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ABSTRACT

We investigate determinants of launch spreads in European securitization transactions over the last decade. First, we develop a simple, reduced-form pricing model for all issues across different transaction types and test it. We document the critical importance of credit ratings without refinements as the key pricing factors for structured finance securities at launch. Next, we show that other price determinants, such as placement characteristics, are consistently significant in their impact on spreads and delineate the opposing effects of liquidity and market segmentation. Finally, we show that other factors that might directly affect investors' payoffs, such as creditors' rights, exhibit consistent relationships to launch spreads beyond the credit rating. Hence, we conjecture that credit rating agencies systematically differ from investors in their assessment of certain issues' and markets' characteristics.

JEL classification: G14, G15, G32

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1. INTRODUCTION

In contrast to corporate bonds, the critical feature of securitization transactions is that underlying assets are not only homogenous within a given pool, but also similar across different pools and issuers. This offers an attractive environment for studying the impact of different market and transaction characteristics on the price of securities at launch. Using a large, proprietary database of over 5000 securities issued in Europe between 1987 and 2003 and consisting of largely floating-rate issues, we test for a variety of potential cross-sectional and time-variant determinants of spreads using a simple, reduced-form model similar to analogous models developed for corporate bonds. Our objective is to delineate the most important determinants of launch spreads in securitization transactions at the date of issue as well as investigate the role of the type of transaction, issue timing, or the precision of the rating signal, among other factors.

In a typical securitization transaction a group of assets from an enterprise – most typically a financial institution – is pooled together and sold to an external, financing legal entity: a special purpose vehicle (SPV). The SPV buys assets from the enterprise with funds raised from investors who purchase securities – the asset backed securities – structured to feature specific characteristics and issued by the SPV. These securities are backed by the pool of assets acquired from the enterprise in the first place. Since the SPV is essentially a passive investment vehicle, the selection, characteristics, and uses of the pool of assets is governed by an extensive, legal contract, which aims to specify in great detail all foreseeable contingencies regarding future cashflows originating from the securitized assets. Cashflows arising from the assets are subsequently used to make interest payments and eventually repay the principal to investors.

Unlike in the case of corporate bonds, securities issued as a part of a securitisation transaction are structured. Given each issue characteristics, we document the critical importance of structuring factors on price. Among these factors we show that the tranche-specific, composite credit rating, obtained with the help internal and external enhancement, is the primary determinant of spreads. However, we show that other price determinants are consistently significant in their impact on spreads after controlling for credit rating. These factors include both the criteria used by the rating agencies to determine credit rating as well as other factors, which are not part of the rating process. In this context, we delineate the opposing effects of liquidity and market segmentation. We find evidence that credit rating agencies systematically differ from investors in their assessment of certain issues' and markets' characteristics.

1.1 MOTIVATION: As far as we know, ours is the first paper to investigate the importance of credit ratings and other pricing factors in determining prices of securitised debt at issue. This is of interest because, despite the fact that securitizations now represent over one quarter of all publicly issued bonds and over 80% of all ratings, there have been few empirical studies investigating their nature and pricing (in contrast to the much researched realm of corporate bonds). Second, this is an exciting, new ground for research, since structured finance transactions include many features not present in ordinary bonds. These features facilitate the investigation of the impact of several important market factors such as liquidity, segmentation, or legal jurisdiction, on the price of bonds generally.

Moreover, since the underlying assets in securitization transactions are considerably more uniform than in the case of corporate bonds, structured finance issues are considerably less 'noisy' in terms of issuer-specific factors that might influence spreads. In this respect, they represent a particularly fertile ground for investigations of the price impact of a variety of market factors. Finally, unlike corporate bond issues, securitization issues are structured. That is, they are arranged through the process of pooling and tranching based on contractual modelling of cashflows, possibly aimed at exploiting particular market conditions. This allows for investigating certain market phenomena such as market incompleteness, which would have been difficult in the case of corporate bonds.

1.2 PLAN OF THE STUDY AND PRELIMINARY RESULTS: In the first part of our exploratory study, we develop a simple, reduced-form pricing model for all issues across different transaction types and test it. We find the key pricing controls to pass basic reality checks and our results to be consistent with those from earlier studies and across major transaction types. Next, we document the critical importance of credit ratings as the most important pricing factors for structured finance securities at launch. Here, we show that rating refinements offer limited additional explanatory value, but rating agencies differ significantly in their credit ratings' alignment with market-determined prices at issue. We follow with the analysis of some temporaneous market factors, which we show to have limited impact on spreads. Furthermore, we show that other price determinants, such as placement characteristics, are consistently significant in their impact on spreads and delineate the opposing effects of liquidity and market segmentation at the tranche and issue level for each transaction. This is important since it indicates that structuring, in as far as it is applied, might be successful at remedying the problem of limited market capacity. Finally, we show that other factors that might directly affect investors' payoffs, such as creditors' rights, exhibit consistent relationships to launch spreads beyond the credit rating. Hence, we conjecture that credit rating agencies systematically differ from investors in their assessment of certain issues' and markets' characteristics.

The remainder of the paper proceeds as follows. In the next section we analyse the related literature. In section 3, we describe our data and the securitization market more broadly as well as provide some stylised facts on the nature of securitisations and launch spreads. Section 4 describes our pricing model. In Section 5 we test the model and investigate the importance of credit ratings as well as time-variant market characteristics. In Section 6 we analyse different transaction types and follow up with the econometric analysis of target market determinants of launch spreads beyond the credit rating including liquidity, market placement and legal jurisdictions. We conclude with Section 7.

2. RELATED LITERATURE

Despite the fact that the total balance of outstanding asset backed securities in 2004 ahs reached more than US$3 trillion worldwide, there has been surprisingly little academic research investigating structured finance issues in contrast to their importance in the real world financial markets and the vast professional literature on the subject. The existing theoretical explanations of securitisations have focused on regulatory capital, bankruptcy – Skarabot (2001) – and, most prominently, asymmetric information, as presented by Boot and Thakor (1993), Riddiough (1997), DeMarzo and Duffie (2001), DeMarzo (2005) among many others. More recently, however, alternative explanations have been suggested including agency costs by, for example, Cuchra (2004) or asymmetric information in the principal-agent framework by Iacobucci and Winter (2005).

Empirical studies of securitizations based on rigorous statistical analysis are limited. For example, Thomas (1999), (2001), as well as Cuchra (2003), employ the event-study methodology to test the impact of securitizations on the prices of issuers' debt and equity securities in the United States and Europe, respectively. Earlier event studies of securitisations such as Lockwood et all. (1996), have focused on wealth effects for banks' investors. The institutional and legal background on securitisations can be found in Schwarcz (1994), one of many legal studies of the subject. Among studies directly relevant to our paper, there are several papers investigating pricing in securitization transactions. In this context, some studies combine a theoretical model with basic empirical tests. For example, Boudoukh, Richardson and Stanton (1997) investigate pricing of mortgage-backed securities (MBS) in a multifactor interest rate environment. Stanton (1995) concentrates on the issue of prepayment, whereas Goodman and Ho (2002), model the spread between the mortgage-backed securities versus the treasuries. Earlier papers include Schwartz and Torous (1989) who develop and test a prepayment model for MBS. In one of the more recent studies, which addresses issues similar to our work, Ammer and Clinton (2004) investigate the impact of changes in credit ratings on the price of ABS issues using a dataset of US securities from 1996 to 2003. They report greater asymmetry in ABS prices' reactions to changes in credit rating than that document for corporate bonds.

Finally, there is a large body of existing literature aiming at explaining spreads in corporate bonds. The study closest to ours is perhaps John, Lynch and Puri (2004), which employs a similar methodology to investigate the determinants of launch spreads for corporate bonds. While investigating a range of pricing factors' and bond characteristics' impacts on launch spreads, they concentrate on the effect of collateral after controlling for credit rating in addition to a set of standard pricing controls, which they explain with the help of an agency model. They find that the presence of collateral is positively correlated with the launch spread. In another recent paper, Campbell and Taksler (2003) analyze factors influencing corporate credit spreads. While they explore a number of factors, their focus is on one: they find that equity volatility of corresponding stocks explains as much variation in corporate credit spreads as do credit ratings. In another related work Elton, Gruber et all (2001) attempt to explain the rate spread by estimating the default premium, while controlling for taxes and other market factors. Similarly, Collin-Dufrense, Goldstein, and Martin (2001) look into the determinants of credit spread changes. After including a set of standard pricing controls they come to a conclusion that there exists an additional, very significant common factor, which, nevertheless, they cannot identify. Delianedis and Geske (2001) investigate the components of credit spreads: they model jumps in a diffusion process, liquidity and check for market factors including volatility after controlling for the default risk and recovery (compare with Elton, Gruber et all). Finally, Chen, Lesmond and Wei (2003) test whether liquidity is priced into the spreads after controlling for the probability of default, equity volatility, taxes, and other factors.

3. DATA DESCRIPTION AND STYLISED FACTS

3.1 THE DATASET: European securitization markets have witnessed an explosive growth with the total issuance roughly doubling every two years since 1998. The gap between Europe and United States has been closing with European issues reaching a record €151 billion in 2002 and €151 billion in 2001. In relative terms, European mortgage backed securities have been growing much faster than ABS since 2000. ABS issuance in Europe declined slightly between 2001 and 2002, but started growing again in 2003. However, despite the impressive overall development, European securitizations are very unevenly distributed geographically with almost a half of the entire market concentrated in the UK. Although there are important legal and structural differences between securitizations in the UK and other important markets, the UK remains dominant across all types of transactions. This is significant because the UK case is therefore particularly important for understanding the European securitization phenomenon in general. Beyond the UK, Italy, Spain and Netherlands already stand out as other critical areas of securitization origination in Europe. In terms of the collateral, in the second quarter of 2003 they represented 19%, 16% and 8% of the total market, respectively. Together, these four leading countries represent almost 90% of the entire European securitization market.

Our dataset is a comprehensive dataset of all securitization transactions in Europe with the total issuance of over US$1 trillion. Our annual figures are the same or higher than those reported by industry associations.[2] This proprietary database has been compiled by JP Morgan in London throughout a period of several years and we have checked the records against data from Bloomberg and Thompson Financial electronic databases where available.

There are 5161 separate observations in the dataset, each representing a single tranche of 1605 securitization transactions in Europe in the period between 1987 and 2003; over 86% of all issues are floating rate issues. The dataset includes all structured finance transactions including MBS, CDO and ABS transactions, as classified by JP Morgan. We assemble data on many tranche- and issue-specific characteristics including the date of issue, names of the issuer and the originator, the price at issue (100 when at par), the coupon, the launch spread measured against a corresponding benchmark, the weighted average life until maturity; the enhancement level, ratings (if rated) according to three different rating agencies, where available, plus a composite rating as reported to the investors at the date of issue, the type of assets being securitized, the tranche size, the country of origin of assets, and the currency of issue, among other. We also have notes on the structure of each issue, lead managers, and the target market for the issued securities, where the latter could be European private or public market or the US public market. In addition, we have some category-specific data for certain types of assets such as balance sheet/arbitrage specification for CDO. We discuss these in greater detail further below.

3.2 WHAT ARE LAUNCH SPREADS? The launch spread represents the price to investors of each tranche (at issue) and is calculated as the spread in basis points over the corresponding benchmark – the same-currency LIBOR rate on the date of issue – for floating rate issues. For fixed rate issues, the launch spread is equal to the coupon with the price (if not sold at par) reported separately. Launch spreads are typically printed on the front page of the issuing prospectus and entered at issue following the book building process. From our interviews we learn that in over 95% of all cases this price represents the actual price paid by investors.[3]

There is substantial variation across the bond pricing literature with regards to the exact specification of bond spreads. In order to better capture the actual spread, various adjustments and refinements are applied in different studies ranging from simple calculations over the nearest on-the-run government benchmark bond to matching, corresponding zero-coupon securities. Since prices in European, floating-rate securitizations are almost exclusively reported against LIBOR or EURIBOR, we do not include the LIBOR/EURIBOR-over-government benchmark spread in our launch spreads in order to avoid adding a systematic market component to our results.[4] This also means that the market-wide level of corporate spreads is excluded from our spreads in so far as it is a component of LIBOR. In the case of fixed issues, the relevant government benchmark is specified in the prospectus. We study fixed-rate issues separately from floating-rate issues throughout our analysis.

Our dataset is characterised by substantial variation in launch spreads. This is true for all rating classes including AAA-rated securities, as can be seen in Figure 1. AAA-rated structured finance securities are generally characterised by higher spreads than corporate bonds, but they also represent 33.2% of all structured finance securities (rated by Moody's) versus only 1.5% for corporate bonds, as reported by Hu and Cantor (2003).[5] In general, nominal levels of structured finance spreads cannot be easily compared with corporate spreads for the same credit rating since rating models and rating processes themselves in these two fixed income market are very different.

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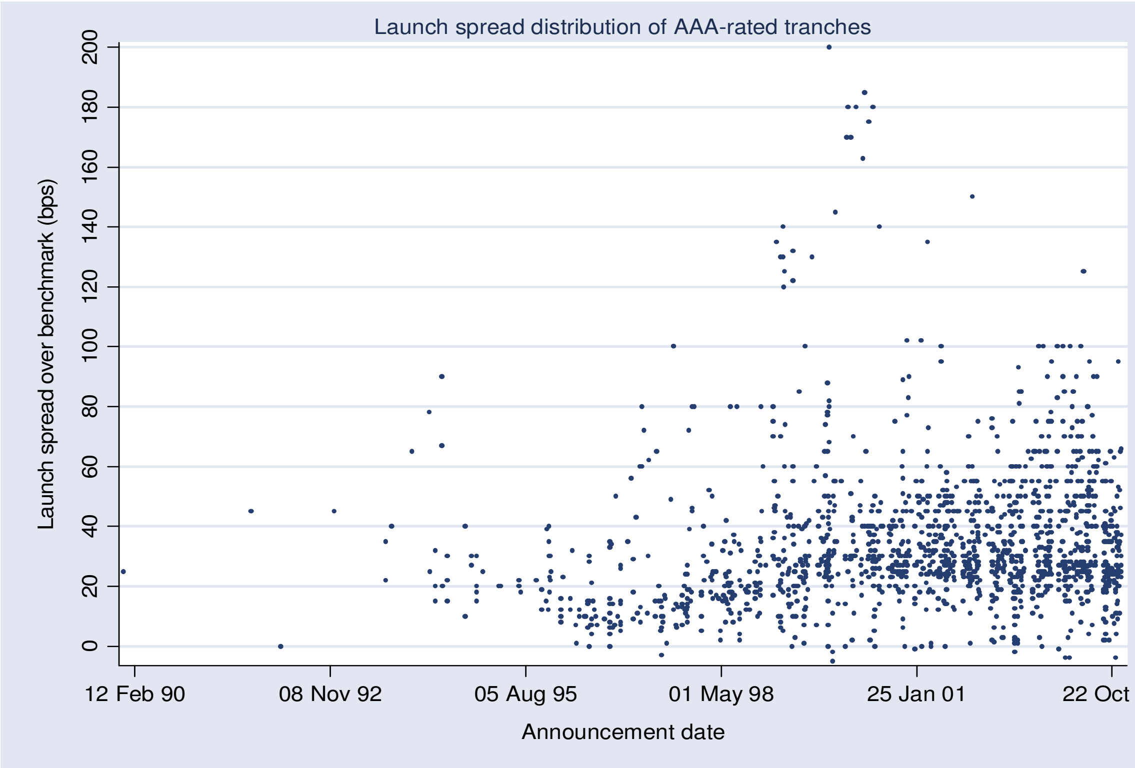
[2] For example, the European Securitisation Forum reports total securitization issuance in Europe of €217 billion and €158 billion for 2003 and 2002, respectively; the corresponding figures from our dataset are US$371 billion and US$148 billion, respectively.

[3] We learn that in the remaining cases, the discount is usually client- rather than deal-specific, small, and typically part of a longer-term arrangement.

[4] In particular, we do not recalculate spreads against the government benchmark for floating rate issues since we do not want to add the market-level LIBOR-benchmark spread to the tranche-specific launch spread.

[5] See Hu and Cantor (2003) for more detailed comparisons between structured finance and corporate finance ratings.

FIGURE 1



3.3 CREDIT RATINGS: Individual tranches in our dataset are characterised by different credit ratings from Moody's, Standard & Poor, and Fitch rating agencies; 2823 of our tranches are rated by Fitch and 3340 are rated by S&P. The largest share of tranches is rated by Moody's (70%) and 14% of all tranches is not rated at all (NR). The CDO asset-type category represents the largest share of non-rated tranches. Our original dataset also features a 'composite' rating category as reported by JP Morgan. This is a constructed variable available to the investor with a credit rating reported in a simplified form versus 'normal' ratings: that is, without all refinements, but combining the results from different rating agencies. Under the composite rating classification there are only 6 rating categories in our dataset: AAA, AA, A, BBB, BB and B. The use of composite ratings is rather typical in the empirical bond literature: Campbell and Taskler (2003), for example, use only two composite credit rating dummies.[6]

Credit ratings in structured finance might be more important and carry more explanatory power with regards to price than in the case of corporate bonds for several reasons. First, the process of rating each issue is different: In the case of corporate bonds, securities and obligors (companies) are assessed according to certain criteria upon which a given rating is assigned. In contrast, in structured in finance the process if reversed: the structure of the issue is adopted in order to obtain a given credit rating: Given assets' characteristics, the rating agency specifies (as a part of the preliminary assessment) certain conditions - such as the cash flow structure or the type of enhancement - needed in order to achieve the target credit rating. Second, ratings in securitisations can be assigned with more precision given flexible structuring that can alter actual cashflows (as designed with the help of statistical models used to estimate payoffs). In a sense, assigning credit ratings in structured issues is more 'scientific' with proprietary pricing models simulating the so-called 'cash water flow' per each transaction. In comparison with corporate bonds, general measures of

[6] This is also due to the fact that they eliminate all AAA issues from their sample.

company's performance are replaced with careful modelling of assets' payoffs. Third, for credit rating agencies, structured issues are the single most important line of business: reportedly, over 70% of rating agencies' total rating fees come from rating structured issues.

According to credit rating agencies, assigned credit ratings should capture all elements related to the timely repayment of principal and interest, probability of default and ability to foreclose on assets (including recovery rates). Not expected to be included in the agencies' credit rating assessment are time-variant market characteristics as well as particular features of markets as related to the securities in question such as liquidity, taxes, or arranger's reputation.

3.4 SECURITISATIONS AND ASSETS TYPES: Transactions in our dataset are classified as 'European' on the basis of the country of origin of assets rather than the target market for the securities issued, although we have some securities (less than 5% of the total) placed in Europe by non-European originators and some European originators with tranches placed in the US (circa 2.5% of the original dataset). The country variable we use to classify assets indicates the country where assets were originated. Overall, we have 27 countries represented in the dataset with 14 represented by more than 20 observations. United Kingdom represents the greatest share of the total with 1496 securities, followed by Italy with 437, Spain with 281, and Netherlands with 276, in addition to 561 securities classified as 'European' and 51 as 'international', which represent assets pooled from several different countries.

Our classification contains 10 basic asset-type categories specified according to the European classification of securitisations. Asset types are important because securitised assets tend to differ significantly across types, but not much within each type. Also, securitisations of the same type of assets tend to be structured in a similar fashion. For example, securitisations of credit card loans typically include 'breathing' pools designed to continuously 'churn' receivables as old receivables are repaid and new ones originated, but do not contain any other financial assets. The largest type-categories in our dataset are: RMBS (residential mortgages) with 1903 different securities, CDO (collateralized debt obligations) with 1730 securities issued, CMBS (commercial mortgages) with 470 securities, unsecured consumer loans with 188, and 272 atypical 'other' securities not otherwise classified. In addition to the existing classification, we create a new summary classification pooling different classes of assets into 6 broader categories according to the type of the obligor. The new classification categories are: 2373 mortgage-backed securities, 488 non-mortgage consumer transactions, 346 corporate securitizations, 41 securitizations of government assets (or those of government agencies), in addition to 1730 of CDO and 183 unclassified securities for which we have no sufficient information to classify in any of the above-listed groups.

TABLE 1

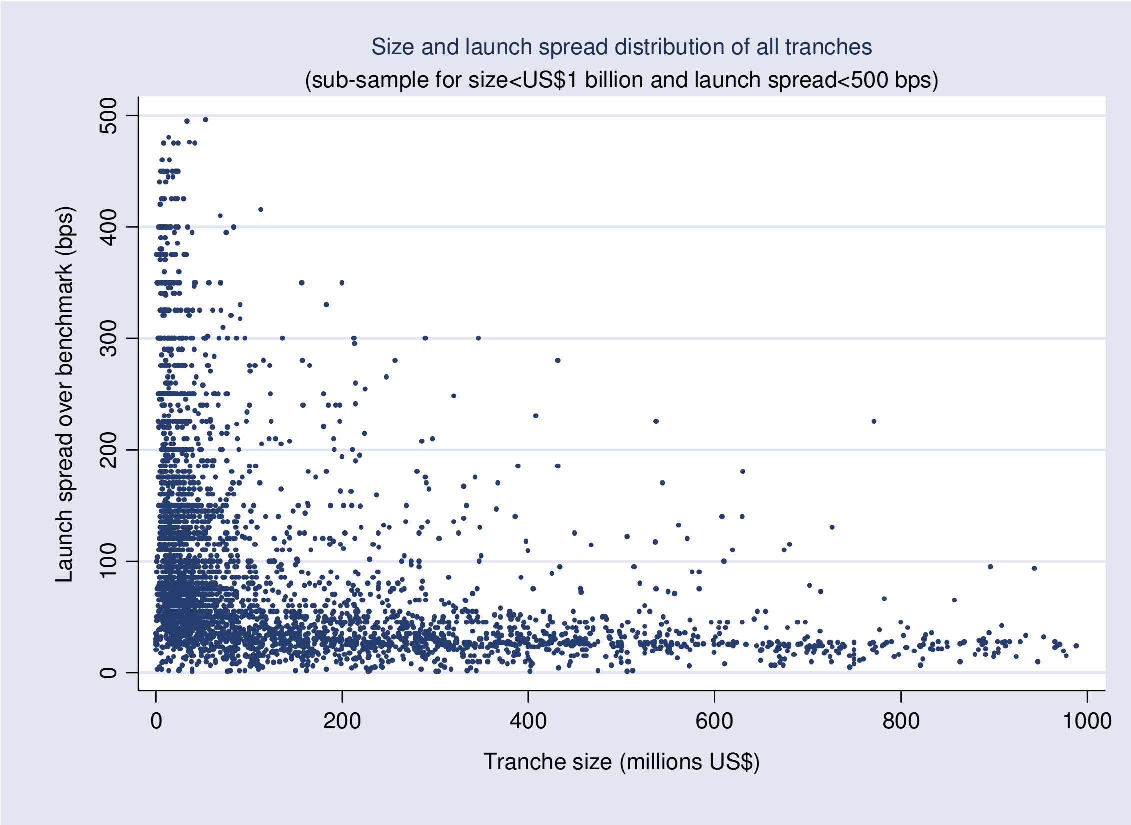
Average launch spreads in bps above benchmark (standard deviations in brackets)
by securitization type and composite rating

Type (observations)	AAA	AA	A	BBB	BB	NR	Average
Agency (41/0 total/NR)	**18.6** (10.1)	**43.5** (34.8)	**43.6** (36.3)	-	-		**30.8** (27.9)
Auto loans (146/5 total/NR)	**28.5** (12.4)	**42.0** (3.7)	**64.0** (23.6)	**151.9** (33.5)	-	**88.4** (45.8)	**49.0** (36.3)
Cards (110/0 total/NR)	**22.0** (11.6)	-	**58.2** (17.7)	**144.7** (50.6)	-	**-**	**52.9** (52.0)
Consumer (159/4 total/NR)	**31.8** (12.6)	**65.8** (28.1)	**77.5** (27.2)	**166.5** (59.4)	**400.0** (-)	**37.75** (12.71)	**70.3** (58.2)
Equipment (79/7 total/NR)	**34.9** (15.5)	**59.0** (37.3)	**73.8** (26.6)	**197.1** (116.7)	**170.0** (183.8)	**96.4** (68.3)	**69.5** (70.5)
RMBS (1693/105 total/NR)	**27.8** (17.0)	**53.1** (25.2)	**80.2** (33.0)	**161.7** (58.4)	**366.9** (103.0)	**84.9** (97.7)	**74.0** (79.2)
Other (231/8 total/NR)	**51.0** (38.4)	**78.4** (34.0)	**131.7** (53.3)	**260.2** (102.9)	**526.7** (155.6)	**203.9** (136.7)	**121.2** (118.6)
CMBS (416/16 total/NR)	**51.5** (33.9)	**72.8** (36.5)	**109.2** (50.6)	**206.9** (64.9)	**424.2** (170.6)	**168.9** (154.3)	**126.3** (119.8)
CDO (1032/32 total/NR)	**45.4** (47.8)	**74.1** (40.1)	**135.2** (74.6)	**247.3** (129.9)	**481.2** (203.3)	**250.6** (330.9)	**151.2** (171.3)
Whole Business (171/2 total/NR)	**57.0** (23.3)	**74.0** (-)	**112.7** (29.8)	**250.2** (63.4)	**585.6** (63.9)	**162.5** (109.6)	**165.1** (135.1)

Table 4 reports average launch spreads tabulated within the 'type'/'composite rating' matrix. Average spreads increase as ratings fall consistently throughout all asset categories. As expected, lowest spreads are characteristic of securitizations backed by government assets or enjoying explicit government guarantee, such as obligations of government agencies. Also, corporate assets tend to have higher spreads, as represented by the bottom three categories in the table above, whereas consumer assets form most of the remainder at the upper half of the table. This is related to the fact that consumer assets tend to be more uniform, more homogenous and hence more transparent, whereas corporate assets might carry less well-defined elements of corporate risk. The 'risk diversification effect' of pooling, as explained by DeMarzo (2005), might play a role here since consumer assets tend to be considerably more numerous for every given pool. RMBS, being located in the lower half, represent an exception to the rule, probably due to embedded options typically not present in consumer deals. Nevertheless, RMBS are characterised by lower launch spreads than corporate mortgage-backed deals (CMBS).

3.5 PRIMARY TRANCHE CHARACTERISTICS: RELATIONSHIPS TO LAUNCH SPREADS: There is a strong negative relationship between the launch spread and the tranche size. As can be seen in Figure 2, this is largely due to the fact that there is a substantial number of very small tranches with very high spreads and very large tranches with very low spreads. There are far fewer medium-sized tranches priced in mid-range, which suggests that tranches are constructed to fall within one of the two extremes. Nevertheless, there is also a very substantial number of small (less than US$100 million), but not overly risky tranches with spreads of 0-120 bps.

FIGURE 2[7]



The relationship between size and spread is less clear and more variant for each given credit rating category, as can be seen in Table 1. Average launch spreads consistently fall with size in the AAA-rated and non-rated categories, but mid-size tranches tend to have higher spreads than large or small tranches in other rating categories.

TABLE 2

Average launch spreads (bps) by composite rating and tranche size (US$ million)

	size≤25	**25<size≤50**	**50<size≤150**	**150<size≤500**	**500<size**	**all**
AAA	49.1	43.6	40.3	35.3	26.7	35.5
AA	66.3	64.5	70.5	60.3	37.9	65.5
A	97.6	95.6	95.3	116.18	101.5	97.8
BBB	212.1	183.6	193.9	222.0	75.0	202.7
BB	458.1	500.0	-	-	-	433.3
NR	254.6	131.2	110.9	44.7	55.0	127.7
all	174.3	114.6	86.2	49.9	30.7	103.2

In terms of maturity, the picture is also mixed, but interesting patterns can be identified. Similarly to Elton and Gruber (2001), we construct maturity buckets for each category of assets. Our buckets, however, are based on the weighted average life (WAL) rather than the nominal maturity, which is a more meaningful measure in the case of securitizations due to structured cashflows and embedded options. Reported weighted average lives (wal) are calculated during the structuring process and reported in the prospectus, given

[7] Tranches of more than US$1 billion or with spreads over 500 bps (excluded from the figure) represent less than 1% of the overall sample.

assumed prepayment and step-up structures.[8] In Table 3, for each bucket such that: (i) WAL is less than 5 years, (i) WAL is between 5 years and 15 years, and (iii) WAL is more than 15 years, we tabulate average launch spreads by composite rating.

TABLE 3

Average launch spreads (bps) by composite rating and expected maturity (years from launch)

	life < 5 years	5 < life <10	10 < life <15	15 years < life	all
AAA	28.5	41.0	51.2	78.3	33.9
AA	59.5	67.1	71.0	92.3	64.6
A	96.0	93.8	88.8	117.2	95.3
BBB	200.8	193.6	214.5	225.2	200.3
BB	438.2	446.6	519.6	500.0	452.6
NR	172.1	186.3	192.3	91.0	172.7
all	83.3	117.8	162.1	124.0	101.4

First, launch spreads approximately double for every step down across composite rating categories in the first, short WAL bucket, as well as for the total pool of all assets. This pattern is consistent across different types of assets (not reported). The pattern is similar for the second and third maturity buckets, but the increase in spread associated with each step down the rating ladder is now slightly smaller than in the first bucket because high-rated long-term securities have higher spreads. The second important result is that launch spreads consistently increase across WAL buckets for the same credit rating, for the AAA-rated and the AA-rated tranches, across different types of assets. However, this effect weakens and ultimately reverses for lower rated notes (especially for some types of assets). For example, average spreads are almost identical across different WAL buckets for BBB-rated securities. The reversal for lower-rated securities is strong enough to make the longest-life bucket characterised by lower average spread for all rating categories analysed jointly than the 3rd longest-life bucket.

Overall, we conclude that although spreads increase with WAL for high-rated tranches, there is no clear pattern for A- and lower-rated categories of notes. There might be several reasons for that: First, AAA-rated and AA-rated classes are more homogenous and more numerous, whereas the low-rated classes are more diverse and include the majority of risky, corporate securitizations. Related to that, top-rated classes tend to be more transparent and better defined in terms of cashflows so that the maturity (WAL) factor can be more clearly priced.

We clean up the dataset in the following way: First, we eliminate all issues, for which we cannot find the launch spread, and/or for which we cannot identify the currency, and/or for which no relevant benchmark can be found, and/or for which the key control variables are not available for at least one tranche of that issue. The key control variables include the benchmark interest rate and the shape of the yield curve at the date of issue. Second, we eliminate all issues with tranches denominated in currencies other than Euro, US dollar, and pound sterling. These issues constitute less than 10% of all issues and they are typically priced against benchmarks other than LIBOR or EURIBOR, which we cannot easily convert into spreads over LIBOR. Third, we exclude all fixed rate issues with no coupon or price data available. At the end of this process we are left with 3280 tranches (2990 floating rate issues)

[8] Prepayment classifications are standardized and include constant as well as variant measures of prepayment; ‘step-up’ structures are put in place in order to stimulate exercise of embedded options on given dates. See for example Fabozzi (2001) for more detailed explanations of weighted average life, prepayment calculations, and maturity assumptions in structured finance transactions.

and 1373 issues (the average of 2.6 tranches per issue) with assets from 512 distinct originators.

4. THE PRICING MODEL

4.1 STRUCTURAL AND REDUCED-FORM MODELS: All studies of bond spreads must make initial assumptions about the underlying pricing model. The classic structural models in this context include Black and Scholes (1973) and Ingersoll (1977). Many variations of these models have been developed and adopted since. Among most popular structural models, an important place is occupied by Longstaff and Schwartz (1995) who develop a highly tractable model with variations for both the fixed-rate as well as the floating rate debt. In the bond pricing literature more generally, 'reduced form' models have been gaining popularity recently. These include a model developed by Duffee (1998) to study a relationship between treasury yields and corporate bonds or Campbell and Taskler (2003) model to study the impact of equity volatility on bond spreads. Other prominent examples include Jarrow and Turnball (1995), Duffee and Singleton (1997, 1999), and Liu, Longstaff and Mandell (2000). We start our analysis by developing a simple, 'reduced-form' pricing model for structured issues along the lines of existing pricing models for callable corporate bonds.

The choice of a reduced-form or even a non-parametric specification is natural in this context. For example, Boudoukh et all (1997) use a multivariate density estimation (MDE) to explain MBS pricing and point at considerable complexity of MBS pricing to explain the need for non-parametric formulation: "*although financial economists have good intuition for what the MBS pricing fundamentals are, the exact form is too complex (or assumption specific) to be determined precisely from a parametric model*".[9] Whereas structural models aim to develop a full pricing model of the actual value of a security, reduced-form models "*use a less structured econometric analysis asking what observable variables are correlated with corporate bond yields cross-sectionally*" according to Campbell and Taskler (2003).[10] Boudoukh et all (1997) also point at the fact that "*current empirical evidence favours a multifactor approach to fixed-income pricing*".[11]

By assuming a reduced form pricing model we gain flexibility vis-à-vis any detailed structural formulation. We use all standard pricing factors since most of the existing bond pricing models control for a common set of factors derived from structural models. In addition to the interest rate level, the term structure of interest rates is typically described by a proxy for the slope of the yield curve in order to capture expectations about future short-term interest rates as well as the prevailing interest rate variation by maturity. Although simple, this specification is generally assumed to be exhaustive: Litterman and Scheinkman (1991) and Chen and Scott (1993) document that the vast majority of variation in treasury term structure can be expressed in terms of changes in the level and slope of the yield curve, although Litterman and Scheinkman (1991) also include curvature in their basic setup.

4.2 PREPAYMENT AND EMBEDDED OPTIONS: Structured finance issues pose additional challenges vis-à-vis straight bonds because they include embedded options. All bond issues with embedded options require an adjustment vis-à-vis a simple pricing model for straight bonds to take into account the price of the underlying option. The most important option embedded in structured finance issues is the prepayment option (written by creditors to obligors) linked to accelerated principal repayments at the obligor's discretion, where present. Some issues also include call options and coupon 'step-ups'.[12] One established professional

[9] Boudoukh et all (1997), p. 406-7.
[10] Campbell and Taskler (2003), p. 2324.
[11] Boudoukh et all (1997), p. 407.
[12] Coupon step-ups coincide with call periods and are designed to provide an incentive for the issuer to call the bond at a particular time in order to avoid higher debt service costs.

practice to deal with prepayments is to calculate the so-called 'option-adjusted spread', which corrects the normal yield spread for the price of embedded options in any given issue. More specifically, prepayments are a major factor present in RMBS and some CMBS issues, since they can alter the relationship between price and interest rates as the call options become valuable resulting in the well-established pattern of negative convexity. The prepayment is also occasionally present in some ABS issues backed by consumer loans. However, there is typically no prepayment in CDO securities or in whole business securitizations and it is rare in securitizations of corporate loans, equipment loans or leases. In the case of credit card deals the early amortization is considered to be a credit event rather than a prepayment.

The prepayment option is particularly important for fixed-rate issues, typical of MBS issued in the United States, because its value is highly correlated with the time-variable level of interest rates. In our European sample, over 95% of all RMBS are floaters, for which prepayment levels have been "remarkably stable" according to Hayre and Thompson (2001) and exhibit a low level of correlation with the interest rate.[13] The same authors point out that European refinancing rates, in contrast to the US, "*have been relatively insensitive to interest rates*" because "*the coupons on variable loans track prevailing mortgage rates and hence there is little incentive to refinance*". This is further reinforced by the wide-spread use of prepayment penalties and the lack of attractive prepayment vehicles.[14] In European securitizations prepayment patterns are more typically related to the assets' country of origin or other geographical characteristics as well as the overall profile of assets. However, despite the fact that prepayment levels are reported to be uniform and stable, we want to control for the price of prepayment options at issue given changing expectations about volatility of interest rates. Therefore, in order to capture any potential time-variant effects of prepayments on launch spreads, we include a measure of interest rate volatility as a proxy for the price of the embedded options. This results in a basic three-factor setup similar to Duffee (1998).

At launch each structured finance issue is priced given the information about specific prepayment assumptions and embedded call options with any potential step-ups.[15] The combined effect of prepayment and the call option is expressed as the weighted average life (WAL): the *expected* maturity calculated by the arranger given embedded options and prepayment assumptions. For the same reason the nominal maturity is not a meaningful factor in structured finance issues.[16] Since WAL might be an important pricing we include it in our pricing model (WAL is calculated *directly* from the prepayment assumptions). Moreover, prepayments might be correlated with general macroeconomic conditions and hence, indirectly, with the interest rate. Duffee (1998) points out that yield spreads vary more strongly with benchmark interest rates for callable versus non-callable bonds. We would expect this correlation to be weaker, however, than in the case of fixed-rate issues.

4.3 PRICING CONTROLS: Our reduced-form pricing model for structured finance issues has a constant and four groups of controls:

$$spread_{i,s,t} = \alpha_s + \left(\beta_1 irate_{ct} + \beta_2 swapdiff_{ct} + \beta_3 capvol_{ct}\right) + (\beta_4 wal_s + \beta_5 class_{is}) + \mathrm{X}(ratings_s) + \Phi(periods_t) + \Theta(factors_{i,s,t})$$

This model aims to explain the launch spread of a security s (tranche s) issued as a part of issue i on the specified date t, and is composed of five groups of pricing factors. First, the model includes standard pricing controls aimed at capturing the impact of prevailing economic conditions in financial markets at the date of issue, as represented by factors

[13] Hayre, L. (ed.), 2001, Chapter 27, p. 739. Nevertheless, prepayments might still be correlated with interest rates in so far as the latter reflect obligors' general financial conditions.
[14] Ibid.
[15] Note that step-ups in the UK and other European markets are typically regulated by financial market authorities (the FSA in the UK case). Hayre, L. (ed.), 2001, Chapter 27, 28.
[16] Fabozzi (2001).

included in the first bracket, where all three factors are time- (date) and currency-specific. Second, it includes two basic cash flow-structuring characteristics (in the second bracket), which are security- (tranche) and issue-specific; these factors are the result of the structuring process: the WAL and the class rank (assumed to be driven by exogenous factors). The class-rank index captures the ranking of a given tranche, within the issue to which it belongs, in terms of the seniority and enhancement level.[17] Third, the model includes a set of tranche-specific credit rating controls (dummies) and, fourth, a set of time- (date) specific dummies. Finally, it contains a set of additional factors that we suspect might have an impact on price and which we would like to explore. This set can be divided into two subsets: (i) factors not taken into account by credit rating agencies such as factors related to market placement, and (ii) factors reported by credit rating agencies to be part of the credit rating process, but possibly not fully captured by the credit rating itself. The first subgroup includes behavioural factors, such as reputation of the arranger and market factors such as liquidity. The second subgroup includes factors such as effectiveness of the legal regime in securing creditors' rights in a given jurisdiction vis-à-vis other jurisdictions.

For the basic economic controls, we use the standard proxy for the interest rate level – the 10-year benchmark bond for the GBP-denominated securities, a synthetic 10-year Eurobond for €-denominated securities, and a 10-year US Treasury bond for US$-denominated securities, as recorded on the date of issue (the pricing date). We also use the standard proxy for the slope of the yield curve by calculating the '10-year minus 2-year' swap yield differential in the relevant currency of issue, on the date of issue. Finally, we measure the interest rate volatility with the implied volatility on the 5-year interest rate cap in the relevant currency of issue.

For all issues with more than 1 tranche, we face the problem that our observations (tranches) are not completely independent since tranches belonging to the same issue are clearly correlated. In order to remedy this problem we use the Huber-White robust estimators of variance with specified clusters, which allow us to relax the independence assumption. For all our regressions, we specify groups (clusters) in the robust estimator of variance according to the distribution of tranches among different issues. We report our basic results below.

5. EXPLAINING SPREADS: MODEL CONTROLS, CREDIT RATINGS AND TIME EFFECTS

5.1 TESTING BASIC MODEL SPECIFICATIONS: We start by testing the basic form of our pricing model (regression I, II in Table 5) excluding rating, timing, and other potential pricing effects. We estimate the model separately for floating and fixed rate issues. Our initial results pass obvious reality checks: We find the coefficient on the interest rate benchmark to be negative and significant for almost all our regressions, in line with results reported in other studies as well as theoretical predictions. For example, Longstaff and Schwartz (1995) argue that corporate spreads should vary inversely with the benchmark T-bill rate because a higher interest rate increases the drift of the risk-neutral process for the firm (asset) value. Others have argued that the interest rate level should be negatively correlated with the credit spread as it indicates the general level of financial performance among firms. Duffee (1998) finds that yield spreads should vary more with benchmark Treasury yields for callable than for non-callable bonds. Since many previous studies use non-callable bonds, while our issues have embedded options, we might expect the coefficient on the benchmark to be more significant than in other studies. However, Longstaff and Schwartz point out that: *"credit spreads (…) can vary significantly if the assets of the firms [in the sample] have different correlations with changes in interest rates".*[18] Our results are affected by the fact that values of prepayment

[17] Tranches of the same seniority carry the same, average ranking, but same-rated tranches might differ in terms of both seniority and enhancement and, hence, have a different class-rank. The most senior tranche per issue always has the lowest rank (1 if unique).

[18] Longstaff and Schwartz (1995).

options vary less with the interest rate level for floating rate issues (which constitute almost 90% of all our securities) than for fixed rate issues.

TABLE 4: EXPLAINING LAUNCH SPREADS ON SECURITIZATION TRANCHES: THE BASIC SETUP

Dependent variable is the launch yield spread (in bps) above LIBOR/EURIBOR for floating rate issues or above the closest benchmark of matching maturity (vs. expected maturity of the issue) for fixed rate issues.

	Coefficients (t-statistics)							
independent variable / reg	I	II	III	IV	V	VI	VII	VIII
price (100=par)	-	-1.51 (1.64)	-	-	-	-0.46 (1.19)	-	-0.70 (1.68)
irate (10y gov)	-15.80** (4.96)	-6.78 (0.85)	-	-	-14.99** (6.59)	-0.74 (0.09)	-7.58 (1.67)	10.54 (0.81)
swapdiff (10y-2y swap)	-8.77* (2.22)	-44.52* (2.43)	-	-	-2.18 (0.82)	-20.82* (1.96)	-9.92** (3.23)	-17.50 (1.79)
capvol (5y i/r cap)	-0.77 (1.43)	-1.27 (0.43)	-	-	-0.55 (1.42)	1.19 (0.68)	0.20 (0.47)	5.60* (2.36)
life log exp (years)	6.79 (1.79)	25.34 (1.51)	-	-	5.40 (1.92)	19.61 (1.87)	4.66 (1.69)	21.52 (1.86)
class rank	13.85** (6.05)	11.77** (2.70)	-	-	0.93 (1.03)	0.29 (0.12)	0.86 (0.96)	0.73 (0.30)
lamount log (size)	-25.91** (15.14)	-44.64** (6.80)	-	-	-3.52** (3.50)	-9.14** (2.54)	-3.23** (3.34)	-10.07* (2.31)
AAA rating (d)	-	-	-142.43** (5.12)	-31.85** (-8.49)	-131.34** (4.83)	-14.60* (2.02)	-133.33** (4.97)	7.94 (0.33)
AA rating (d)	-	-	-111.82** (4.01)	11.17 (1.11)	-110.80** (4.07)	7.22 (0.63)	-113.40** (4.21)	26.07 (1.21)
A rating (d)	-	-	-79.04** (2.84)	22.28** (3.79)	-79.91** (2.95)	24.90** (2.82)	-81.25** (3.04)	41.85* (2.01)
BBB rating (d)	-	-	23.95 (0.85)	129.35** (12.51)	21.53 (0.78)	124.17 (10.42)	19.09 (0.70)	140.38** (6.55)
BB rating (d)	-	-	270.97** (8.59)	450.89** (10.23)	265.37** (8.51)	447.40** (11.32)	263.26** (8.55)	463.28** (9.94)
B rating (d)	-	-	300.93** (11.24)	-	307.12** (11.63)	-	307.36** (11.95)	-
year dummies	No	No	No	No	No	No	Yes	Yes
month dummies	No	No	No	No	No	No	Yes	Yes
issue type	Float	Fix	Float	Fix	Float	Fix	Float	Fix
clusters (issues)	955	148	955	148	955	148	955	148
R^2	27.9	32.2	71.9	78.1	72.3	79.8	73.6	82.0
no. of observations	2990	290	2990	290	2990	290	2990	290

Note: Each observation represents a single tranche. Independent variables: irate is the yield on a 10-year government benchmark in the currency of issue on the day of issue; swapdiff (slope) is the difference between 10-year and 2-year swap yield in the currency of issue on the day of issue; capvol is the implied volatility of a 5-year interest rate cap in the currency of issue and on the day of issue; life is the expected weighted average life of a tranche in years as per assumed prepayment path (where relevant); lamount is the log of the size of each tranche in US$ million converted from the issue currency at the FX rate at the date of issue; price is the offer price for each tranche where price = 100 when sold at par; coupon is the nominal coupon on fix-rate issues on a given tranche; AA to BB are the dummies for the respective composite credit rating category of each tranche (vs. NR). Bold font indicates significance at 1% level; bold and italic indicates significance at the 5% level, significance at 10% level is not indicated. All regressions include a constant (not reported). Coefficients on year and month dummies are not reported. The reference year for the year dummies is 2003. The reference month for month dummies is January. The t-statistics, calculated from the Huber-White robust errors with specified clustering of tranches within each issue, are reported in brackets.

Collin-Dufresne et al. (2001) argue that the slope of the term structure provides a measure of uncertainty in the economy. At the same time, a negative slope should indicate expectations of cuts in interest rates in the future associated with worsening economic climate and higher credit risk premiums. In line with the above predictions and results, and similarly to Campbell and Taskler (2003) among others, we find the coefficient on the slope of the swap curve to be negative and significant. As expected, it is particularly strong and negative for fixed-rated issues. Similar results are reported by Boudoukh et all (1997) for mortgage backed securities only. This effect is highly robust to different specifications of our model.

We also report a positive (where significant), but small effect of the implied interest rate volatility on spreads. The coefficient on volatility becomes important and significant when we control for different types of transactions, suggesting that embedded options vary across different transaction categories (Tables 6 and 7). In general, increased interest rate volatility is predicted to make the key embedded put options (prepayment options) more costly to write from the investors' perspective; this would be associated with the 'capvol' volatility proxy positively correlated with the spread. This prediction is confirmed by our results. As expected, it is particularly important for fixed-rate issues. At the same time interest-rate volatility might be also related to uncertainty in the market. This might be even more important in our setup, since for floating rate issues embedded options are likely to be less significant, after controlling for the predicted weighted average life (WAL).

The coefficient on the log of WAL is positive and significant indicating that investors charge a premium for longer dated tranches, as expected. At the same time, securities with longer expected maturities are likely to be characterised by greater uncertainty over their actual duration, given prepayment, which is a source of additional risk to investors. In line with the existing bond pricing literature, we also include the size of each security (tranche) converted into US$ at the date of issue as one of our controls. Similarly to other studies, we find the coefficient on the log of tranche size to be negative and very significant. In general, tranche size is likely to proxy for liquidity, but might be also related to tranching. We investigate liquidity further in the next Section 5.

The main difference between our study and the earlier bond pricing literature is that all our securities are structured, which we need to control for. Structuring is performed by creating separate tranches in order to achieve better pricing by exploring market incompleteness and asymmetric information or to remedy the problem of market segmentation.[19] Since tranches of the same issue differ by the degree of seniority (among other characteristics) in terms of access to the underlying assets, we create a 'class rank' variable which is an index of seniority of different tranches within each issue.

Our basic controls (without ratings) explain similar or higher share of variation in spreads to those found in other studies. For example, Campbell and Taskler (2003) use pricing controls similar to ours including a benchmark T-bill rate, and a '10-year minus 2-year' T-bill differential as a proxy for the slope of the yield curve. They also control for the '30-day Eurodollar minus US$ T-bill' spread, the log of the size of each issue, the number of years to maturity, the coupon level (included as a proxy for tax), the number of financial/industrial dummies, and a number of accounting controls; they also add the equity volatility. Their results are within the 25-41% range for R^2. By comparison, we obtain the R^2 of approx. 30% when controlling for the four, basic pricing controls and the log of size of each tranche.

5.2 CREDIT RATINGS AS KEY PRICE DETERMINANTS: Given our pricing model, we can now test the importance of credit ratings on pricing. Security design literature predicts the creation of tranches with particular ratings to match investors' asymmetric information and their different levels of sophistication. Credit ratings for a particular are achieved by a combination of internal and eternal enhancement. Hence, since structured financed issues are designed to achieve a particular credit rating, we expect ratings to have a critical impact on launch spreads. According to credit rating agencies, credit ratings reflect the probability that investors receive their due interest and principal in full *and* in time. Therefore, credit ratings combine the results of an assessment of a multiplicity of different factors, which might influence the risk of that security's default.

[19] See Cuchra and Jenkinson (2005).

We find that credit ratings are indeed very important, as expected. In our sample they alone can explain a substantial portion of variation in launch spreads. For example, Moody's ratings alone (with *all* refinements) can explain as much as 42% of the total variation in launch spreads, whereas Fitch ratings can explain 34% (not adjusted for the actual number of issues rated). When credit ratings are considered on a sub-sample of all tranches rated jointly by all three credit rating agencies, markets seem to follow S&P ratings more than any other ratings; this also indicates that there are important differences between credit rating agencies. S&P ratings explain the largest share of the total variation in spreads, followed by Moody's and Fitch (not reported).

In Table 4 we report results of the tests of the impact of composite credit ratings on launch spreads. In the composite rating variable we have seven rating categories (no refinements) including a NR (non-rated) category, which is omitted. Note that the composite rating measure is based on the combination of ratings from all three rating agencies. On one hand, therefore, we expect the composite variable to carry additional information vis-à-vis any individual ratings. On the other hand, however, refinements, which are lost in the case of composite ratings, might prove more important.

Our results indicate that in securitisations the composite rating is indeed more important than any individual ratings and very important overall. The composite rating variable can explain as much as 72% of the total variation in launch spreads for floating rate issues and as much as 78% in the case of fixed-rate issues (regressions III and IV). This clearly indicates that rating is crucial for pricing in structured finance: it also offers some evidence to support the theoretical prediction that some investors might base their pricing decisions almost exclusively on ratings. Finally, importance of credit ratings in structured finance seems to be far greater than in the case of straight bonds, as reported by other studies.

For all credit rating measures we use individual, credit rating dummies rather than a general credit rating index in order to capture potential non-linearity of increasing the rating of a given tranche by one category (3 notches). For example, a move from a AA rating to a AAA rating is reported to be responsible for subtracting *circa* 30 bps of the launch spread, whereas an upgrade from a AAA rating to a single A for a *circa* 60 bps gain. In comparison, a gap of two rating categories, between a single A rating and a BB rating, is far greater than the proportional differential by two rating categories between a AAA and a single A rating (60 bps versus 350 bps). This is likely to be due to the investment grade threshold of a BBB rating, which seems to be responsible for as much as 80% of the reported differential. In other words, achieving the minimum BBB-rated investment grade status is extremely important for pricing, whereas subsequent gains diminish substantially for each one rating category upgrade. This is further confirmed when we compare the below investment grade rating categories, which do not seem to differ from each other by more than the investment grade categories: For example, BB-rated securities are associated with a *circa* 30 bps discount from the BB-rated class. These results are remarkably consistent across all our regressions for floating rate issues, although fixed rate issues differ significantly.

5.3 CREDIT RATINGS, TIME CONTROLS AND THE PRICING MODEL: Combining basic pricing controls with credit ratings explains 72% and 80% of the total variation in launch spreads for floating- and fixed-rate issues, respectively (regressions V, VI and VII, VIII in Table 4). In comparison, John, Lynch and Puri (2003), who also explain launch spreads, but for corporate bonds, using a similar set of controls including the number of years to maturity (life), log of issue size, five rating dummies (composite rating categories) plus individual dummies for exchange trading, issuer's reputation, refinancing of bank debt, and collateral (which they concentrate upon), achieve R^2 of 86%. However, they do not include any market controls and their sample is considerably smaller. Interestingly, the issue size never appears to be significant in their basic setup.

When we combine credit rating dummies with basic controls, all our coefficients on market factors are of similar magnitude as before, except for size coefficients, which are now substantially smaller, but still significant. This is expected since Figure 2 clearly indicates that there is significant differentiation by size between the very risky and the almost riskless tranches: while AAA-rated classes tend to be very large, the ‘equity’ tranches tend to be very small. This is in line with predictions of the security design literature that arrangers should aim to create largest possible AAA-rated tranches. Also, all our controls which were significant before remain significant now except for the class rank. Clearly, in the absence of rating controls, the class rank acted as a proxy for ratings in as far as it reflected both the inter-rating as well as the intra-rating levels of enhancement vis-à-vis other tranches of the same issue. With credit rating controls present, we find no evidence of intra-rating differences in enhancement being significant. This also indicates that further rating refinements are unlikely to be significant.

The importance of ratings is underlined by comparison of our results with other studies of corporate bonds, which use component pricing factors instead of the credit rating. For example, Collin-Dufresne, Goldstein and Martin (2001) attempt to explain changes in credit spreads with a 10-year Treasury benchmark rate, the slope of the yield curve (proxied by the 10-year minus 2-year Treasury note differential), and the implied volatility on the S&P index. They also control for returns on the equity index, a ‘jump’ factor, and issuer’s leverage, but their R^2 is considerably smaller at 20-30% and in line with our results without rating dummies.[20]

As the next step we include year and month dummies to control for any seasonal and/or time market effects, which might not be captured by daily changes in key market variables we included before, such as the interest rate, the slope of the yield curve, and the implied volatility of interest rates (regressions VII, VIII, Table 4), and which we might not be able to otherwise capture explicitly. Our results clearly indicate that the year and month dummies proxy for some important time-variant market characteristics that we have not modelled explicitly since a number of our year and month dummies is significant (R^2 rises by *circa* 1.5%). Not surprisingly, time controls also have some impact on the significance of daily market characteristics, but the overall effect is limited: all our explicit market factors remain significant and of the same magnitude, although the coefficient on the interest rate is now only half of its former size and significance. However, with credit rating dummies present as before, the coefficient on the slope of the yield curve is now back to its original size and significance from regression I. Also, for fixed-rate issues, the price at issue and interest rate volatility are now significant.

In this context we have also investigated the importance of time-variant market characteristics, which might be issue-specific and might encourage the creation of particular types of tranches. In other words, tranches’ characteristics of particular type, assumed exogenous, might actually be the result of other exogenous factors such as the degree of market segmentation at the time of issue. Some possible explanations include market incompleteness or valuable market niches, which the structuring agent (arranger) might seek to exploit. In order to test the effects of any such lenient variables we do not observe, we proxy these tacit market conditions with the number of tranches from the same ‘family’, where each ‘tranche family’ is defined as combining tranches of the same currency, rating, and WAL bucket issued in the same month, in the previous month, or in the next month from the date of issue. We find that the total number of tranches issued in the current month combined with the number of tranches issued in lead and lag months has a positive and large effect on price (i.e. a negative coefficient on spread). When disaggregated, this effect proves to be associated primarily with the number of tranches of the same family issued in the

[20] Collin-Dufresne, Goldstein and Martin (2001) report a rise of R^2 up to 40% with changes in market liquidity and firm-specific equity returns, as well as non-linear and cross terms, Fama-French factors, and macro variables.

previous month and is significant at the 10% level, but is not significant (although remains of the same sign) in other model specifications (not reported).

Given differences in significance between our results for composite ratings and for individual credit rating agencies' ratings, as well as the high importance of ratings overall, we want to make sure that no important credit rating information is lost due to the lack of refinements in the case of composite ratings, as reported before. Therefore, in order to test the importance of credit rating refinements, we construct a new 'extended Moody's' credit rating index in the following way: We include all securitization issues rated by Moody's with no adjustments to their original Moody's ratings (with all refinements such as 'pluses' and 'minuses' as separate rating categories).[21] Next, we add issues rated by S&P, but not rated by Moody's, by translating their S&P ratings (again including all refinements) into Moody's classification according to standard translation tables.[22] Finally, we repeat the same procedure for those issues rated by Fitch for which Moody's and S&P ratings are absent. We enter the so-constructed 'extended Moody's' rating index as individual rating dummies with the same model specification as before to compare against composite ratings (regressions I, II: Table 5). However, despite the fact that our rating categories are now significantly more refined and include all available ratings' refinements, they still carry virtually the same explanatory power as composite rating categories with R^2 of 73.9% versus 73.6% before. There is also no significant impact on the size of any of the coefficients of other control variables. Similar results are reported after controlling for different transaction types (regressions III, VII: Table 5). We conclude that there seems to be no significant effect of credit rating refinements on prices of structured issues at launch, as suspected from our earlier discussion of the coefficient on class rank. Studies for corporate bonds by other authors achieve similar results.[23]

6. ASSET TYPES, MARKET PLACEMENT, LIQUIDITY: IMPACT ON LAUNCH SPREADS

6.1 TRANSACTION AND ASSET TYPES: While corporate bonds are backed by highly idiosyncratic cashflows from a single issuer drawn from a diversified pool of corporates, each asset backed security (ABS) is secured by a pool of assets of one of only few possible types. Moreover, unlike in the case of corporate bonds, assets within each category (type) tend to be highly homogenous. Therefore, while structured finance issues might generally be characterised by considerably less originator-specific noise, they might be critically dependent of the specific type of assets sold to the SPV, not least because different asset types are also typically associated with different transaction structures.

In this context, we test whether asset and transaction types have a significant impact on launch spreads after controlling for the set of basic market characteristics, structuring issue characteristics (such as enhancement and WAL), time dummies, and credit rating dummies. For credit ratings we use the 'extended Moody's' rating index dummies, as explained above, to capture all possible refinements or any possible intra-rating differences, which might be type-specific. We have 10 basic asset types, as specified by the European securitization classification, including auto-loans and leases, credit card receivables, CDO, CMBS, consumer loans (other than specified separately), equipment loans and leases, RMBS, whole-business securitisations, securitisations of government or public agencies' obligations, as well as the 'other' category for all other assets. Our results are reported in regression III (Table 5) where we enter dummies for each type of assets against the sovereign/agency category.[24]

As reported, asset types prove to be highly significant as a group; only 'cards' and RMBS transactions are not significant on their own. The coefficients are particularly significant for autos, CDO, CMBS, consumer loans, whole business securitisations, and other

[21] Recall that more securities in our dataset are rated by Moody's than by S&P or Fitch.
[22] Report by NERA (reference to be completed).
[23] Examples to be listed.
[24] From this point onwards we only report results for floating rate issues.

assets. Since the 'other' category includes many corporate issues, the three asset types that are associated with the most significant negative impact on pricing (vis-à-vis sovereign transactions) are all related to corporate obligors. Whole business securitisations can be thought of as an exclusive type of corporate bonds with specially protected collateral and limits on managerial discretion imposed by covenants, whereas all balance sheet CDO are just pools of corporate bonds or loans. For all coefficients that are significant, the importance of the type of assets for price is substantially greater than the impact of a change in the credit rating by a single notch. Therefore, coefficients on asset types do not seem to reflect different quality of assets across types, unless credit ratings are not comparable across different types. In general, corporate securitisations might be expected to carry more risk or be less transparent than transactions with consumer obligors because: (i) corporate asset pools are less diversified; (ii) corporate assets are less homogenous. Therefore, we interpret these differences as indicating the premium for greater opaqueness of corporate assets. This is confirmed when considering the 'other' assets category containing a highly diversified group of non-standard issues.

In order to better understand differences between types of transactions and obligors, we estimate our model separately for each asset type. Fundamental differences in our model estimates across different asset types would indicate that important structuring differences remain beyond controls specified in our model and different asset types should not be jointly tested. We report results for the comparison between RMBS and CDO types: two groups with the largest number of observations of all asset types, which jointly represent almost 80% of all our floating rate issues. We test the same model specifications, but in order to differentiate between different types of CDO, we also include a dummy for balance versus cash flow (synthetic) CDO types. When comparing different asset types, RMBS and CDO issues are among the most differentiated categories of assets: RMBS feature consumer obligors, prepayment options, highly homogenous, small and numerous individual assets (real estate) with little structuring. In contrast, CDO feature corporate obligors, no prepayment options, but considerable structuring, highly diversified corporate assets with considerably larger average asset sizes per pool.

Despite these differences coefficients on all controls in our model, when estimated separately for each of the two categories of assets, are highly similar with identical signs in all cases except for WAL (regressions III, IV, V: Table 5). The most important differences include coefficients on the class rank, which is highly significant and important in the case of CDO, as expected, indicating that CDO are highly structured beyond credit ratings, as well as a different coefficient on expected maturity, which is negative and significant for CDO in contrast to RMBS. Moreover, synthetic CDO, which are artificially constructed and highly leveraged, demand a significant premium of approx. 30 bps according to our results vis-à-vis balance sheet CDO. We also report results for consumer issues, but these represent only approx. 70 individual transactions.

TABLE 5: LAUNCH SPREADS, CREDIT RATINGS AND ASSET TYPES

Dependent variable is the launch spread (in bps) above the same currency LIBOR for the floating rate issues and the spread above the closest government benchmark bond of matching maturity for the fixed rate issues.

independent variables / regression	I	II	III	IV	V	VI	VII
price (100=par)	-	**-0.85***	-	-	-	-	-
		(2.17)					
irate (10y gov)	-6.94	0.47	-7.16	**-9.01****	-10.35	**10.05***	**-7.61**
	(1.55)	(0.06)	(1.58)	(2.58)	(0.70)	(2.11)	(1.69)
swapdiff (10y-2y swap)	**-10.80****	**-15.31**	**-15.64****	**-19.36****	-16.39	4.22	**-15.42****
	(3.58)	(1.71)	(5.10)	(8.19)	(0.96)	(1.00)	(4.98)
capvol (5y i/r cap)	0.33	**5.77****	**1.08****	**0.56**	**5.28***	1.02	**1.08****
	(0.78)	(3.09)	(2.55)	(1.78)	(2.48)	(1.33)	(2.54)
life log exp (years)	3.41	**25.32****	1.50	0.36	**-13.52**	**4.38**	2.33
	(1.23)	(2.75)	(0.56)	(0.18)	(1.79)	(1.65)	(0.87)
class rank	1.04	0.28	1.25	0.14	**7.52****	**9.03***	1.19
	(1.17)	(0.12)	(1.48)	(0.23)	(2.87)	(2.30)	(1.41)
lamount log (size)	**-3.28****	**-11.70****	**-3.04****	**-2.72****	-2.19	-1.99	**-2.94****
	(3.41)	(2.85)	(3.17)	(2.86)	(0.96)	(1.19)	(3.08)
balance (d) cdo only	-	-	-	-	**-31.83****	-	-
					(3.47)		
auto (d)	-	-	**11.25***	-	-	-	**10.70***
			(2.14)				(1.96)
cards (d)	-	-	-9.18	-	-	-	**-11.86**
			(1.45)				(1.78)
cdo (d)	-	-	**41.82****	-	-	-	**43.02****
			(6.72)				(6.65)
cmbs (d)	-	-	**16.30****	-	-	-	**16.85****
			(2.61)				(2.64)
consumer (d)	-	-	**15.14***	-	-	-	**13.91***
			(2.39)				(2.21)
equip (d)	-	-	**14.93**	-	-	-	**15.78**
			(1.80)				(1.83)
other (d)	-	-	**52.64****	-	-	-	**49.87****
			(6.01)				(6.03)
rmbs (d)	-	-	5.05	-	-	-	4.23
			(1.01)				(0.79)
whole bus (d)	-	-	**51.95****	-	-	-	**53.62****
			(6.43)				(6.70)
Aaa (AAA)	**-153.3**	13.6	**-142.9**	**-158.1**	**-183.4**	**-84.2**	-
Aa1 (AA+)	**-138.2**	-32.7	**-141.3**	**-137.8**	**-168.8**	**-61.8**	-
Aa2 (AA)	**-130.1**	35.7	**-125.8**	**-136.3**	**-158.4**	**-67.9**	-
Aa3 (AA-)	**-136.6**	35.2	**-123.1**	**-139.9**	**-159.9**	**-56.5**	-
A1 (A+)	**-107.4**	17.7	**-93.4**	**-114.6**	**-104.5**	**-60.8**	-
A2 (A)	**-103.1**	**42.6**	**-93.1**	**-108.9**	**-118.9**	**-58.0**	-
A3 (A-)	**-67.3**	**64.7**	**-68.2**	-90.8	-89.5	-8.7	-
Baa1 (BBB+)	7.1	**83.6**	9.8	-52.1	10.1	7.9	-
Baa2 (BBB)	-8.0	**133.6**	2.7	-22.3	-17.4	19.7	-
Baa3 (BBB-)	41.2	**231.5**	40.1	-2.5	41.2	-28.3	-
Ba1 (BB+)	**219.9**	**287.1**	**220.9**	**178.8**	**231.6**	-	-
Ba2 (BB)	**240.0**	**443.2**	**243.0**	**199.2**	**235.6**	**234.5**	-
Ba3 (BB-)	**284.2**	**571.1**	**279.9**	**230.5**	**262.7**	-	-
AAA composite	-	-	-	-	-	-	**-123.4**
AA composite	-	-	-	-	-	-	**-107.3**
A composite	-	-	-	-	-	-	**-71.9**
BBB composite	-	-	-	-	-	-	27.1
BB composite	-	-	-	-	-	-	**263.6**
asset type categories	all	all	all	mortgage	cdo	consumer	all
year / month dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
clusters (issues)	955	148	955	461	205	148	955
issue type	float	fix	float	float	float	float	float
R^2	73.9	86.4	76.0	82.5	77.5	83.7	76.0
no. of observations	2990	290	2990	1618	735	329	2990

Note: Each observation represents a single tranche. Independent variables: irate is the yield on a 10-year government benchmark in the currency of issue on the day of issue; swapdiff (slope) is the difference between 10-year and 2-year swap yield in the currency of issue on the day of issue; capvol is the implied volatility of a 5-year interest rate cap in the currency of issue and on the day of issue; life is the expected weighted average life pf a bond in years as per assumed prepayment path (where relevant); lamount is the log of the size of each tranche in US$ million converted from the issue currency at the FX rate at the date of issue; price is the offer price for each tranche where price = 100 when sold at par; coupon is the nominal coupon on the fix-rate issues; mortgage is 1 if issue type is residential mortgage-backed security, commercial mortgage backed security or non-conforming mortgage backed security (= 0 otherwise); cdo is 1 if issue type is a collateralized debt obligation (= 0 otherwise); corporate = 1 if issue type is backed by corporate assets other than property; consumer = 1 if issue type is backed by consumer loans other than mortgages. The reference type for the type of assets is the government and government agencies' obligations category of assets. Aa1 to Ba3 are dummies of the constructed, combined Moody's, S&P and Fitch credit ratings for the respective credit rating category of each tranche. NR is a dummy for the tranche not rated by any of the agencies. The reference rating for credit rating dummies is AAA. Bold font indicates significance at the 1% level. Bold italic indicates significance at the 5% level, significance at 10% level not indicated. All regressions include a constant (not reported). Coefficients on year and month dummies are not reported. Coefficients on year and month dummies are not reported. The reference year for year dummies is 2003. The reference month for month dummies is January. T-statistics calculated from the Huber-White robust errors with a specified clustering of tranches within each issue are reported in brackets.

6.2 MARKET PLACEMENT, SEGMENTATION AND LIQUIDITY: For both structured finance issues as well as for corporate bonds important pricing factors might be related to the placement of a given security on the market and market characteristics such as liquidity. According to credit rating agencies, such factors are not typically part of the credit rating analysis. Nevertheless, they might be important from the investors' perspective and hence might be explicitly priced. We want to test the hypothesis that different market placement and target market characteristics alter launch spreads in a systematic way after controlling for credit ratings.

If there is market segmentation, different tranches in securitizations might be created to target specific market niches or segments. In highly segmented markets, a downward sloping demand curve in each market segment might result in a price discount on larger securities. This is likely to be particularly important for smaller market segments rather than for highly liquid markets such as AAA-rated bonds. The size of the security issued is also likely to be related to liquidity in the secondary market. When a security is placed on the market, it is often registered at the exchange.[25] However, secondary trading for structured bonds is often supported or conducted by a market maker (typically the arranger) rather than via the exchange where the security is registered. Larger securities are likely to attract greater liquidity, not least because they are likely to be more profitable for the market maker to provide the market for. Therefore, on one hand we might expect a price discount associated with larger securities due to market segmentation, but on the other hand we might expect a price premium associated with larger securities gaining greater liquidity ex-post.

To investigate these factors, we start by documenting the impact of the tranche size on launch spreads, which is consistently negative and significant, as reported before (Table 5). Hence, we find support for liquidity rather than market segmentation hypothesis at the tranche level. This is in line with results found by other studies for corporate bonds, indicating that larger issues are associated with greater ex-post liquidity and/or originator's reputation. However, unlike in the case of ordinary bonds, our securitization tranches are grouped into issues, which originally constitute the actual size of each transaction. In order to delineate the effect of the original transaction size, we add the issue size (the sum of all tranches for each separate securitization transaction) of which the particular tranche is a part of, as a separate control in our model alongside the tranche size (regression I, Table 6). This results in the reversal of the sign on the coefficient of tranche size, which remains significant for almost all model specifications, but is now negative. This seems to point at the downward sloping demand curve at the tranche level. At the issue size level, however, there is no evidence of market segmentation. Instead, a highly significant and consistently negative coefficient on the issue size indicates a positive price liquidity effect related to the size of the entire issue.

We interpret these results as confirming that tranching might be due to market segmentation. If large issues face downward sloping demand curves, but tranching successfully remedies this problem, we are likely only to observe negative effects of limited market capacity per market segment at the tranche level, but not at the issue level. At the transaction (issue) level, with market segmentation remedied by tranching, we observe the positive impact on price associated with a larger transaction size in expectation of the post-issue liquidity and/or higher originator's reputation. In order to delineate the effect of the latter, we proxy originator's reputation by the number of securities placed on the market by that originator until the given security's issue date. Although negative, as expected, the coefficient on the number of originators' issues is almost never significant, while the issue size remains highly significant and of the same magnitude as before (regressions III-VII, Table 6). This result further supports our interpretation of the coefficient on the issue size as being related to the positive impact of market liquidity on the security price at launch.

[25] Most of our issues are registsered at the Luxembourg exchange.

Secondary market liquidity might be related not only to the issue size, but also to the target market. We have data classifying the target market for each tranche as either 'private' or 'public' as well as either 'US' or 'European'.[26] Since public markets are more transparent and considerably larger than private markets, they might be associated with lower launch spreads, after controlling for credit rating, if investors care about the market characteristics rather than just the quality of assets. Similar considerations might apply to the comparison between European and US markets. We report high coefficients on the European public market dummy and even higher coefficients on the European private market dummy, after controlling for the quality of assets, indicating that European markets are associated with a premium vis-à-vis the US. This premium is considerably larger for European private versus public markets (regression IV: Table 7).

Finally, we explore the relationship between pricing and the number of lead managers (arrangers). In particular, we would like to know whether additional lead managers add value by, for example, better distributing notes or adding credibility to the issue. Similarly to our specification, John, Lynch and Puri (2003) control for the reputation of the underwriter with a 'prestige' measure: each corporate bond issue is considered 'prestigious' if it is underwritten by at least one of the top five underwriters. We explore the added value of each underwriter suspecting that a higher number of underwriters might act as a signal indicating an attractive deal, which in turn might be associated with a discount at launch. Another possibility is that a higher number of underwriters can access a wider investors' base with the same effect on price. Our 'leadtot' variable calculates the total number of lead and co-lead managers (arrangers) for each securitization issue in the sample. When estimated, the coefficient on the total number of lead managers has the expected negative sign and remains significant even after controlling for the target market, originator's securitization experience, liquidity, and the country of issuance (regressions II-V: Table 6). Nevertheless, the effect is not large: each extra manager decreases the launch spread by only 3-4 bps, which is lower than the average co-lead manager's fee.

6.3 COUNTRY VARIATION AND LEGAL REGIMES: Since securitisation issues in our dataset are originated and issued in different countries, it is natural to ask about any the potential effect of country-specific factors, such as the legal regime and jurisdiction, on prices of securities at launch. This might be particularly important in this context since structured finance issues are reported to be highly dependent on the legal environment, not least due to necessity of ensuring the 'true sale' legal status for assets in the SPV and creditors' 'true control' over them. However, in so far as legal regimes affect creditors' rights, recovery rates, or rights to forclose on assets, which might in turn directly impact investors' returns, partiuclar jurisdictions should not be associated with any systamtic effect on price after controlling for credit ratings.

In order to test these predictions, we start by incorporating into our model the index of the total number of transactions per country (to proxy for country-market development) as well as country-specific dummies (we report dummies for the two largest jurisdictions in our dataset: the UK and Italy). The UK and Italy dummies are large and significant. For example, an average launch spread on UK issues tends to be 30-50 bps higher than that for other markets (regression V-VII: Table 6). However, since most of the UK issues are denominated in pounds, country dummies might be capturing currency-specific rather than country-specific effects. This is confirmed by associated changes in coefficients on the proxy for the slope of the currency-specific yield curve and the interest rate volatility (they have no material impact on our other results).

[26] However, there are no issues targeted at the US private market in our sample.

TABLE 6: MARKET PLACEMENT, SEGMENTATION AND LIQUIDITY: IMPACT ON LAUNCH SPREADS

Dependent variable is the launch yield spread (in bps) above LIBOR. All issues are floating rate issues.

	Coefficients (t-statistics)						
	I	II	III	IV	V	VI	VII
irate (10y gov)	-6.48 (1.49)	-6.28 (1.45)	-6.74 (1.56)	-6.57 (1.50)	-6.56 (1.49)	**-6.35** (1.65)	**-8.38*** (2.13)
swapdiff (10y-2y swap)	**-14.75**** (5.17)	**-14.55**** (5.05)	**-14.63**** (4.98)	**-15.0**** (4.28)	-1.30 (0.32)	-2.76 (0.69)	-1.81 (0.46)
capvol (5y i/r cap)	**1.44**** (3.65)	**1.49**** (3.74)	**1.49**** (3.60)	**1.61**** (3.42)	0.52 (1.06)	0.39 (0.83)	0.17 (0.38)
life log exp (years)	0.29 (0.11)	-0.03 (0.01)	-1.53 (0.60)	-1.80 (0.69)	-2.25 (0.88)	-0.86 (0.41)	-0.55 (0.27)
class rank	**4.22**** (4.58)	**4.41**** (4.73)	**4.57**** (4.97)	**4.56**** (4.84)	**4.67**** (5.02)	**3.24**** (3.96)	**3.41**** (4.13)
lamount log (size)	**1.82** (1.67)	1.96 (1.81)	**2.57*** (2.45)	**2.64*** (2.53)	**2.99**** (2.89)	**2.70*** (2.15)	**2.40*** (1.96)
lissuesize log (size)	**-13.14**** (6.84)	**-12.05**** (6.04)	**-12.15**** (5.87)	**-11.99**** (5.63)	**-12.34**** (6.13)	**-12.76**** (6.18)	**-13.39** (6.65)
leadtot	**-**	**-4.21**** (2.72)	**-3.58*** (2.32)	**-3.46*** (2.26)	**-3.43*** (2.31)	-1.28 (1.02)	-1.63 (1.28)
origtranches	**-**	-	-0.07 (1.30)	-0.07 (1.13)	**-0.14*** (2.39)	-0.03 (0.60)	-0.01 (0.22)
europublic	**-**	-	-	2.54 (0.45)	8.31 (1.60)	**10.68*** (2.41)	**10.02*** (2.32)
europrivate	**-**	-	-	11.88 (0.83)	21.98 (1.53)	20.56 (1.36)	17.37 (1.15)
country transactions	**-**	**-**	-	-0.00003 (0.34)	**-0.0007**** (5.04)	-0.0001 (0.81)	0.00001 (0.63)
UK	**-**	-	-	-	**50.54**** (6.38)	**33.85**** (2.99)	**30.73**** (3.19)
Italy	**-**	-	-	-	**19.29**** (4.45)	**16.25**** (2.98)	**18.56**** (3.26)
creditors rights cumulative	**-**	**-**	**-**	**-**	-	**-6.13*** (2.00)	**-**
creditors rights I: (stay on assets)	**-**	**-**	**-**	**-**	-	**-**	**-25.20**** (5.25)
creditors rights II: (priority amongst creditors)	**-**	**-**	**-**	**-**	-	**-**	-1.10 (0.18)
creditors rights III: (mgt at reorganisation)	**-**	**-**	**-**	**-**	-	**-**	1.16 (0.18)
AAA rating (d)	**-123.27**	**-122.61**	**-127.36**	**-126.49**	**-126.03**	**-143.97**	**-144.05**
AA rating (d)	**-102.36**	**-101.76**	**-104.31**	**-103.07**	**-102.48**	***-116.64***	**-117.75**
A rating (d)	**-67.65**	**-67.10**	**-70.07**	**-68.90**	**-68.14**	-89.01	**-89.67**
BBB rating (d)	31.45	32.10	29.54	30.68	30.66	8.70	6.03
BB rating (d)	**265.56**	**265.98**	**267.67**	**268.56**	**271.05**	**230.30**	**225.83**
clusters (issues)	955	955	955	955	955	727	727
asset type dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
month dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	76.5	76.7	77.6	77.6	78.2	78.2	78.6
no. of observations	2990	2990	2990	2990	2990	2190	2190

Note: Each observation represents a single tranche. Independent variables: irate is the yield on a 10-year government benchmark in the currency of issue on the day of issue; swapdiff (slope) is the difference between 10-year and 2-year swap yield in the currency of issue on the day of issue; capvol is the implied volatility of a 5-year interest rate cap in the currency of issue and on the day of issue; life is the expected weighted average life pf a bond in years as per assumed prepayment path (where relevant); lamount is the log of the size of each tranche in US$ converted from the issue currency at the FX rate at the date of issue; asset categories are mortgages, consumer, corporate, cdo, agency, and other. Issue size is the sum of the size of individual tranches for each transaction. Transactran is the total number of tranches in the issue which this tranche is a part of. Origtranches is the total number of tranches per originator. Countryno is the total number of tranches with assets from the country which this tranche assets originate from. Leadtot is the total number of lead and co-lead managers for each transaction. Europublic is a dummy = 1 if the tranche has been placed in the European public market; europrivate is a dummy = 1 if the tranche has been placed in the European private market (market placement is either euro-private, euro-public or us-public). Stay, secred, reorg and mgtstay are measures of creditors' rights from Shlefier & Vishny's "Law and Finance". Spaccess, Spsecurity, and spcontrol are country-specific measures of creditors' rights in securitizations from Standard & Poor (5 countries only). AA to BB are dummies for the respective composite credit rating category of each tranche (t-statistics not reported). Bold font indicates significance at the 1% level. Bold italic indicates significance at the 5% level, significance at 10% level not indicated. All regressions include a constant (not reported). Coefficients on year and month dummies are not reported. T-statistics calculated from the Huber-White robust errors with a specified clustering of tranches within each issue are reported in brackets.

In order to test the impact of the legal jurisdiction on the launch spread, we adopt the country-specific index of creditor rights used by La Porta et all (1996). This cumulative index of creditors' rights (1-4) is a combination of several legal regime evaluation criteria including the lack of automatic stay on assets under bankruptcy, securitised creditors' rights to foreclose on assets, creditors' influence over management under reorganisation, and no retention of management under bankruptcy protection. The coefficient on the creditors' rights index is significant and negative indicating that credit-friendly jurisdictions can subtract up to 24 basis points of any particular issue (regressions VI, VII: Table 6). This effect seems to be driven exclusively by the lack of automatic stay on assets in certain jurisdictions. Since other component measures of the creditor rights index are not significant, we suspect that there might be other country-specific factors (such as taxes), which influence our results but which we have not been able to identify.

7. SUMMARY AND CONCLUSIONS

Despite constituting a market of comparable size to corporate bonds, securitizations have received relatively little attention in the academic literature to date. This research aims to fill in this gap by investigating price determinants of structured finance issues at launch. In the first part of our exploratory study, we investigate the importance of credit ratings on launch spreads, subject to the set of standard pricing controls. We document the fact that the relationship between price and credit rating for each tranche is very close indeed and consistent across all types of securitizations despite the fact that credit rating refinements do not seem to carry additional explanatory power. Moreover, due to the process known as structuring, where component tranche characteristics are synthetically amended, this relationship seems considerably stronger than in the case of corporate bonds. At the same time, we find some evidence of structuring being driven by temporaneous market characteristics.

Furthermore, we find several important pricing factors, related to the market placement of each security issued, which remain significant after controlling for the credit rating. In this context, we find that factors documented as important for pricing in the case of corporate bonds, such as market liquidity, are also important for determining spreads on structured bonds. Since some of the identified pricing factors, such as creditors' rights, are likely to systematically affect investors' payouts and are said by credit rating agencies to form a part of their rating assessment process, we conjecture that credit rating agencies consistently differ from investors in their assessment of certain characteristics of securitization transactions.

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