikelihood</b>	-40413	-39926	-33142	-33126	-33180
<b>Vintage half-year FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Collateral type FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Initial rating FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Failure year FE included</b>	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 18: Lognormal Survival Time Regression Results using Severe Downgrades**  
 Dependent variable – Time to first severe downgrade

Variables	Whole Sample				
	(1)	(2)	(3)	(4)	(5)
	base	+ sector	distress measures observed	+ distress measures	without sponsor rating
Sponsor rated AAA	0.094 (0.063)	0.090 (0.064)	0.088 (0.068)	0.081 (0.068)	
Sponsor rated AA	0.121*** (0.029)	0.122*** (0.034)	0.142*** (0.039)	0.141*** (0.039)	
Sponsor rated A	0.035 (0.023)	0.029 (0.025)	0.047* (0.028)	0.046 (0.028)	
Sponsor rated BBB	0.087** (0.037)	0.082** (0.039)	0.102** (0.047)	0.101** (0.047)	
Sponsor not rated or not in S&P Database	0.100*** (0.028)	0.087*** (0.028)	0.100*** (0.034)	0.095*** (0.035)	
Domestic bank		0.125*** (0.029)	0.124*** (0.030)	0.126** (0.063)	0.099 (0.084)
Domestic nonbank		0.066** (0.027)	0.072** (0.028)	0.068** (0.029)	0.022 (0.023)
Foreign nonbank		-0.007 (0.054)	-0.016 (0.056)	-0.014 (0.056)	-0.042 (0.049)
Sponsor = servicer	0.041** (0.017)	-0.000 (0.019)	-0.004 (0.021)	-0.004 (0.021)	-0.022 (0.021)
Servicer unidentified	0.055 (0.041)	0.036 (0.047)	0.049 (0.051)	0.046 (0.052)	0.058 (0.050)
Sponsor issued more than 4 collateral types	0.071*** (0.021)	0.034 (0.024)	0.036 (0.025)	0.036 (0.025)	0.040 (0.026)
Tier 1 capital (Domestic banks only)				-0.000 (0.007)	0.002 (0.009)
Altman Z-score (Domestic nonbanks only)				0.017 (0.013)	0.025* (0.014)
Observations	582654	569585	453384	453384	453384
Log pseudolikelihood	-21924	-21475	-17835	-17832	-17916
Constant included	Yes	Yes	Yes	Yes	Yes
Vintage half-year FE included	Yes	Yes	Yes	Yes	Yes
Collateral type FE included	Yes	Yes	Yes	Yes	Yes
Initial rating FE included	Yes	Yes	Yes	Yes	Yes
Failure year FE included	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



**Table 19: Lognormal Survival Time Regression Results using Upgrades**  
 Dependent variable – Time to first upgrade

Variables	Whole Sample				
	(1)	(2)	(3)	(4)	(5)
	base	+ sector	distress measures observed	+ distress measures	without sponsor rating
<b>Sponsor rated investment-grade</b>	-0.152* (0.090)	-0.102 (0.000)	-0.048 (0.099)	-0.045 (0.099)	
<b>Sponsor not rated or not in S&amp;P Database</b>	-0.103 (0.101)	-0.065 (0.000)	-0.079 (0.113)	-0.000 (0.116)	
<b>Domestic bank</b>		-0.098 (0.000)	-0.106 (0.070)	-0.088 (0.102)	-0.088 (0.102)
<b>Domestic nonbank</b>		-0.071 (0.000)	0.048 (0.069)	0.081 (0.070)	0.094 (0.066)
<b>Foreign nonbank</b>		0.498 (0.000)	0.591*** (0.194)	0.511*** (0.190)	0.530*** (0.189)
<b>Sponsor = servicer</b>	0.004 (0.045)	0.056 (0.000)	-0.014 (0.056)	-0.010 (0.056)	-0.009 (0.056)
<b>Servicer unidentified</b>	0.067 (0.077)	0.040 (0.000)	0.024 (0.084)	0.043 (0.084)	0.045 (0.085)
<b>Sponsor issued more than 4 collateral types</b>	-0.200*** (0.047)	-0.206 (0.000)	-0.104* (0.053)	-0.095* (0.053)	-0.094* (0.053)
<b>Tier 1 capital (Domestic banks only)</b>				-0.002 (0.008)	-0.002 (0.008)
<b>Altman Z-score (Domestic nonbanks only)</b>				-0.107*** (0.031)	-0.104*** (0.030)
<b>Observations</b>	269456	261386	208380	208380	208380
<b>Log pseudolikelihood</b>	-12068	-11587	-8787	-8752	-8753
<b>Constant included</b>	Yes	Yes	Yes	Yes	Yes
<b>Vintage half-year FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Collateral type FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Initial rating FE included</b>	Yes	Yes	Yes	Yes	Yes
<b>Failure year FE included</b>	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 20: Lognormal Survival Time Regression Results with Coupon Spread**  
 Dependent variable – Time to first downgrade

Variables	Whole Sample				
	(1)	(2)	(3)	(4)	(5)
	base	+ sector	distress measures observed	+ distress measures	without sponsor rating
Sponsor rated AAA	0.018 (0.092)	0.017 (0.091)	-0.001 (0.096)	-0.009 (0.096)	
Sponsor rated AA	0.125*** (0.031)	0.076** (0.036)	0.106*** (0.041)	0.105** (0.041)	
Sponsor rated A	0.087*** (0.024)	0.064** (0.025)	0.075** (0.030)	0.073** (0.030)	
Sponsor rated BBB	0.107*** (0.037)	0.092** (0.039)	0.177*** (0.051)	0.168*** (0.050)	
Sponsor not rated or not in S&P Database	0.122*** (0.030)	0.117*** (0.030)	0.156*** (0.037)	0.148*** (0.038)	
Domestic bank		0.114*** (0.032)	0.100*** (0.033)	-0.024 (0.049)	-0.052 (0.059)
Domestic nonbank		-0.003 (0.029)	-0.000 (0.030)	-0.002 (0.030)	-0.017 (0.024)
Foreign nonbank		-0.101 (0.068)	-0.132** (0.065)	-0.123* (0.065)	-0.095 (0.058)
Sponsor = servicer	0.087*** (0.019)	0.053** (0.022)	0.070*** (0.024)	0.069*** (0.024)	0.060*** (0.023)
Servicer unidentified	0.061 (0.040)	0.059 (0.046)	0.099* (0.051)	0.099* (0.051)	0.101** (0.051)
Sponsor issued more than 4 collateral types	0.083*** (0.024)	0.034 (0.026)	0.040 (0.026)	0.042 (0.026)	0.033 (0.026)
Tier 1 capital (Domestic banks only)				0.014*** (0.004)	0.018*** (0.006)
Altman Z-score (Domestic nonbanks only)				0.018 (0.020)	0.033* (0.019)
Floating-rate security	-0.079*** (0.017)	-0.077*** (0.017)	-0.067*** (0.018)	-0.067*** (0.018)	-0.065*** (0.018)
Coupon spread	-0.020*** (0.004)	-0.021*** (0.004)	-0.026*** (0.005)	-0.026*** (0.005)	-0.027*** (0.005)
Coupon spread squared	0.002*** (0.000)	0.001*** (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Observations	488718	478688	376511	376511	376511
Log pseudolikelihood	-42884	-41854	-33585	-33572	-33636
Constant included	Yes	Yes	Yes	Yes	Yes
Vintage half-year FE included	Yes	Yes	Yes	Yes	Yes
Collateral type FE included	Yes	Yes	Yes	Yes	Yes
Initial rating FE included	Yes	Yes	Yes	Yes	Yes
Failure year FE included	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 21: Lognormal Survival Time Regression Results with Insider Sales**  
 Dependent variable – Time to first downgrade

Variables	Whole Sample		1999-2003		2004-2008	
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Net insider sales &gt; 0</b>	-0.124*** (0.038)	-0.100** (0.040)	0.089 (0.175)	-0.040 (0.191)	-0.131*** (0.036)	-0.108*** (0.037)
<b>Net insider sales &lt; 0</b>	-0.017 (0.057)	-0.040 (0.059)	0.329 (0.229)	0.213 (0.241)	-0.045 (0.056)	-0.060 (0.058)
<b>Observations</b>	604932	569585	270787	240457	334145	329128
<b>Log pseudolikelihood</b>	-50519	-48417	-7157	-6196	-39841	-38889
<b>Vintage half-year FE included</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Collateral type FE included</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Initial rating FE included</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Failure year FE included</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Vertical integration FE included</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Sponsor rating FE included</b>	No	Yes	No	Yes	No	Yes
<b>Sponsor sector FE included</b>	No	Yes	No	Yes	No	Yes
<b>Sponsor diversification FE included</b>	No	Yes	No	Yes	No	Yes

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Figure 1:

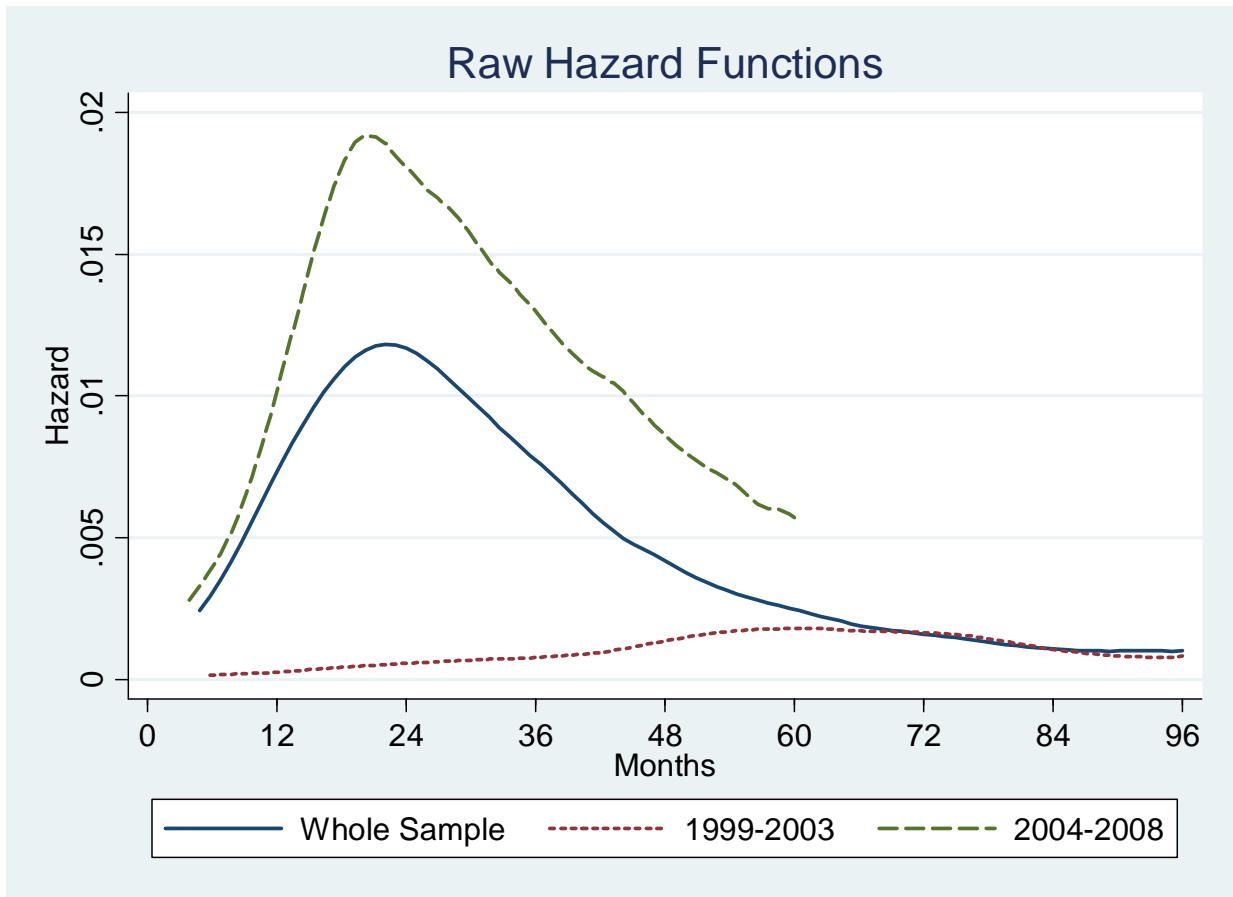


Figure 2:

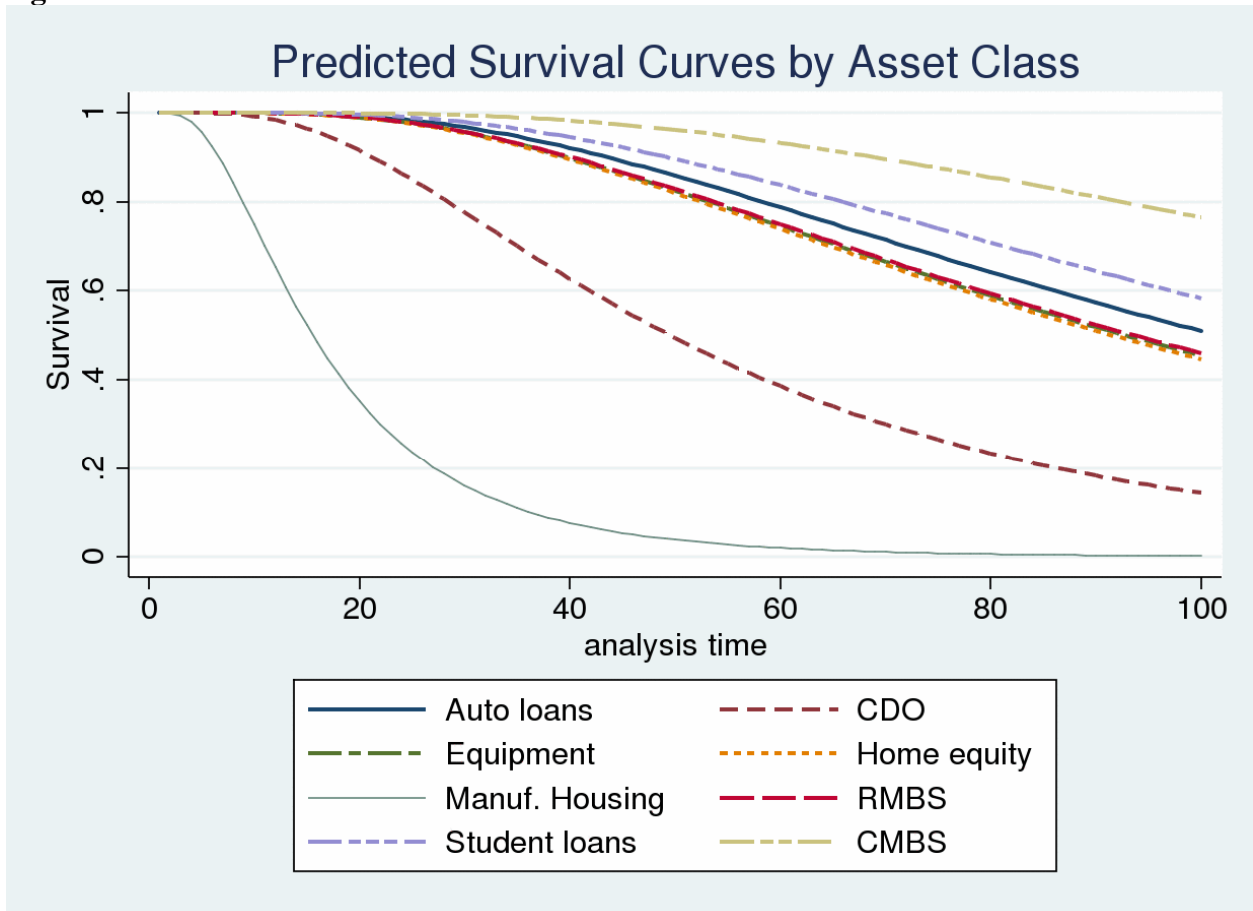


Figure 3:

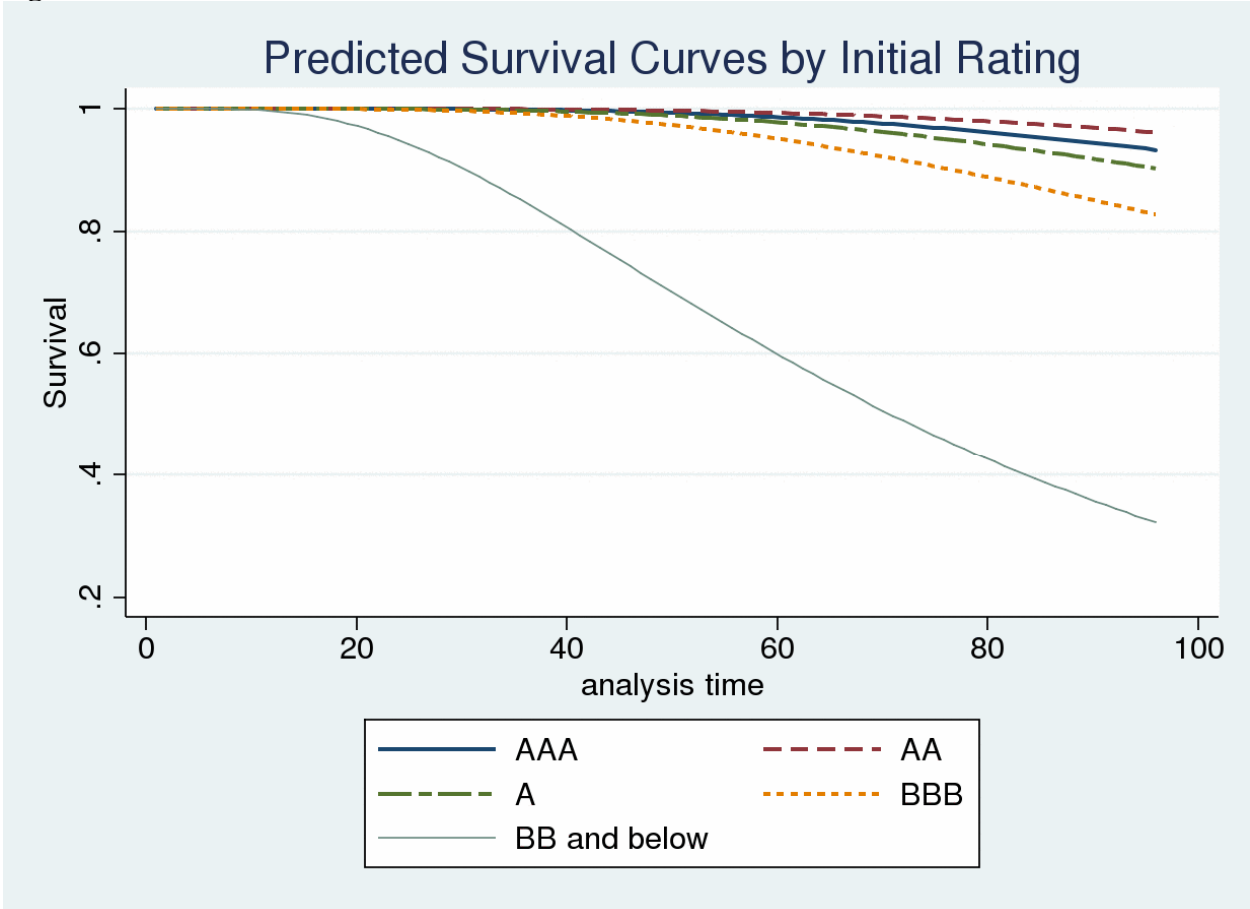


Figure 4:

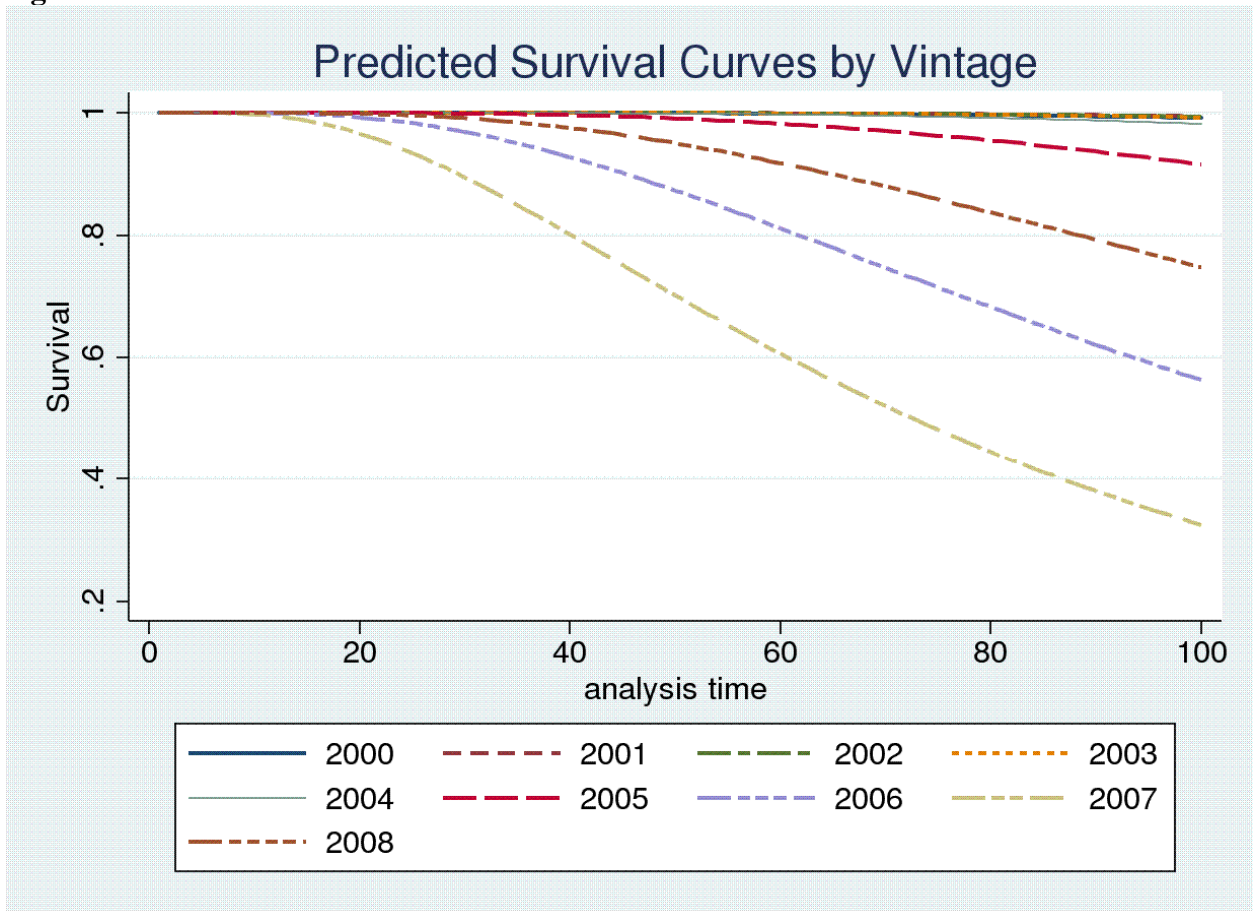


Figure 5:

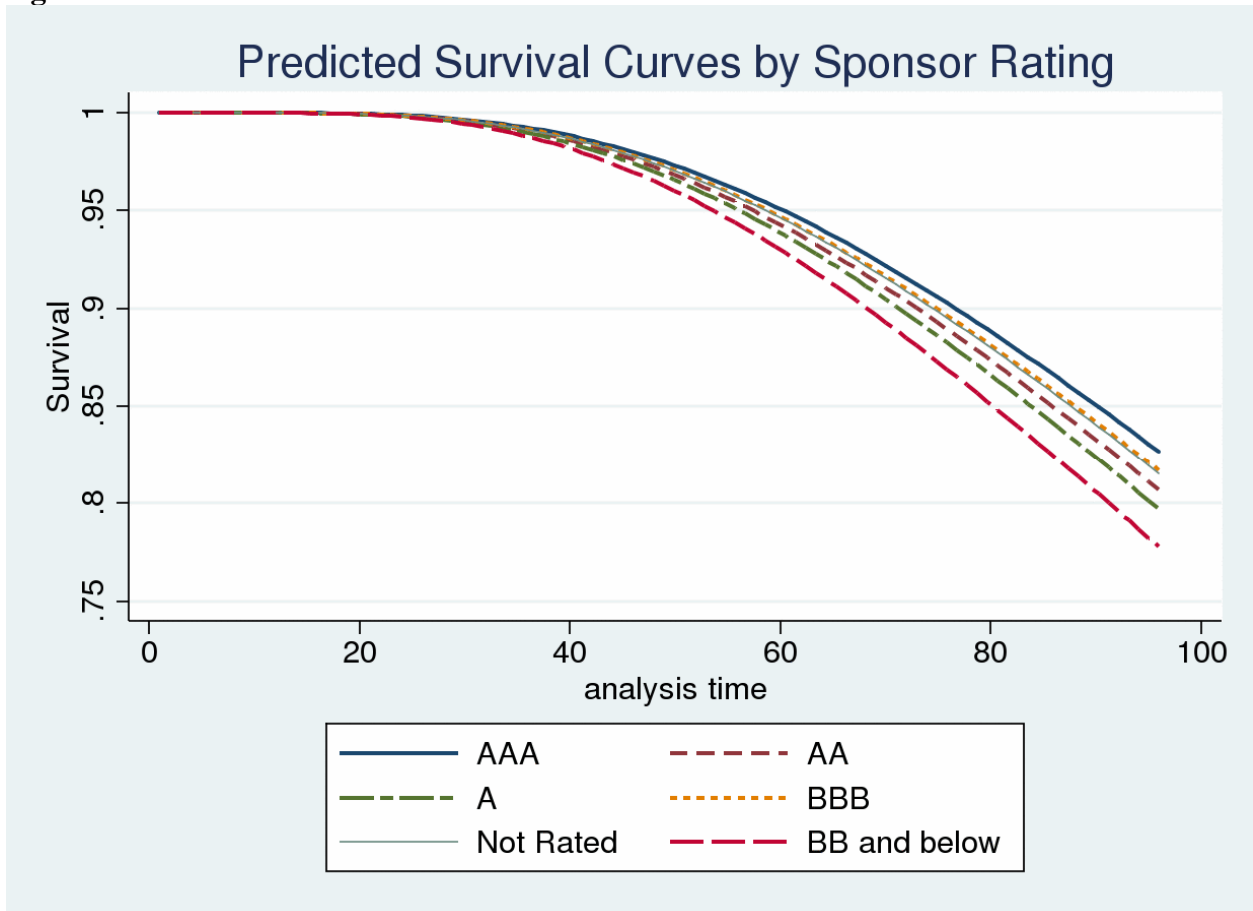
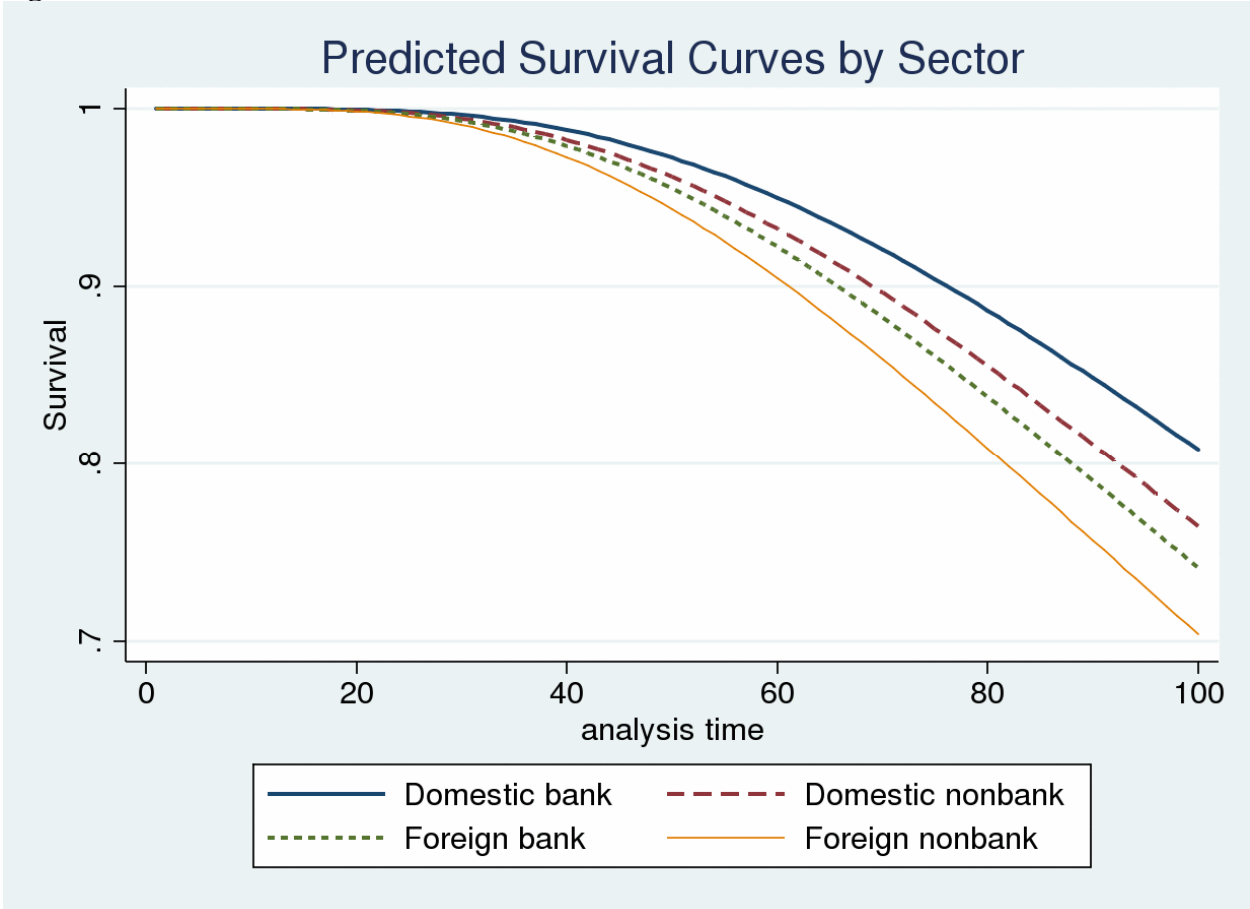




Figure 6:



**Appendix Table 1: Pairwise Correlations**

	Sponsor: AAA	Sponsor: AA	Sponsor: A	Sponsor: BBB	Sponsor: < BBB	Sponsor: NR	Domestic bank	Domestic nonbank	Foreign bank	Foreign nonbank	More 4 coll. types	Tier 1 capital	Altman's Z-score
Initial rating FE (AAA)	-0.01	-0.01	0.07	0.05	0.00	-0.11	0.07	-0.02	-0.05	0.00	0.04	0.06	-0.02
Initial rating FE (AA)	0.00	0.00	-0.03	-0.03	0.01	0.06	-0.05	0.03	0.02	0.00	-0.03	-0.05	0.01
Initial rating FE (A)	0.00	-0.01	-0.03	-0.02	0.00	0.07	-0.04	0.02	0.02	0.01	-0.02	-0.04	0.02
Initial rating FE (BBB)	0.01	0.00	-0.04	-0.02	0.00	0.07	-0.04	0.01	0.02	0.00	-0.02	-0.04	0.02
Initial rating FE (Below BBB)	0.00	0.03	0.00	-0.01	-0.01	-0.02	0.03	-0.04	0.02	-0.01	0.02	0.02	-0.02
Sponsor rated AAA	1.00	-0.07	-0.12	-0.05	-0.04	-0.06	-0.08	0.09	-0.03	0.00	0.05	-0.07	0.16
Sponsor rated AA		1.00	-0.46	-0.17	-0.14	-0.22	0.16	-0.51	0.51	-0.06	0.11	0.16	-0.14
Sponsor rated A			1.00	-0.31	-0.25	-0.38	0.09	0.05	-0.12	-0.07	0.07	0.08	-0.05
Sponsor rated BBB				1.00	-0.09	-0.14	0.04	0.04	-0.15	0.17	-0.19	0.07	-0.03
Sponsor rated below BBB					1.00	-0.12	-0.15	0.22	-0.12	0.02	-0.15	-0.14	0.03
Sponsor not rated						1.00	-0.22	0.31	-0.18	0.01	0.03	-0.22	0.21
Domestic bank							1.00	-0.66	-0.27	-0.08	0.43	0.93	-0.18
Domestic nonbank								1.00	-0.50	-0.15	-0.37	-0.61	0.29
Foreign bank									1.00	-0.06	-0.01	-0.25	-0.13
Foreign nonbank										1.00	-0.05	-0.08	-0.04
Sponsor issued more than 4 coll. types											1.00	0.35	-0.07
Tier 1 capital (Domestic banks only)												1.00	-0.16
Altman's Z (Domestic nonbanks only)													1.00

**Appendix Table 2: Regression Fixed Effects – Whole Sample**  
**Dependent variable – Time to first downgrade**

Variables	Whole Sample				
	(1)	(2)	(3)	(4)	(5)
	base	+ sector	distress measures observed	+ distress measures	without sponsor rating
Collateral type FE - Auto loans	-0.492*** (0.125)	-0.460*** (0.121)	-0.849*** (0.133)	-0.886*** (0.133)	-0.890*** (0.135)
Collateral type FE - CDOs	-1.262*** (0.091)	-1.211*** (0.094)	-1.230*** (0.114)	-1.255*** (0.115)	-1.247*** (0.114)
Collateral type FE - Equipment	-0.619** (0.293)	-0.543* (0.301)	-0.070 (0.299)	-0.076 (0.299)	-0.098 (0.295)
Collateral type FE - Home equity	-1.081*** (0.068)	-1.067*** (0.069)	-1.138*** (0.073)	-1.138*** (0.073)	-1.134*** (0.072)
Collateral type FE - Manuf. Housing	-2.382*** (0.148)	-2.341*** (0.144)	-2.410*** (0.149)	-2.419*** (0.149)	-2.428*** (0.150)
Collateral type FE - RMBS	-0.849*** (0.064)	-0.851*** (0.065)	-0.941*** (0.069)	-0.939*** (0.069)	-0.931*** (0.068)
Collateral type FE - Student loans	-0.278 (0.200)	-0.331 (0.202)	-0.506** (0.218)	-0.505** (0.218)	-0.488** (0.217)
Initial rating FE (AAA)	1.299*** (0.058)	1.293*** (0.058)	1.314*** (0.064)	1.314*** (0.064)	1.313*** (0.064)
Initial rating FE (AA)	0.734*** (0.036)	0.739*** (0.037)	0.753*** (0.041)	0.753*** (0.041)	0.755*** (0.041)
Initial rating FE (A)	0.381*** (0.024)	0.387*** (0.024)	0.396*** (0.027)	0.396*** (0.027)	0.398*** (0.027)
Initial rating FE (BBB)	0.123*** (0.017)	0.128*** (0.017)	0.136*** (0.019)	0.135*** (0.019)	0.138*** (0.019)
Failure year FE (2007)	-0.157*** (0.027)	-0.159*** (0.027)	-0.145*** (0.030)	-0.145*** (0.030)	-0.142*** (0.030)
Failure year FE (2008)	-0.704*** (0.071)	-0.686*** (0.070)	-0.641*** (0.076)	-0.641*** (0.076)	-0.636*** (0.075)
Failure year FE (2009)	-0.187*** (0.071)	-0.182** (0.071)	-0.187** (0.080)	-0.187** (0.080)	-0.182** (0.080)
Constant	5.568*** (0.116)	4.278*** (0.185)	4.279*** (0.202)	5.625*** (0.132)	4.376*** (0.203)
ln(sigma)	-0.394*** (0.037)	-0.415*** (0.037)	-0.436*** (0.041)	-0.437*** (0.041)	-0.437*** (0.041)

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1