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Report on the institutional and regulatory differences between the american and european securitization markets

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Report on the Institutional and Regulatory Differences Between the American and European Securitization Markets

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Bericht über die institutionellen und regulatorischen Unterschiede zwischen den amerikanischen und europäischen Verbriefungsmärkten

im Auftrag des Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung

by/von

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This Report, commissioned by the German Council of Economic Experts (Der Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung), addresses the key institutional and regulatory differences between the American and European securitization markets.[1] In particular, it considers the way the American and European regulatory systems have responded to moral hazard concerns in securitization, and it examines potential factors constraining the European securitization market after the Global Financial Crisis.

I. SECURITIZATION GENERALLY

Securitization is a financing technique based on segregating selected cashflows of a firm from the firm's liabilities in order to enable investment based solely on the risks inherent in the selected cashflows, rather than in the total package of the selected cashflows' risks as well as all of the firm's other assets and liabilities. For example, with mortgage securitization, the idea is that investors will be able to invest solely in the risks associated with the mortgages (credit risk and interest rate risk), rather than in all the risks attendant to an investment in a mortgage lender as an operating entity, such as agency risk[2] and asset substitution risk.[3]

This type of asset-based financing is often advantageous for both investors and borrowers. Investors can invest in a more targeted, bespoke package of risks than if investing in an operating firm, and securitization may enable borrowers to raise capital at a lower cost than if they borrowed directly. For example, by segregating cashflows from liabilities, securitization enables a firm with high quality cashflows, but significant liabilities to raise funds at costs set solely on the quality of the cashflows. Thus, a petroleum company with excellent cashflows but major environmental liabilities might be able to borrow itself at BBB rates, but could raise funds through securitization at AAA rates.

Virtually any class of cashflow producing assets can be securitized, but securitization has generally been of financial obligations: residential and commercial mortgages, credit card receivables, auto loans, equipment loans and leases, and corporate loans, including to small-to-medium-sized enterprises. Depending on the asset class securitized, the securities issued in a transaction might be called MBS (mortgage-backed securities), RMBS (residential mortgage-backed securities), CMBS (commercial mortgage-backed securities), CLOs (collateralized loan obligations—a securitization of corporate loans), or ABS (asset-backed securities, a residual catch-all category).[4]

Securitization transactions are used, broadly, for a variety of distinct economic purposes. The motivation for some securitization transactions is to shift credit risk on the securitized assets from the transaction's sponsor (a financial institution) to the investors in the securitization. These transactions are essentially sales of the securitized assets: the transaction sponsor gets cash and parts with its interest in the assets. These transactions raise particular concerns about moral hazard and adverse selection because of the information asymmetry between the transaction sponsor and investors.

The motivation for other securitizations is to achieve regulatory capital relief. Banks are required to hold a specified amount of regulatory capital vis-à-vis their risk-weighted assets. Securitizations can enable a bank to derecognize assets and thereby reduce the regulatory capital they are required to maintain.

Other securitizations, however, are not motivated by credit risk transfer or to reduce regulatory capital requirements, but are simply a funding channel for transaction sponsors, which rely on the securitization proceeds to make further loans. This is particularly the case for securitizations undertaken by the captive finance arms of industrial firms, which lack a base of deposit financing. Although investors in these transactions might nominally assume credit risk, they are substantially protected from it both by various types of credit enhancements (e.g., overcollateralization or retention of excess spread) and by implicit recourse against the transaction sponsor, which will act to prevent losses to investors in order to protect its funding channel. In these funding transactions, investors are assuming primarily interest rate risk.

Finally, other securitizations are undertaken as arbitrage transactions, in which the sponsor aims to generate a spread between the interest coupons on the securitized assets and interest payments due to securitization investors. The sponsor captures the spread income through a retained equity interest. Although these arbitrage transactions are not motivated as risk-transfers, they do not have the implicit support of transaction sponsors because the sponsors are not reliant on them for maintaining on-going business.

Securitization is widely understood as having been at the epicenter of the Global Financial Crisis, having financed the precipitating housing bubble in the United States,[5] as well as contributing to housing bubbles in Denmark, Ireland, Spain, and the UK.[6] Accordingly, the securitization market has been the focus on substantial post-crisis regulation.

II. THE INSTITUTIONAL LANDSCAPE OF AMERICAN SECURITIZATION

Securitization plays a substantial role in the US economy, most particularly in residential mortgage markets. The overwhelming majority of the US securitization market is residential mortgage securitization. In 2022 there were $2.5 trillion in securitization issuances.[7] 88% ($2.1 trillion) of those issuances were for RMBS.[8]

Prior to the global financial crisis, securitization provided the funding for the majority of single-family mortgages in the United States. Today, its role is diminished but still significant, providing the financing for over a fifth ($2.6 trillion) of the $13.4 trillion in single-family mortgages outstanding at the end of 2022.[9]

Institutionally, the residential mortgage securitization market is substantially different from other securitization markets. This is because the residential mortgage securitization market is dominated by the government-sponsored enterprises the Federal National Mortgage Association ("Fannie Mae") and the Federal Home Loan Mortgage Corporation ("Freddie Mac") and the federal government agency, the Government National Mortgage Association ("Ginnie Mae").[10] Together these three institutions undertook 97% of the residential mortgage securitizations in 2022,[11] and their market share of RMBS issuance since 2008 has never been lower than 86%.[12]

Fannie Mae and Freddie Mac are special federally-chartered corporations. (Most American corporations have state-issued charters.) Their corporate charters restrict them to operating only in residential mortgage markets. Fannie and Freddie are *de jure* privately owned companies, they are *de facto* federal government instrumentalities. Not only are they subject to a special federal regulatory regime,[13] but they have been in a federal conservatorship since 2008,[14] and are backed by a capital support agreement with the US Treasury that gives Treasury considerable control over them.[15]

Fannie and Freddie do not deal directly with consumer borrowers. Instead, they purchase mortgages from financial institution originators and aggregators. Fannie and Freddie finance some of these purchases through the issuance of corporate debt and credit-linked notes tied to pools of loans, as well as through securitization. Since 2019, Fannie and Freddie have issued interchangeable Uniform MBS, which they guaranty for their own issuances, respectively, for timely payment of principal and interest. This means that investors in Fannie/Freddie MBS assume the interest rate risk on the MBS, but not the credit risk. Instead, they bear the credit risk of Fannie Mae and Freddie Mac, which is *de facto* the credit risk of the United States government, and the credit risk on the mortgages is borne by Fannie Mae and Freddie Mac, and implicitly by the US Treasury.

What this means is that the credit risk on all Fannie Mae and Freddie Mac MBS is uniform—it is all the credit risk of the US government. Thus, investors in Fannie Mae and Freddie Mac MBS are assuming primarily interest rate risk, not credit risk, and investing in that interest rate risk does not require diligencing the underwriting on the mortgages.

When Fannie and Freddie purchase mortgages, they charge the seller a guaranty fee, which varies by the features of the mortgages. Sales of mortgages to Fannie Mae and Freddie Mac can be on a "servicing retained" or "servicing released" basis, depending on whether the seller wishes to continue as the servicer for the loan (retaining the customer relationship with the borrower) or not.

In contrast to Fannie and Freddie, Ginnie Mae is a *de jure* federal government agency. Ginnie Mae operates somewhat differently than Fannie and Freddie: Ginnie Mae does not itself purchase or securitize any mortgages. Instead, Ginnie Mae provides a secondary guaranty of timely payment of principal and interest on privately-issued, standardized MBS that are backed by mortgages insured or guaranteed by other federal government agencies as part of various housing affordability or veterans benefit programs. For these securitizations, losses are absorbed first, on a loan-level basis, by various federal government loan-level insurance. If losses exceed the insurance, then they fall on the financial institution that issued the securitization. And only if the issuer fails to cover the losses is the Ginnie Mae guaranty triggered.[16]

In addition to Fannie, Freddie, and Ginnie, there is another set of government-sponsored enterprises that provide secondary market financing for mortgages. There are twelve Federal Home Loan Banks that make advances to banks against mortgage collateral. The Federal Home Loan Banks fund these advances by issuing debt securities that are general obligations of the Federal Home Loan Bank system, rather than being backed by particular pools of mortgages. Banks that obtain Federal Home Loan Bank funding retain servicing of the loans.

Notably, there is no equivalent product in the United States to a covered bond, that is a type of secured borrowing made by a bank from capital market investors.[17] When American banks wish to borrow on a secured basis against the assets on their balance sheets they either get Federal Home Loan Bank advances (for mortgage collateral) or enter into repo transactions (for securities collateral) or potentially borrow from the Federal Reserve System's discount window (for all collateral types).[18] American banks do not borrow on a secured basis from capital markets. Although there is no prohibition on US banks issuing covered bonds, there is no specific enabling legislation, and there is substantial uncertainty about how regulators would treat them. The availability of robust mortgage securitization pipelines through Fannie, Freddie, and Ginnie, and

the ability to engage in Federal Home Loan Bank borrowing also vitiates the economic case for covered bond issuance in the United States.

Fannie, Freddie, and Ginnie are predominantly engaged in facilitating the financing of single-family housing, but they also play a role in financing multifamily housing. Securitizations backed by multifamily housing are a subset of CMBS, rather than RMBS. Collectively the securities issued in securitizations by Fannie, Freddie, and Ginnie are referred to as "Agency MBS". As of the end of 2022, there were approximately $2.2 trillion of mortgages outstanding in Agency MBS, or approximately 16% of the $13.4 trillion in 1-4 family residential mortgage loans outstanding.[19]

Most direct mortgage lending to consumers in the US is done through banks and credit unions, although finance companies also play a significant role. All of these institutions are incentivized to sell mortgage loans they make to Fannie and Freddie for securitization or to securitize them with a Ginnie Mae wrap. For banks and credit unions, securitization offers regulatory capital relief. Finance companies are not subject to regulatory capital requirements, but they too are incentivized to securitize their mortgages because if their own credit quality is poor, securitization is likely to be a cheaper funding channel for their on-going operations that direct corporate borrowing.

In addition to Fannie, Freddie, and Ginnie RMBS, there is also a small "private-label" residential securitization market in the United States. In the years immediately before 2008 financial crisis, private-label RMBS dominated US mortgage securitization markets achieving over a 50% market share. Since the financial crisis, however, only a shell of private-label securitization remains. Whereas private-label securitization historically financed the subprime and nontraditional mortgages that fueled the housing bubble, today it finances primarily larger, prime "jumbo" mortgages that exceed the size of loans Fannie Mae and Freddie Mac are allowed to purchase. In 2022, there were $424 billion in private-label MBS outstanding, representing only 3% of the total dollar value of single-family mortgages outstanding ($13.4 trillion).[20] Likewise, private-label MBS made up only 3% of US MBS issuance by dollar amount in 2022.[21] Because the mortgages in private-label MBS are larger than in Fannie, Freddie, and Ginnie transactions, private-label MBS financed an even smaller share of the number of loans.

It is important to recognize the strong linkage between the prevalence of Agency securitization and the prevalence of a unique product in US mortgage markets: the 30-year, fully-prepayable, fixed-rate mortgage. This is a remarkably consumer-friendly product. The fixed rate ensures that the borrower has level payments, which are kept low by the long term. The fixed rate also shifts all interest rate risk to the lender. If rates go up, the lender is stuck with a below market loan, while if rates fall, the borrower is able to refinance at will.

While American consumers have shown a considerable preference for the 30-year fixed rate mortgage, the placement of interest rate risk on lender, particularly depositories, which have short-term deposit funding, means that holding such mortgages on balance sheet creates a potentially disastrous asset-liability maturity mismatch.[22] Accordingly, consumer preference for long-term, fixed-rate mortgages means that banks must securitize the mortgages and shift the interest rate risk to capital market investors in order to manage their maturity mismatch risk. Such securitization is great

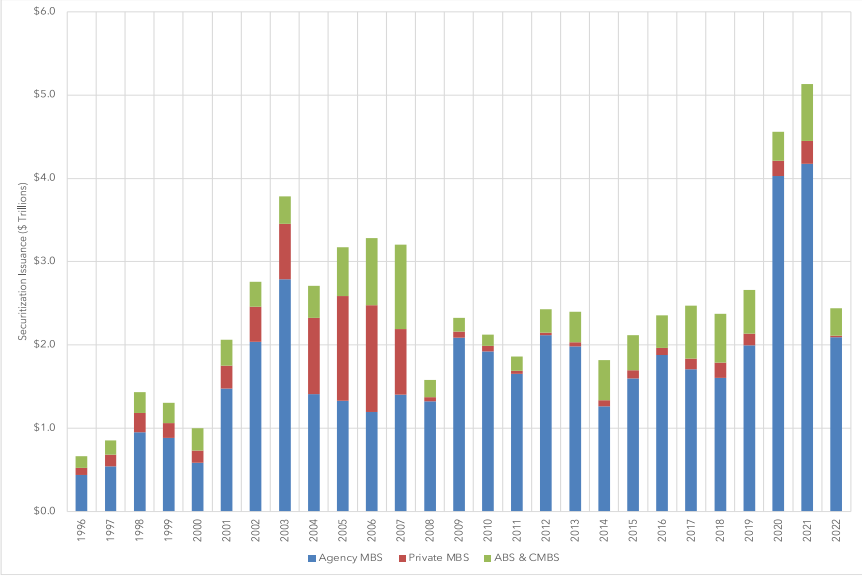
The prevalence of the 30-year fixed rate mortgage adds considerably to financial stability by shielding households from rising interest rates and enabling them to plan around a predictable,

large expense. The 30-year fixed rate mortgage—and Agency securitization—was briefly displaced as the dominant product during the 2005-2007 period when the teaser-rate mortgages with prepayment penalties, financed by private label securitization fueled the US housing bubble, the collapse of which triggered the Global Financial Crisis.

Likewise, Fannie/Freddie Uniform MBS trade in a forward contract market called the "To-Be-Announced" (TBA) market that increases their liquidity and enables mortgage lenders to hedge their interest rate risk for the period between when they make an offer to a borrower and the loan closes and they can sell the loan to Fannie or Freddie. This in turn enables lenders to be able to offer borrowers pre-closing rate-locks, which in turn enables borrowers who have been pre-approved for loans to make bids on houses with confidence about the affordability of the potential home purchase. Buyers' ability to bid with confidence in their financing costs helps avoid a deadweight loss in housing markets from transactions where buyers limit their bids because of uncertainty over financing and are unable to close the bid-ask gap with sellers.

With the exception of CMBS backed by multi-family residential mortgages, the rest of the US securitization market is entirely private. The transaction sponsors for these deals vary by asset class. For some—*e.g.*, credit card receivables—the sponsors are large financial institutions, while for others, the sponsors might be industrial companies. In terms of dollars of issuance, the largest asset classes for securitization post-2008 has been CLOs, primarily securitizing leveraged loans made to large and middle market borrowers (often for leveraged buyout financing for private equity acquisitions), followed by private-label MBS (again, prime jumbo mortgages), auto loan ABS, and CMBS. Securitization of credit card receivables, equipment loans and leases, student loans, and other sundry asset classes has been comparatively small. Figure 1 shows the composition of US securitization issuance over time, with Agency MBS predominating.

Figure 1. Composition of US Securitization Issuance[23]



American securitization is, with the exception of CMBS, a national market. Mortgage and consumer credit obligations from borrowers across the United States are securitized in geographically blended pools without any differentiation based on geographic location of borrowers, despite some variation in state level consumer protection and debt collection laws (other than for auto repossession). For residential mortgages, the geographic blending is the result

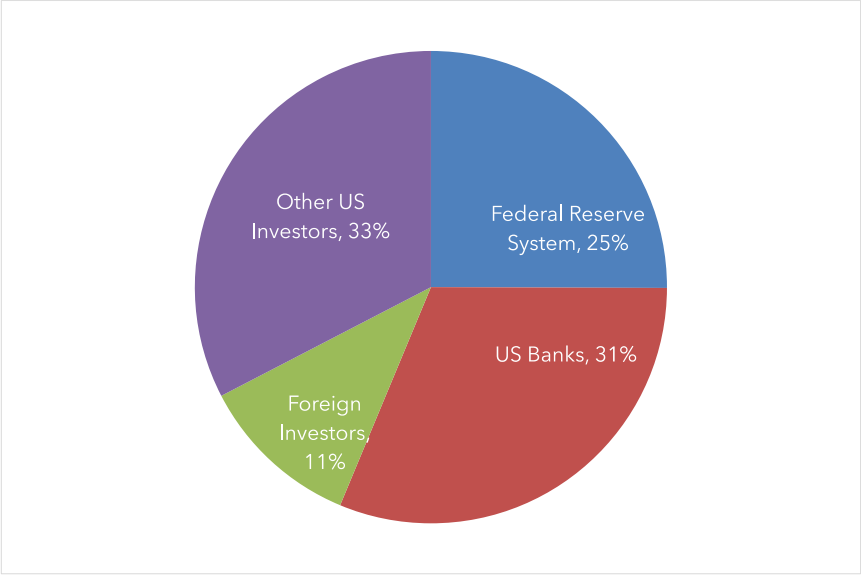
of Fannie Mae and Freddie Mac having a strong policy against geographic discrimination in order to create a larger, and hence more liquid, national market for MBS. Given that Fannie Mae and Freddie Mac bear the credit risk on the loans they securitize, they have little reason to construct geographically-based collateral pools. For other consumer credit obligations, such as auto loans, credit cards, and student loans, state-level variations of consumer protection and debt collection laws are of little practical significance, as auto repossession procedures are uniform, and nonperforming, unsecured consumer obligations are of negligible value (1¢-3¢ on the dollar) in all jurisdictions.

The story is different for CMBS, however. CMBS pools include commercial real estate mortgages (other than multi-family residential) from only around 60 major urban markets. The mortgages for properties outside those areas are not securitized, in part because of concerns about property valuation in more sparsely populated markets.

Information about the holders of US-issued securitizations is limited; the US government does not generally track holdings of MBS and ABS. What is apparent, however, is that at least for Agency MBS, the single largest holder is the Federal Reserve System, which in 2021 held $2.7 trillion of Agency MBS, or approximately 25% of all Agency MBS outstanding.[24] Additionally, as of 2021, US-chartered depositories held another $3.3 trillion of Agency MBS or approximately 31% of the outstanding stock.[25] Information on the holdings of other domestic institutions (pension plans, insurance companies, investment funds) is not available, but as of 2021, foreign investors held $1.2 trillion of Agency MBS, or 11% of the market.

Traditionally around two-thirds of the foreign investment in Agency MBS is from Japan, Taiwan, and China.[26] In 2021, European investors, primarily from the UK, Luxembourg, and Switzerland, held $92 billion of Agency MBS, or less than 1% of all Agency MBS outstanding.[27]

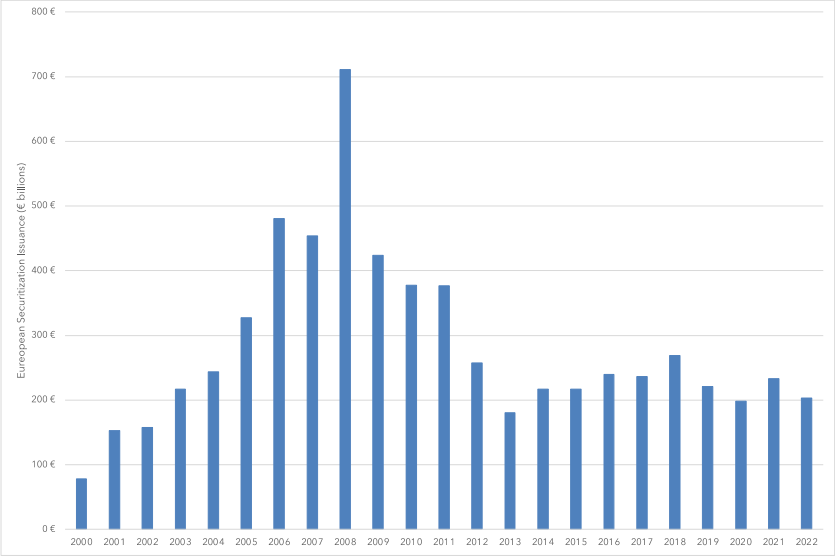
Figure 2. Holders of US Agency MBS[28]



III. THE INSTITUTIONAL LANDSCAPE OF EUROPEAN SECURITIZATION

The European securitization market looks very different than American securitization. Securitization plays a much smaller role in the European economy than in the US. Whereas the US had $2.5 *trillion* in securitization issuances in 2022, there were only 203€ billion of securitizations issued in Europe that same year. Figure 3 shows European securitization issuance over time.

Figure 3. European Securitization Issuance[29]



The topline figure for European securitization issuances is deceptive, however. For the 203€ billion in issuances in 2002, only 80€ billion of those issuances were actually place with investors. The remaining 123€ billion—over 60% of the issuance total—were retained by their sponsors. Regulatory risk-retention requirements explain a small amount of the retained issuances, but most retained issuance seems to be about converting various loan exposures into securities that can be posted as collateral for European Central Bank ("ECB") repo borrowing at a lower haircut than with the loan exposures themselves. The takeaway is that the real size of the European securitization market since 2008 has only been in the range of 80€-100€ billion. In other words, since the Global Financial Crisis, European securitization for purposes other than facilitating ECB borrowing has been a very small market with a consistent size. Figure 4 shows the split between placed and retained issuances.

Figure 4. European Securitization Issuance Placed and Retained[30]

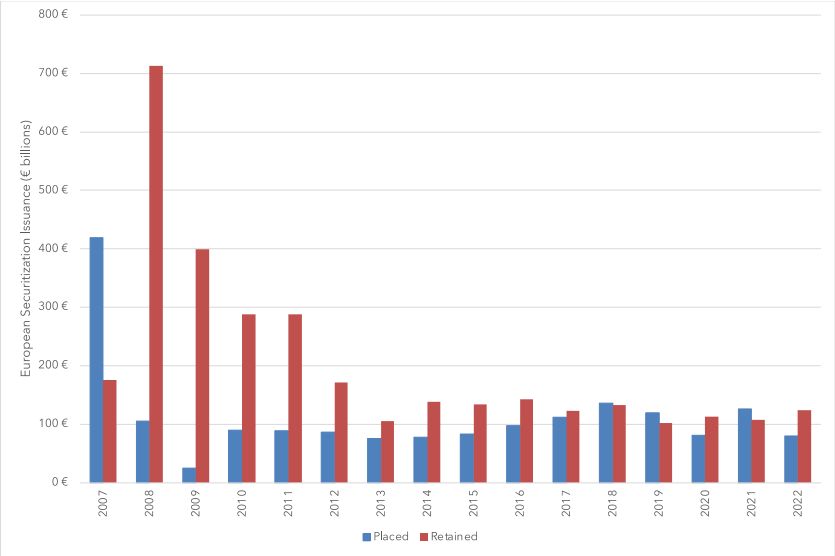
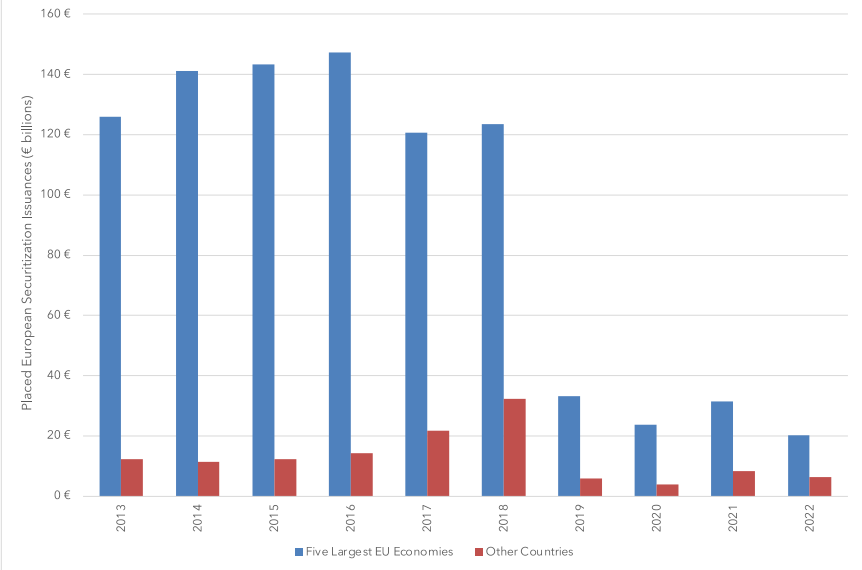


Figure 5. Placed European Securitization Issuance by Country (Excluding CLOs)[31]



Most European securitization is of residential mortgages. RMBS accounted for 52% of issuance in 2022. ABS based on assorted asset types (auto loans, credit card, etc.) accounted for 17%, followed by CLOs at 15%, SME loans at 14%, and then CMBS at just 3% of issuance.

With the exception of CLOs, almost all European securitization is done against national-level collateral: French auto loans are not combined with German ones in transactions.[32] The lack of pan-European securitization in most asset classes appears to stem from several factors. First, national level licensing regimes for consumer lenders mean that some lenders do not operate on a pan-European basis, impeding the assembly of pan-European collateral pools. Second, there is variation in national-level legal and tax system, as well as variation in national-level macroeconomic risk. In particular, there is variation on the national level in laws regarding debt

collection, foreclosures, evictions, and insolvency. These variations make it difficult for investors to assess the risks involved in collateral pools spanning multiple countries.

Unlike other asset classes, CLOs—securitizations of loans to large enterprises—will have pan-European collateral.[33] Part of this is simply a practical matter; there might not be sufficient volume of large commercial loans in any single country at a single point in time to support securitization. Additionally, there might be less concern about variation in national level legal regimes, both given greater flexibility in choice of governing law for business transactions and that troubled commercial loans to large enterprises rarely result in actual contested collection activity, but instead more typically end up in a restructuring process.

Institutionally, there are two main distinctions between the European and American securitization markets. First and foremost, there is no European equivalent to the various American government-sponsored enterprises (Fannie, Freddie, Ginnie, Federal Home Loan Banks) for residential mortgage securitization. Instead, most European residential mortgages are financed through bank balance sheets or through covered bonds.

The lack of government-sponsored enterprises that facilitate an express or implicit government assumption of credit risk on mortgages has an important impact on the terms of the underlying mortgages. Long-term, fixed-rate, fully prepayable mortgages do not exist in Europe, other than in Denmark, which has a unique mortgage finance system that has relied on a special design of covered bond to shift interest rate risk out of the depository system to capital markets.[34]

The second difference is the lack of covered bonds as a financing mechanism in American markets. In Europe, covered bonds are a larger financing mechanism than securitization, with over 500€ billion of covered bonds placed in 2022, compared with 203€ billion in securitization issuance that year, only around 80€ billion of which was actually placed with investors.[35]

For certain asset classes, covered bonds are in large measure an effective substitute for securitization as a financing mechanism. The biggest difference is that covered bonds are formally dual recourse instruments, permitting investors to recover from either the issuing bank or from the cover pool if the bank is insolvent. In contrast, securitizations (other than Agency issuances) are backed formally, at least, solely by the pool of securitized assets. In the EU, covered bonds are restricted to being backed by high quality assets: governmental obligations, residential mortgages up to 80% LTV, commercial mortgages and ship mortgages up to 60% LTV, and other collateralized loans where the collateral is always sufficient to allow full recovery.[36] This precludes covered bonds backed by auto loans and leases, most business loans, and credit card receivables. As a result, covered bonds are only a substitute for securitization primarily for residential mortgage loans.

Historically, in practice, however, many securitizations are dual recourse because of implicit recourse to the sponsor. This was particularly true for securitizations that were just financing channels, rather than risk-shifting transactions.[37] Thus, there was implicit recourse in securitizations by captive financing affiliates of industrial companies, which had to support their securitization vehicles if they wished to have future access to funding from securitization in order to support their manufacturing affiliates. It has also been a concern in the context of credit card securitization.[38]

Since 2013, US banking regulations have penalized such implicit recourse through a combination of punitive regulatory capital treatment and a requirement that any bank that provides

support of a securitization vehicle in excess of its contractual obligation publicly disclose such support and the risk-based capital impact of having done so.[39] For non-bank securitizers, however, there is no equivalent penalty, although providing actual support in excess of contractual obligations might affect their ability to deconsolidate the securitization vehicle for accounting purposes. In the EU sponsors and originators that are subject to risk-weighted capital requirements are prohibited from supporting their securitization vehicles beyond their contractual obligations, and violators are required to treat the securitized assets as if on their balance sheets as if they had not been securitized for regulatory capital purposes.[40] As in the United States, there is no equivalent rule for non-bank securitizers, which are discouraged from implicit recourse only by adverse accounting treatment.

Beyond the formal issue of recourse, there are some differences in the regulatory and accounting treatment of covered bonds and securitizations, but both enable financial institutions to monetize debt obligations. The lack of covered bonds in the United States—largely because of path dependence and lack of a specific legal framework—means that in securitization is the financing mechanism of choice. In contrast, in European markets, covered bonds provide a ready alternative to securitization.

IV. THE REGULATORY LANDSCAPE OF AMERICAN SECURITIZATION

A. Credit Risk Retention Requirement

There are two main regulations of securitization in the United States, both at the federal level. First, there is a credit risk retention or "skin-in-the-game" requirement. American law requires the sponsor of a securitization transaction to retain at least 5 percent of the credit risk on the securitized assets.[41] The 5 percent can be retained as either a vertical slice of the securitization or as a horizontal (1st loss) position.[42] The position must be held directly, not synthetically, and the credit risk on the position may not be hedged.[43]

There are a number of significant exceptions to the US credit risk retention requirement, however. It does not apply to government-backed securitizations (including Ginnie Mae and certain student loans),[44] nor does it apply to Fannie Mae and Freddie Mac (which generally retain all credit risk).[45] Fannie and Freddie do not require the financial institutions that sell them mortgages to retain a share in the loans. For Ginnie Mae securitizations, however, the securitization sponsor is already in the first loss position, ahead of Ginnie Mae, which is merely providing secondary credit insurance. Certain asset classes are also exempt from the credit risk retention requirement. The requirement does not apply to securitizations of qualified commercial loans, commercial real estate loans, residential mortgages, or auto loans.[46] In order to be qualified, these loans must meet certain underwriting standards, including verification of ability to pay, ensuring that there is high quality collateral in exempt transactions.[47] CLOs are also exempt because a court decision interpreted CLO managers not to be securitizers.[48]

What this leaves are credit card securitizations, some sundry small classes of ABS (auto lease securitization, *e.g.*), and securitizations of assets that do not meet the underwriting qualifications for exemption. Credit cards are the largest asset class not exempt, but even before the credit risk retention requirements credit card securitizations contractually required sponsors to retain both a vertical and a horizontal position that exceeded 5 percent, and most sponsors went over and above the contractual requirement.[49]

B. Disclosure Requirements

The other major regulation of securitization in the United States is a securities disclosure regulation called Reg AB. Reg AB requires that the issuers of securitizations provide standardized loan-level information in the offering prospectus and in on-going reports.[50] Reg AB also mandates a delay between the initial disclosure of the terms of the deal and the sale.[51] Prior to Reg AB, investors in securitizations had almost no time to analyze the specific collateral underlying the deal when it was offered. They could only see the disclosures around the time they committed to buy. Since 2014, there is a mandated delate of at least three business days before the first dale.

In addition to its disclosure and timing requirements, Reg AB also makes the ability to use a procedure that allows for a quick registered sale of securities contingent upon the presence of certain substantive terms in the transaction. These substantive terms are designed to give securitization investors greater ability to enforce the representations and warranties made about the securitized assets.[52] A major investor complaint about private-label RMBS following the Global Financial Crisis was that it was difficult to enforce the representations and warranties made in securitizations about the quality of the securitized loans, and that even when enforcement was possible, the available remedies were limited.[53] Reg AB does not mandate that transactions have these substantive terms. Instead, it only makes them a requirement for using a particularly favorable securities issuance procedure.

Reg AB, however applies only to securities offerings that are registered with the Securities and Exchange Commission.[54] Not all securities offerings must be registered. In particular, private placements of securities to accredited investors are exempt from registration.[55] A substantial percentage of US securities issuance is now private placements, and nearly all private-label MBS are privately placed, putting these deals outside the scope of Reg AB.[56] Fannie Mae, Freddie Mac, and Ginnie Mae transactions are all also exempt from registration.[57] Reg AB has little impact for most of the American securitization market.

C. Accounting Standards

Historically, a major attraction of engaging in securitization was off-balance sheet accounting treatment for the securitized assets. For banking institutions in particular, off-balance sheet accounting treatment was historically valuable because it enabled them to avoid holding regulatory capital against the securitized assets. A pair of changes in American accounting principles (GAAP), effective 2010, had the effect of bringing many existing securitizations back on balance sheet and in keeping many future securitizations on balance sheet.

First, the standards for when different entities' assets had to be consolidated for accounting purposes were changed. This matters because if an asset is transferred within a consolidated group, it has no impact on accounting for the asset, but if the asset is transferred outside a consolidated group, it might be eligible for derecognition by the transferor. Since 2010, GAAP has required consolidation of the securitization vehicle with the transaction sponsor if the sponsor has the power to direct the activities of the entity that most significantly impact its economic performance and either upside or downside exposure to the securitization entity.[58] This means that to avoid consolidation (a prerequisite to getting off-balance sheet treatment), the sponsor must either surrender servicing or surrender an economic interest in the securitization. Therefore, if a sponsor is subject to risk retention requirements (contractual or statutory) and does not surrender servicing, it will have to consolidate the securitization on its balance sheet.[59] As a result of the accounting change, a large percentage of US securitizations went back on balance sheet in 2010.

Second, the derecognition standards were also changed in 2010. Under the new standard, if a transferor and transferee are not consolidated, the transferor may derecognize the transferred asset if (1) there is legal isolation of the transferred asset from the transferor, (2) the transferee (or holder the beneficial interest in it) is able to pledge or exchange the asset (or the beneficial interest), and (3) the transferor has no right or obligation to repurchase the transferred asset.[60] In other words, the GAAP derecognition test looks solely at control.

D. Bank Regulatory Capital

Banks are subject to certain capital requirements. These requirements are set on a national level, but there is a large degree of international coordination within the non-binding regulatory framework set by the Basel Committee on Banking Supervision. Under the Basel framework, banking institutions are required to hold a specified level of capital relative to their risk-weighted assets. This system requires first determining the scope of a bank's assets, which for US banks is done in reference to GAAP,[61] and then applying a risk weight to the various assets. The system of risk-weighting used in the US has changed several times since 2008, going from Basel I to Basel II to Basel III based risk-weightings. Additionally, alternative risk-weighting calculations are offered to banks based on their size.

Securitization can substantially affect risk-weighting. For example, whereas first lien mortgage loans generally bear a 50% risk weight, a Fannie or Freddie MBS bears a 20% risk weight and a Ginnie Mae MBS bears a 0% risk weight. Thus, by selling mortgages to Fannie and Freddie in exchange for MBS, a bank or credit union can get regulatory capital relief, and if it resells the resulting MBS to the public for cash (0% risk weight), it will get further regulatory capital relief, although it will surrender the possibility of future market gains if interest rates fall.

The current system of risk-weighting for non-Agency securitization exposures is incredibly complex and opaque, requiring regulations with multiple algebraic formulas as instructions, but it may be generally summarized as follows. Under the current system, any transaction that transfers credit risk on a tranched basis is treated as a securitization, as are any credit enhancing representations and warranties made by the bank to the securitization. Banks are required to undertake a risk appraisal on all their securitization exposures. If they fail to do so, the securitization is given a risk weight of 1250%.

This is only the default risk-weight, however. If the bank undertakes a risk assessment, then the risk weighting can range from 1250% for a first loss tranche to 20% for a senior position. The current methodology accounts for both seniority level of a securitization exposure and the current delinquency level of the securitization. A 1250% risk weight means that the bank must hold a dollar of equity for every dollar of the asset, such that it cannot borrow to finance the acquisition of the asset. In contrast, with a 20% risk weight, a bank only has to hold $1.60 of equity for ever $100, enabling substantial borrowing to purchase the asset. Prior to the Global Financial Crisis, however, the risk-weighted floor was 7%, permitting only $0.56 in equity for every $100 of the securitization. As noted above, there is special treatment for Agency MBS.

The bank capital rules interface with the credit risk retention requirements. While the credit risk retention rules require either a 5% vertical or first-loss horizontal slice, the capital charges for the first-loss horizontal slice are much higher. As a result, virtually all credit risk retention is done with a vertical slice, aligning the interests of the bank with those of the other securitization investors as a whole, rather than aligning the interests of the bank with the first loss position only. This should be viewed as a positive outcome because it helps reduce concerns about the bank

favoring the first loss position if it retains servicing of the securitized assets. For example, if the bank retains servicing and has a first loss position, it might be incentivized to restructure defaulted assets and gamble on resurrection rather than liquidate them in order to avoid loss recognition that would wipe out the first loss position.

The net effect of the bank regulatory capital rules and credit risk retention rules is that banks are strongly incentivized to ensure that their securitizations are eligible for derecognition or are not subject to credit risk retention, but this is not possible for certain asset classes, such as credit card securitization, that have early amortization triggers or lines of credit.

Among the most significant effects of the capital regulations is that banks have largely ceased investing in CDOs (resecuritizations). CDOs were at the epicenter of the housing bubble that precipitated the Global Financial Crisis. It was easy for sponsors to place the AAA-rated senior positions in the private-label MBS that fueled the nontraditional mortgages that enabled borrower to bid up housing prices unsustainably. But sponsors also needed to be able to place the junior and mezzanine tranches of the private-label MBS, and there was only limited organic investment appetite for such credit-risk intensive assets. The solution was to create investment appetite through resecuritization; the junior and mezzanine tranches were stuffed into CDOs, the senior tranches of which again could be placed, and the process repeated.

Whereas the EU has outright banned resecuritization,[62] no such prohibition exists in the United States. Nevertheless, the US CDO market has almost entirely disappeared post-2008. Several factors appear to have contributed to the disappearance of CDOs. Firstly, CDOs were the asset class that incurred the highest losses of any type of securitization during the Global Financial Crisis. Losses on CDOs ran between 72% and 88% for CDOs originated in 2004-2007, with even the AAA-rated senior tranches incurring substantial losses.[63] Overall, CDOs incurred $420 billion of write-downs on $641 billion of issuance.[64] By way of comparison, private-label MBS, a market with over $5 trillion of issuance market, incurred only about $350 billion of write-downs.[65] The extreme losses in the CDO market tarnished the asset class for investors, and likely made many reluctant to purchase. Second, the senior tranches of CDOs were sellable because of their AAA ratings. Post-crisis, ratings agencies' models are much more likely to capture the correlation risk faced by CDOs, such that the transactions are unlikely to receive sufficiently high ratings to make them economically viable. Third, the volume of CDO issuance was itself based on the volume of other securitization issuance; lower securitization volumes in general meant that there were fewer MBS and ABS that could be repackaged into a CDO, and because the underwriting quality and credit support for post-Global Financial Crisis deals was much better, it was easier to find organic demand for the subordinated tranches of ABS and MBS, vitiating the need for sponsors to rely on CDO buyers in order to be able to place all their tranches. And fourth, increased bank regulatory capital charges discouraged banks from investing in CDOs, thereby eliminating a major source of demand for CDOs.[66]

All in all, the total effect of securitization regulation in the United States after the Global Financial Crisis was to ensure that securitization sponsors either securitized well-underwritten assets or incurred substantial exposure to the assets themselves. The reforms also made it more difficult to achieve off-balance sheet accounting treatment and get regulatory capital relief through securitization.

V. THE REGULATORY LANDSCAPE OF EUROPEAN SECURITIZATION

European regulation of securitizations is, in broad strokes, similar to American regulation, also requiring credit risk retention, disclosure, an higher bank capital charges, although there are some important variations in the details.

As an initial matter, the EU's regulation of securitizations is more comprehensive, undertaken in its current form in two twinned regulations, the Securitization Regulation, Regulation (EU) 2017/2402, and the Securitization Prudential Regulation, Regulation (EU) 2017/2401, that became effective in 2019.[67] In contrast, the US's regulation consists of a credit risk retention rule and bank capital regulations undertaken by various banking regulators, and a disclosure regulation separately undertaken in an uncoordinated process by the securities regulator.

A. Credit Risk Retention Requirements

The EU has two separate credit risk retention requirements, one a "direct" one that applies to securitizers, and the other an "indirect" one that applies to institutional investors. The direct requirement is that one of the originator, sponsor or original lender must retain at least a net economic interest of 5% in the securitization.[68] This requirement applies to all transactions where the credit risk is tranched, meaning that it is not a straight pass-through. The 5% interest can be held as a vertical slice, as a horizontal first loss position, or in other configurations that equal at least 5% of the nominal value of the securitized exposures.[69] The primary exceptions to this requirement are for securitizations of government-guaranteed assets or if the underlying exposures have a risk-weight of 50% or less in EU banking capital requirements.[70] Among the asset classes with a risk-weight of 50% or less are first-lien residential mortgages (35%)[71] and commercial mortgages (50%).[72] Whereas American securitizations prefer to retain a vertical slice of the transaction, most European securitizations (59%) involve a retention of a first loss tranche.[73] The reasons for this difference in form of risk retention are not clear.

The EU also requires institutional investors to verify that the sponsor, originator, or original lender of a securitization retains at least a 5% material net economic interest in the securitization on an on-going basis.[74] The EU regulation essentially shifts the burden of monitoring from regulators to institutional investors. There is no analogous provision in American law, but violations would expose securitizers to both regulatory enforcement and (for public company sponsors) private litigation under American securities laws.

B. Disclosure Requirements

EU securitization regulations also require originators, sponsors, and securitization vehicles to make certain information available to investors, regulators, and potential investors, including quarterly performance information on the securitized assets, all of the legal documentation for the transaction, and, when applicable, a prospectus outlining the features of the transaction.[75] These disclosures are known as "Article 7 reporting."

The legal documentation and prospectus must be made available before the deal is priced.[76] Other reporting is done on an on-going basis. The information is submitted to securitization repositories by means of standardized templates creates by the ESMA. The templates differ by the type of securitized assets, but all include a large number of required data fields, including asset-level reporting. The disclosure requirements are substantially more detailed than for covered bonds, but securitizations are not backed by the credit of the sponsor, unlike a covered bond.

The Article 7 reporting regime is analogous to the approach taken in the US by Reg AB, but the Article 7 reporting actually applies to all EU securitization transactions, while few

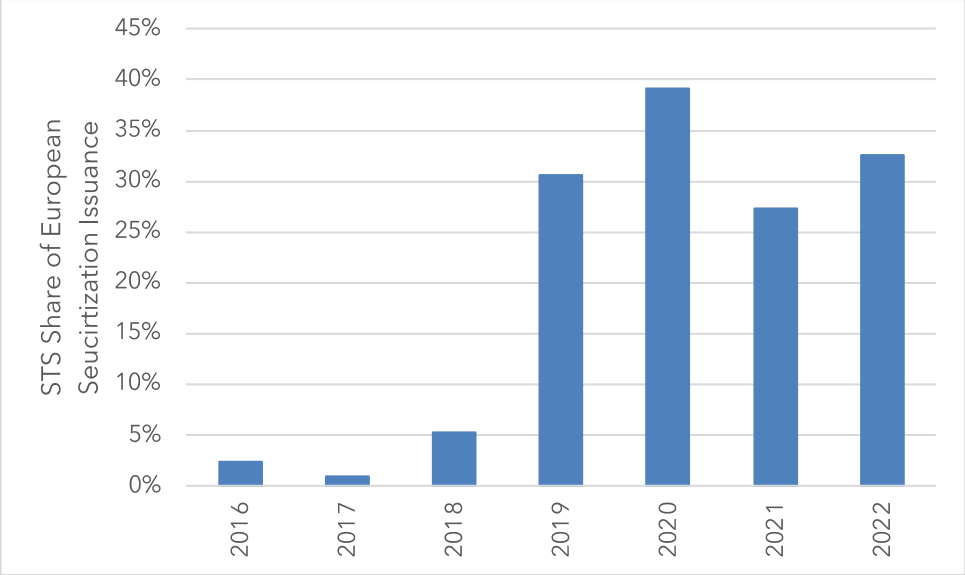
transactions are subject to the US disclosure regulation because of the US's private placement exception.

C. Simple, Transparent and Standardized (STS) Securitizations

Additionally, the EU has a framework for "simple, transparent, and standardized" (STS) securitizations.[77] If a securitization qualifies as STS, it can potentially receive favorable capital treatment for banks or for insurers and reinsurers.[78] To qualify as STS, a securitization must meet a number of substantive term requirements. For simplicity, this means having a homogeneity of assets, true sale structure, and underlying assets that have been underwritten to ensure borrowers' creditworthiness.[79] Simplicity also requires the making of certain representations and warranties.[80] For standardization, STS transactions are supposed to have certain provisions regarding payment structures among classes and provisions to facilitate the timely resolution of inter-investor conflicts and make clear the duties of the various parties to the securitization (servicers, trustees, and others).[81] The standardization provisions of the STS are, for the most part, at a much higher level of generality than the simplicity provisions, enabling significant variation in transaction structure. Transparency requires making available performance information about the underlying assets or similar assets prior to securitization.[82] Unlike Reg AB, it does not require making loan-level information on the securitized assets available to investors.

The idea behind STS is that by making transactions simple, transparent, and standardized, investors will be better able to compare and analyze transactions based on the economic aspects of the underlying assets, rather than on details of legal structuring. All CMBS are excluded from STS status, but other asset classes are generally eligible.[83] There has been limited take-up on STS, which now account for approximately a third of European securitizations as Figure 6 shows.

Figure 6. STS Share of European Securitization Issuance[84]



D. Other Substantive Requirements

The EU has some additional substantive requirements on transactions. First, originators are prohibited from adversely selecting assets for securitization; losses on securitized assets must be similar to those retained.[85] Second, the credit-granting criteria for securitized exposures must be as the same as for non-securitized exposures.[86] This also addresses a concern about adverse

selection in securitization. Third, unlike the US, the EU bans resecuritization outright.[87] Fourth, residential mortgages may not be securitized unless they were underwritten on the basis of unverified information ("liar loans").[88] This parallels an American prohibition on making mortgage loans generally without verification of borrower ability to repay.[89] And fifth, there is a suitability requirement for selling securitizations to retail clients,[90] but this is likely to be of little importance, as securitizations have always been an institutional investment market.

E. Accounting Standards

European accounting treatment of securitizations under IFRS is similar to US GAAP for consolidation analysis, but different for derecognition. Under IFRS, consolidation of a securitization entity with a transaction sponsor is appropriate if the sponsor has control over the entity, has upside or downside economic exposure to the entity, and has the ability to affect that exposure through its control.[91] The combination of control plus exposure is effectively the same as the US GAAP accounting treatment for consolidation.

For derecognition, however, the treatment is different. Under IFRS, full derecognition of an asset is possible only if (1) the asset has been transferred outside of the transferor's consolidated group, either by transferring away the rights to receive the cashflows from the asset or assuming a pass-through obligation on the cashflows, and (2) the transferor has transferred substantially all of the risks and rewards of ownership of the asset.[92] US GAAP does not consider whether the transferor has parted with economic rights. Instead, it looks to the ability of the transferee (or investors in the securitization entity) to sell or alienate their interest. Although the analysis is somewhat different, in practice it is likely to produce similar results, and the accounting treatments seem unlikely to explain differences in the US and European securitization markets.

F. Bank Regulatory Capital Requirements

European banks are subject to capital requirements that are set under the Basel III framework.[93] The Securitization Prudential Regulation SPR amended the general EU capital regulation,[94] with specific provisions for securitizations.

As initial matter it is important to note the regulatory capital treatment of two alternative financing channels before turning to securitization. EU risk-weightings for certain assets are more generous to financial institutions than American risk-weightings. For example, US residential mortgages get a risk-weight of 50% (first lien) or 100% (other), and commercial mortgages get a 100% risk weight. In contrast, EU regulations permit a 35% risk weight for first lien residential mortgages and a 50% risk weight for commercial mortgages.[95] Likewise, covered bonds that meet certain requirements are eligible for very favorable risk-weightings, as low as 10%, based on credit ratings.[96] The risk-weightings for covered bonds are lower than the risk-weight on the underlying exposure.[97]

Securitizations are subject to different capital charges depending on whether they are STS or not. First, a securitization exposure only needs to be treated as a bank's asset if the bank has not transferred significant credit risk.[98] Unlike in the United States, the EU Capital Requirements Regulation does not key off of accounting standards. Instead, the determination of whether there has been "significant risk transfer" ("SRT") is made in the first instance by the bank, based on its application of specified quantitative and qualitative tests, but national-level regulators undertake their own assessment of compliance with the tests, and because of the qualitative elements in the tests, there is a degree of subjectivity and unpredictability in regulatory assessment and therefore

uncertainty about whether any particular securitization will require the bank to hold regulatory capital.

To the extent the bank retains credit risk, the default setting is a 1250% (full equity capital) risk weight, just as in the United States. Based on the seniority and maturity of the exposure, however, the capital requirements are reduced to as low as 15%,[99] or 10% for an STS transaction, with many STS exposures getting a 350 basis point reduction in risk weight.[100]

VI. MORAL HAZARD IN SECURITIZATION AND REGULATORY RESPONSES

A principal regulatory concern about securitization is a moral hazard problem.[101] When securitizations transfer credit risk from the sponsor to investors, the sponsor's incentives to engage in careful underwriting and monitoring of the borrower are reduced, and securitization investors—including regulated financial institutions—can end up incurring significant losses. At the same time, if investors are not comfortable that the moral hazard problem has been addressed, they may be reluctant to invest in securitizations, and transactions may not be viable at the risk premiums demanded by investors, resulting in less financing availability for lenders, and ultimately lower credit availability in the economy. In short, moral hazard in securitization can result in a "lemons" problem that results in the market disappearing.[102]

Both regulation and securitization contracts attempt to address the moral hazard problem. Regulators have strived to address moral hazard through credit risk retention requirements (bolstered by bank capital requirements) that aim to align the interests of the securitizer and investors. As this Report has discussed, however, there are substantial exceptions to credit risk requirements in the United States for certain asset classes for loans that meet high underwriting standards. European credit risk retention has exceptions primarily for securitizations of government-guaranteed obligations.

It is not clear that credit risk retention, at least at the level presently required, is necessary for all asset classes, particularly in light of general EU regulations on consumer lending that are stronger for non-mortgage loans than general consumer lending laws in the United States. Consideration should be given to creating exemptions for assets classes like auto loans where the securitizer is relying on the transaction to provide financing for a non-financial business and is therefore separately incentivized to ensure the quality of its securitizations in order to be able to access the market in the future. One way this could be done is to copy the American model of pairing such exemptions with minimum underwriting standards for securitized assets so as to prevent defaults on the underlying assets. It is unclear how much variations in national level consumer credit and debt collection regulations affect the ability to implement minimum underwriting standards.

Additionally, securitization contracts contain features meant to address moral hazard. Securitizers make various representations and warranties about the characteristics of the securitized assets, including underwriting standards, as part of the securitization process.[103] These representations and warranties make the securitizer liable in the event that they turn out to be incorrect, regardless of whether there was fraudulent intent, etc.

Litigation in the United States aftermath of the Global Financial Crisis has underscored several inadequacy about such a contract mechanism. First, investors rely on third-party trustees to enforce representations and warranties, but trustees have little incentive to do so. Trustees get

their business from securitization sponsors, not investors. They are not required to monitor or investigate representation and warranty violations and are not paid more for doing the additional work involved in doing so or in prosecuting representations and warranty violations. Additionally, they are concerned about their own liability for actions taken. Trustees have proven to be inadequate representatives of investors in many situations.

Second, the remedy for a violation of representations and warranties is often limited to a repurchase of the nonconforming asset or substitution of an equivalent asset. Such a remedy is inadequate if the nonconforming asset has already been liquidated. It is also a remedy that is meant to operate nonjudicially and expects good faith cooperation by all the parties, but securitizers have every incentive to contest putback requests and force litigation, which is not economically worthwhile for small violations and which

Third, the representations and warranties are non-standardized. For example, some transactions require a material impact on the loan pool as a whole, while some require only a material impact on the particular loan for a putback remedy to be triggered. Investors typically have little knowledge of these details at the time of investment, and are instead investing based on an expectation that securitizers will act in good faith.

Finally, even if all of the other problems were addressed, there is a correlation risk problem with representations and warranties, akin to the correlation risk problem faced by insurers. The securitizer is essentially insuring the loans against inaccuracy of representations and warranties. But the securitizer might not be sufficiently capitalized to honor its representations and warranties, particularly because it is unlikely that it will have liability on just one transaction. Instead, if the securitizer has been violating its representations and warranties, it has likely done so on many or all of its transactions. Even if the securitizer is sufficiently capitalized to incur the liability on a single transaction, it might lack the capital to handle the liability on multiple transactions. If the securitizer ends up insolvent, investors are likely to recover little on their representation and warranty claims. Thus, even though investors in securitized assets are supposed to be investing solely in the risks attendant to the assets and not the operational risks of the transaction sponsor, these operational risks are unavoidable because of the representations and warranties necessary to address the moral hazard concern.

In the United States, Reg AB attempts to address the representation and warranty problems, but it has been ineffective because it only applies to transactions seeking a particular type of registration with the SEC, and most securitization transactions are not registered sales at all. While some private transactions have experimented with alternative structures for ensuring enforcement of representations and warranties, these have all required adding an additional neutral party to the transaction, decreasing the return available to investors, and these new structures have not caught on generally.

In Europe, there is no equivalent regulation to Reg AB, perhaps because there has been less litigation regarding European securitizations, which performed better than American private-label MBS transactions. Nevertheless, securitization markets would benefit from having standardized (or at least standardized default) representations and warranties and enforcement mechanisms so that investors can be confident that they are assuming the economic risks of the underlying assets, not risks about the non-economic, legal details of transaction documentation.

The European STS regulation is a step in this direction, but does not go far enough. The standardization of transactional terms contemplated by the STS designation is at a very high level

of generality.[104] The US post-Global Financial Crisis litigation experience has shown that cases frequently turn on the precise phrasing of representations and warranties or remedies provisions. Investors should not have to guess whether their legal rights are valuable or not based on the possibility that a particular word might be used in a warranty. Instead, a substantially more granular standardization of legal documentation would foster investor confidence that the securitized assets are what they purport to be in terms of kind and quality.

A reform that should be considered is the more detailed standardization of representations and warranties and enforcement provisions (including servicer and trustee duties) in all securitizations. In other words, the "standardized" element of STS should be stronger and universal, but it also should not be linked to regulatory capital relief, as it does not guaranty better performance of underlying assets, only that investors will get the deal they bargained for in terms of the risks they assumed.

Another reform that should be considered is to mandate pre-sale provision of the loan level information for all the assets in the securitization pool. (This information is what was historically known as the "loan tape," based on its old computer media format; now it is typically just a spreadsheet.) Making this information available a few days prior to the sale would enable investors with credit risk expertise to make careful, informed decisions about investing, and would harness the market discipline of specialist credit-risk investors who know the underlying asset class well.

It bears emphasis that the moral hazard problem in securitization is primarily an issue in a subset of transactions that are focused on credit risk transfer, rather than funding. The major asset classes in which that is the case are private-label MBS, CMBS, and CDOs (resecuritizations). The collapse of the American securitization market was first and foremost a collapse of the private-label MBS market, which was the channel that financing the US housing bubble, and of the CDO market that in turn financed the junior tranches of private-label MBS. (A similar bubble emerged in commercial real estate, fueled by CMBS and CDOs.[105])

The collapse of these markets had spillover effects on investor confidence in other securitized products and the performance of other products was of course affected by the Global Financial Crisis that the collapse of the US housing bubble triggered. Nevertheless, other classes of securitized products generally performed reasonably well in such stressed conditions, and the European securitization markets did not encounter problems like the US ones,[106] although this is no small part because securitization played only a supporting role in financing housing bubbles in European countries like Spain and Ireland.

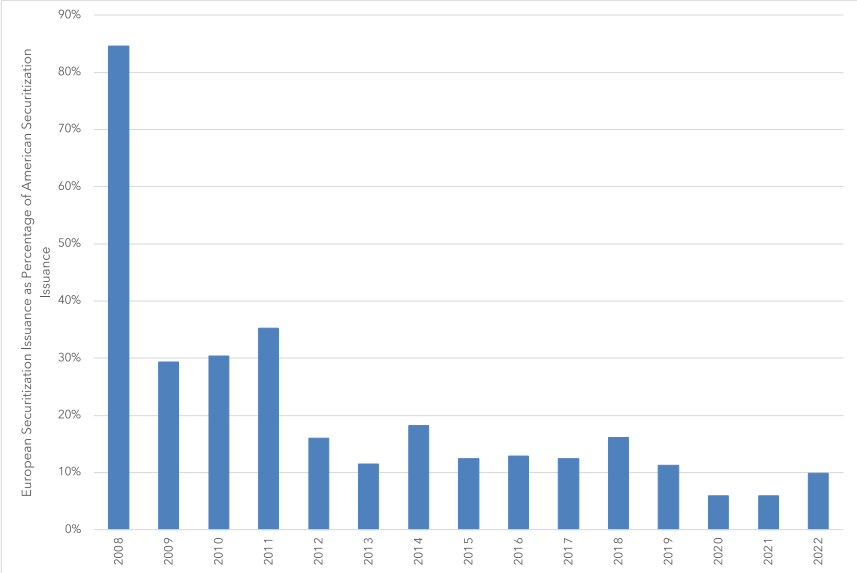
Other large securitization asset classes—credit card ABS and auto loan or equipment ABS—are primarily funding mechanism, not credit risk transfer mechanisms. Although investors might formally be exposed to losses in these transactions, they are structured with sufficient credit enhancements so that investors will never incur losses. This is because the securitizer—whether a bank or an industrial company's captive financing affiliate—needs the securitization to obtain funding; without that funding it will not be able to carry out its primary business (*e.g.*, making and selling cars). In these transactions the securitizer will bear the first loss risk, such that it is incentivized to engage in prudent underwriting and to support the securitizations if they run into trouble.

VII. FACTORS CONSTRAINING THE EUROPEAN SECURITIZATION MARKET

A. Problems with the Use of the American Securitization Market as a Baseline

It is tempting to use the American securitization market as a baseline for evaluating the health of the European securitization market, but it can be misleading is care is not taken to account for the institutional differences in American and European securitization. For example, a number of analyses of the supposedly moribund European securitization market use 2008 as their benchmark year for comparing the US and European markets.[107] This is depicted in Figure 7.

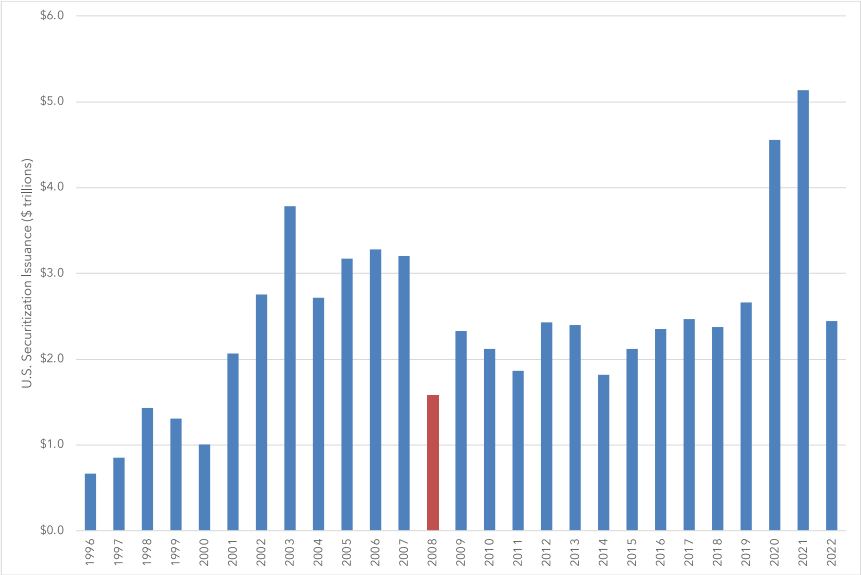
Figure 7. European Securitization Issuance as Percentage of American Securitization Issuance, 2008-2022[108]



If one compares American and European securitization markets in 2008, it would appear that the European securitization was at 85% of the American market, only to experience a precipitous decline from which it has never recovered. That is not, however, an accurate depiction of the relationship of the markets.

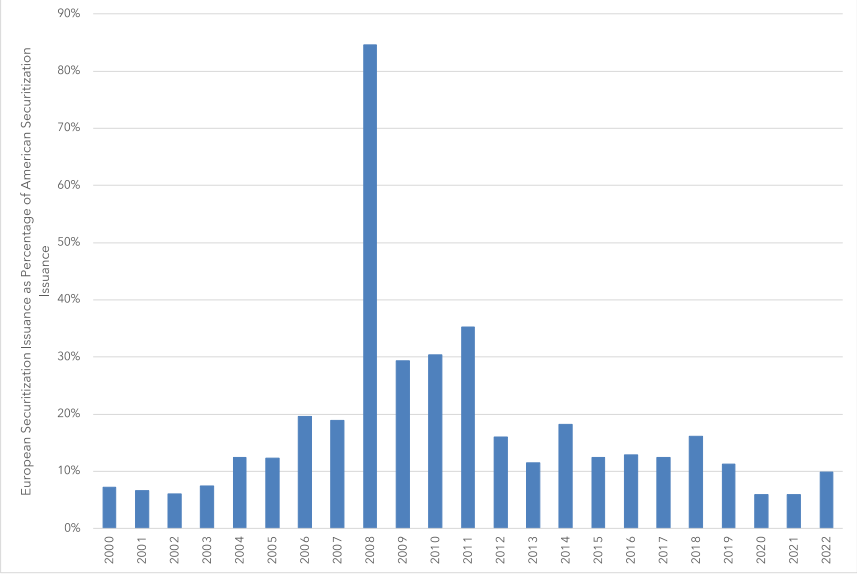
First, American, but not European, securitization markets cratered between 2007 and 2008. American securitization issuance in 2008 was only 43% of that in 2007, as Figure 8 shows.

Figure 8. American Securitization Issuance[109]



Because 2008 was such a low point for American securitization, using it as the benchmark year makes European securitization appear to historically have been a much higher percentage of the American securitization market that it in fact was. In fact, if the year 2007 is used as the baseline, it becomes clear that 2008 was an aberration. In 2007, European securitization issuances (453.7€ billion) were only 21% of American issuances (2.147€ trillion).[110] That is in fact roughly the level that has obtained over the past decade, as shown by Figure 9.

Figure 9. European Securitization Issuance as Percentage of American Securitization Issuance, 2000-2022[111]

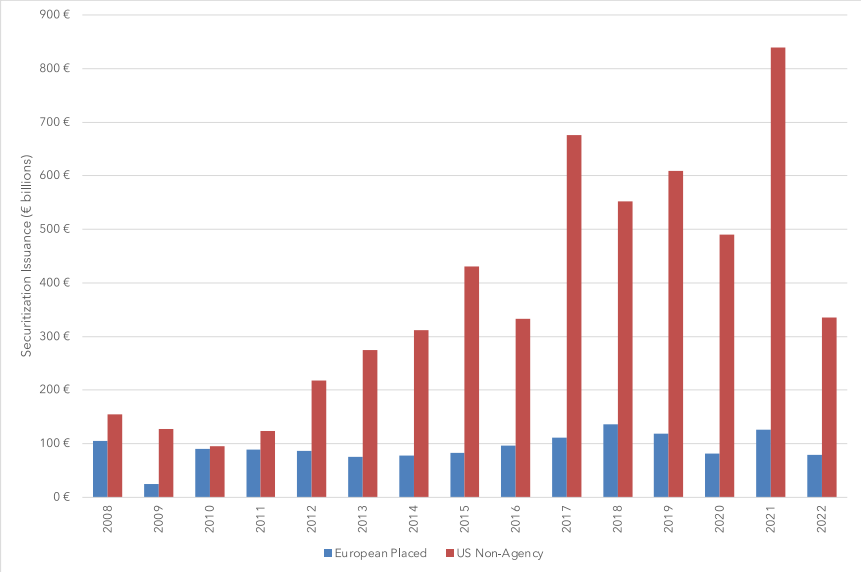


What's more, the apparent decline in the European securitization market relative to the American market is in large part a function of the American denominator. From 2013 onward, American commercial financing markets have been moving away from bond issuance to syndicated loans, and many loan syndication interests are financed through CLOs. CLOs have

comprised a quarter of American non-Agency securitization over the past decade.[112] It is unclear if an equivalent shift has happened in European commercial financing markets. Additionally, the American securitization issuance boomed in 2020-2021 because low post-pandemic interest rates resulted in enormous mortgage refinancing of fixed-rate prepayable mortgages, a product that is rare in Europe. While most of the refinancing was done through Agency MBS, there was also a sharp growth in private-label RMBS for jumbo mortgages.

But even a longer-term comparison of total US and European securitization issuances is misleading for two other reasons. First, the overwhelming majority of US securitization issuances are Agency MBS, a product that has no analog in Europe. Comparing non-Agency securitization in the US with all European securitization is closer to an apples-to-apples comparison, and excluding all retained European securitizations probably achieves the most accurate comparison. Figure 10 compares US non-Agency and European placed securitization issuances since 2008. It shows that American non-Agency securitization has rebounded substantially, but that European placed securitization issuances have remained stagnant at around 100€ billion per year.

Figure 10. American Non-Agency Securitization vs. European Placed Securitizations



B. Lack of Cross-Border Securitization

One of the major factors constraining European securitization is that most securitization is done with national level, rather than cross-border collateral. An auto loan securitization might be of German auto loans or Italian auto loans, but not both, even if both transactions have the same sponsor (say a German auto manufacturer's captive financing affiliate). The lack of pan-European collateral in transactions (other than CLOs) likely stems from variations in national level consumer credit and debt collection law and local legal culture, as well as variations in national-level macroeconomic risk, such that the risk on a pool of German auto loans might be quite different than on a pool of Italian auto loans, even if borrower characteristics are similar. If there is, in fact, national level risk variation, investors might not want to combine national risk pools, but might instead prefer more granular risks to blended ones.

Although investors might prefer more granular risks, they might at the same time be hesitant to invest in securitizations the performance of which depends on national laws with which

they are not familiar. Thus, a German investor might prefer to invest in a German auto loan securitization rather than a Greek one because of lack of familiarity with Greek law, or a pan-European one because of concern about exposure to national-level law and economic conditions in several countries. All of this results in a set of smaller, less-liquid, fragmented markets.

One of the effects of the lack of cross-border securitization is that it makes it difficult to assemble sufficiently large pools of assets from smaller European countries to make a securitization worthwhile. Accordingly, most European securitization is done of assets from the five largest European economies: Germany, France, Italy, the Netherlands, and Spain. The lack of cross-border securitization has the effect of constraining total European securitization issuance to that which can be supported by those larger economies, which represent around two-thirds of the EU GDP, but only 57% of the population.

This suggests that the comparison with the American securitization market needs to be adjusted for population size. Although the EU population of roughly 450 million is substantially larger than the 330 million US population, the population in the four countries in which most European securitization occurs is only 250 million, or 76% of the US population. This size adjustment matter because unlike in Europe, American securitization markets are truly national, notwithstanding certain differences in state consumer credit and debt collection laws.

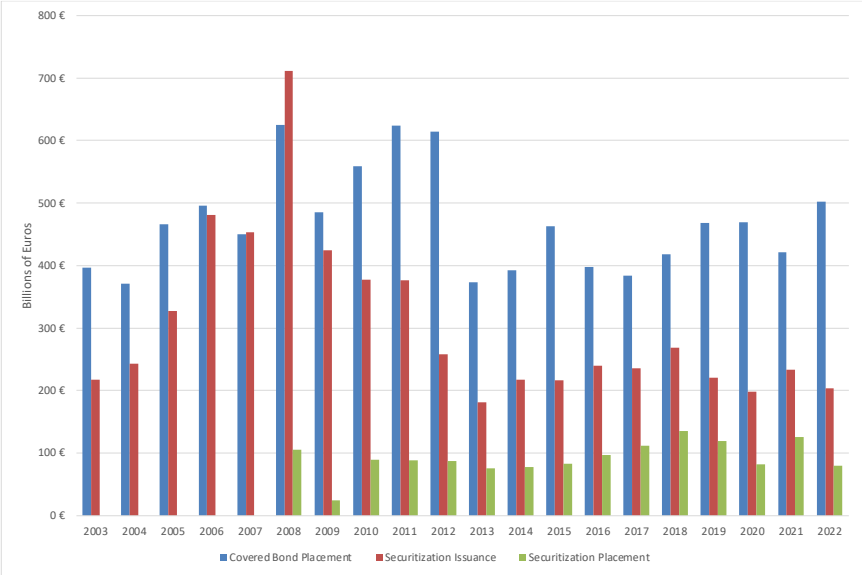
Notably, however, even in the United States certain securitization markets are quite geographically limited. Commercial mortgage securitization, for example, only extends to properties in perhaps 60 large metropolitan areas. The mortgages for properties outside those areas are not securitized, in part because of concerns about property valuation in more sparsely populated markets. It is unclear if European commercial mortgage securitization follows a similar pattern, but it seems likely. In contrast, American residential mortgage securitization is truly national, in part because of political pressure on the GSEs to maintain a national market without discrimination against rural regions.

C. Alternative Funding Channels

Another factor constraining European securitization is the availability of alternative funding channels. First, unlike in the United States, covered bonds exist as a funding alternative for European banks. Europe has a well-established covered bond market, facilitated by specific covered bond legislation. Although the EU limits the asset classes eligible to be included within a cover pool in a manner that precludes auto loans, credit card receivables, or SME loans from being in a cover pool, covered bonds are still a financing mechanism broadly available for residential mortgages and also for some (lower LTV) commercial mortgages.[113]

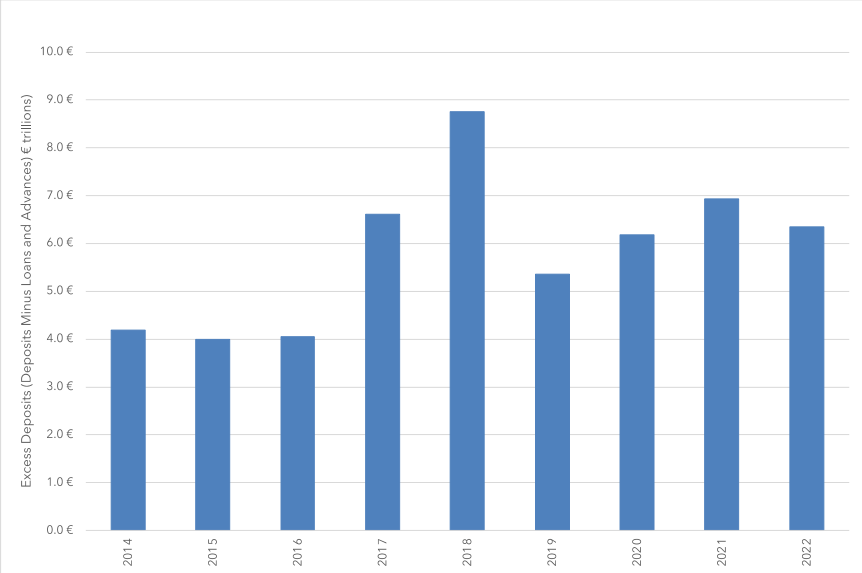
In some countries, the long-establish use of covered bonds may create a path dependence that inhibits the growth of securitization, but it might also be that a covered bond transaction is simpler, easier, and cheaper to execute than a securitization. Thus, in the Netherlands, long a securitization stronghold in Europe, covered bonds have been replacing securitizations as the vehicle of choice for mortgage financing.[114] Figure 11 shows the relative levels of covered bond placement (all issuances are placed) and securitization issuance and (from 2008 on) securitization placement. It shows that while securitization issuance matched or even exceeded covered bonds in the 2006-2008 period, securitization has subsequently receded relative to covered bond issuance. The extent to which covered bonds are in fact replacing securitization is unclear, but covered bond markets have not contracted nearly as much as securitization markets following the global financial crisis.

Figure 11. European Covered Bond Placement and Securitization Issuance and Placement



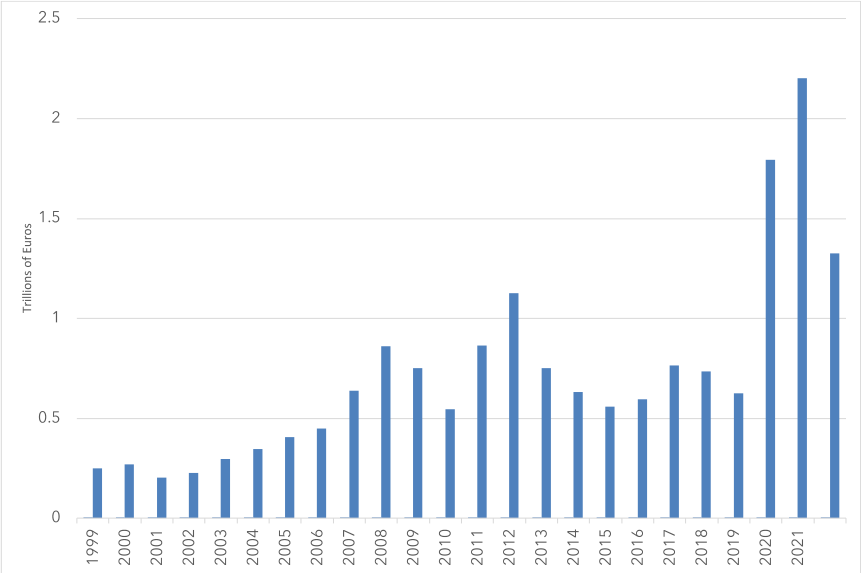
Second, as Figure 12 shows, European banks have had a substantial and growing excess of deposits relative to their loans. To the extent that banks are flush with deposits, there is little reason to undertake a securitization unless the bank wishes to part with the credit risk on loans, but credit risk transfer is not always the motivation behind securitizations.

Figure 12. Excess Deposits at European Banks



Additionally, European banks that are seeking funding can readily obtain it from through the ECB's repo facility. The availability of ECB repo funding has limited the need for financial institutions to engage in securitization as a financing mechanism, except to the extent necessary to produce collateral for ECB borrowing. Figure 13 shows the growth of ECB funding of financial institutions.

Figure 13. ECB Lending to Euro Area Credit Institutions



D. Regulatory Burdens

It is unclear if regulatory burdens play a material factor in constraining the European securitization market. A securitization sponsor must comply with a number of regulations when undertaking a transaction, but the post-2008 regulations of the European securitization market, other than credit risk retention are not materially different in kind than pre-2008 requirements.

- Credit risk retention is designed to discourage securitization of riskier assets. This necessarily constrains the market to the extent that securitization is being used as a credit risk transfer device, but given the moral hazard concerns, this is a positive outcome. In any event, post-2007 EU regulations already discourage the origination of risky consumer exposures,[115] such that unsustainable consumer lending should be limited in general.
- Disclosure requirements existed before 2008, and although they have become more involved, it is hard to credit the idea that the marginal costs of additional disclosures are precluding transactions. The ESMA's templates for loan-level Article 7 reporting could be simplified, but this is unlikely to have a material effect on European securitization markets. At most, it might facilitate entry for some smaller institutions. Other disclosure requirements, such as of transaction documents or of significant events affecting a transaction are not burden.
- Regulatory capital requirements are only a factor regarding banks; nonbank finance companies, like the captive finance companies that provide a substantial share of auto lending are not effected by bank regulatory capital requirements. A comparison of issuance in auto loan ABS (many non-banks) versus credit cards ABS (all banks) would be informative about the extent to which regulatory capital requirements are affecting securitization; AFME data on issuance (as opposed to outstandings) does not permit this analysis, however.

  Banks are required to hold regulatory capital against securitization exposures if there has not been a significant risk transfer. National level regulators' discretion in evaluating the

qualitative component of whether there has been significant risk transfer engenders uncertainty about regulatory treatment of transactions. Better coordination between national level authorities, such as through the EBA, on evaluation of significant risk transfer would address this situation, as would the promulgation of safe harbors that would satisfy the requirement.

Regulatory requirements are always more burdensome for smaller institutions that cannot amortize fixed or semi-fixed compliance costs over a large transaction volume. An alternative to consider is a mechanism that enables smaller banks to access securitization markets at relatively low cost by standardizing terms and using an issuance utility. Ginnie Mae plays this role in the United States, enabling small banks to issue their own securitizations of loans backed by federal affordable housing and veterans' benefit programs. Although the securitizations are technically issued by the small banks, investors treat them all as good delivery for each other because of the Ginnie Mae guaranty of timely payment of principal and interest and the standardized transaction structures Ginnie Mae permits.

An EU-level Ginnie Mae would likely not be feasible without standardization of governmental housing programs across the EU, as well as occupancy tenure and foreclosure laws. But what might be feasible would be a mutual utility owned by small banks for issuance of securitizations. This was the original structure of Freddie Mac, and it is still the structure of the Federal Home Loan Banks. It is also the structure the United States uses for deposit insurance (the Federal Deposit Insurance Corporation is a federal government agency that administers a mutual insurance fund; taxpayer funds do not back bank deposits in the United States, at least formally). Many of the proposals for the reform of Fannie Mae and Freddie Mac (which remain in federal conservatorship) contemplate some sort of mutual structure. Whether such a mutual structure would have to be organized on the national level or whether it could be done on an EU-wide basis is unclear; a middle ground would be national-level mutuals that cross-guaranty each other, as the Federal Home Loan Banks do for their obligations.

E. Reputational Concerns About Securitization

A final factor that might be constraining the European market is reputational concerns. Securitization emerged from the Global Financial Crisis as a deeply tarnished asset class. Notwithstanding the fact that many securitization transactions performed well during the crisis, and that European securitizations performed relatively well as a whole, investors may still be skittish about investing in securitizations when there are other equally attractive investment options.

Even if investors are not themselves put off by securitizations, they might worry about the reputational consequences of investing in securitizations. An investor that invests in a corporate bond that defaults will not be blamed for investing in the asset class itself, whereas an investor that invests in an ABS that incurs losses would risk criticism for investing in ABS at all.

Additionally, there is a level of path dependence in investment; investors are likely to invest in asset classes with which they have experience, and complex assets like ABS are particularly daunting for novices. In this regard, the small size of European securitization markets makes it hard for the markets to grow. To the extent that securitizations were seen as a suspect investment immediately after the Global Financial Crisis, the effects could still linger because of lack of investor experience with securitizations.

Finally, even if investors are not themselves concern about securitization, if they are subject to prudential regulation (banks, insurers, e.g.), they might believe that their regulators will take a negative view of investment in securitizations. Regulated institutions might conclude that avoiding investments in securitizations will make relations with regulators easier.

CONCLUSION

The American securitization market presents a problematic baseline for evaluating the European securitization market given the enormous differences in institutional makeup. Europe lacks any equivalent to Agency securitization, but also offers a substitute financing method, through covered bonds.

Nevertheless, it is clear that European securitization markets have been moribund since the Global Financial Crisis. Their failure to take off, however, is not likely due to regulation. European regulation of securitization is not substantially different from American regulation. Both Europe and America have credit risk retention requirements (but exclusions for securitizations of low-risk assets), similar bank capital requirements, and similar accounting rules. Although Europe has a more meaningful disclosure requirement than the United States, it is not so onerous as to fundamentally shift the economics of securitizations. Instead, the more likely factors constraining the European securitization market are (1) the ready availability of alternative funding channels (covered bonds, deposits, and ECB repos); (2) difficulties undertaking pan-European securitizations for consumer obligations, which results in more fragmented and less liquid markets, and (3) reputational concerns about securitization.

About the Author

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[1] This report excludes the post-Brexit UK securitization market from the European market.

[2] *E.g.*, the risk the firm's managers will make poor and possibly self-interested decisions regarding the firms' assets and liabilities.

[3] *E.g.*, the risk the firm will substitute credit card receivables for mortgages as its assets.

[4] The securities produced in a securitization can themselves be securitized in a resecuritization, a type of transaction known in the United States as a CDO (collateralized debt obligation). In the UK the term is often used as a synonym for CLO.

[5] FCIC; ADAM J. LEVITIN & SUSAN M. WACHTER, *THE GREAT AMERICAN HOUSING BUBBLE: WHAT WENT WRONG AND HOW WE CAN PROTECT OURSELVES IN THE FUTURE* (2020).

[6] ADAM J. LEVITIN & SUSAN M. WACHTER, *THE GREAT AMERICAN HOUSING BUBBLE: WHAT WENT WRONG AND HOW WE CAN PROTECT OURSELVES IN THE FUTURE* (2020).

[7] SIFMA.

[8] SIFMA.

[9] Federal Reserve Statistical Release Z.1, Table L.218 (FL413065105 + FL673065105 as a percentage of FL893065105).

[10] A portmanteau for Government National Mortgage Association.

[11] SIFMA.

[12] SIFMA.

[13] 12 U.S.C. §§ 4501 *et seq*.

[14] Federal Housing Finance Agency, *History of Fannie Mae and Freddie Mac Conservatorships*, Oct. 17, 2022, *at* https://www.fhfa.gov/Conservatorship/Pages/History-of-Fannie-Mae--Freddie-Conservatorships.aspx.

[15] Federal Housing Finance Agency, *Senior Preferred Stock Purchase Agreements*, Oct. 17, 2022, *at* https://www.fhfa.gov/Conservatorship/Pages/Senior-Preferred-Stock-Purchase-Agreements.aspx.

[16] The existence of recourse against the issuer in Ginnie Mae securitizations makes them more akin to covered bonds than to regular securitizations.

[17] In 2006-2007 two large American banks did undertake some limited covered bond issuances, and some Canadian banks have since sold covered bonds in the US market.

[18] Banks have seldom borrowed from the Fed's discount window outside of 2008-2010 and 2020-present. Board of Governors of the Federal Reserve System (US), Total Borrowings from the Federal Reserve [BORROW], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/BORROW, September 15, 2023.

[19] Federal Reserve Statistical Release Z.1, Table L.218.

[20] SIFMA; Federal Reserve Statistical Release Z.1, Table L.218.

[21] SIFMA. Although 2022 was a particularly low year for private-label MBS market-share post-Global Financial Crisis, its post-crisis issuance market share has never exceeded 14%.

[22] Such a mismatch was at the heart of the US Savings and Loan crisis in in the 1980s as rising interest rates and competition from money market mutual funds resulted in the decapitalization of savings and loan institutions whose assets were primarily long-term, fixed-rate mortgages.

[23] SIFMA.

[24] SIFMA (total MBS outstanding); Federal Reserve Statistical Release Z.1, Table L.109 (Federal Reserve holdings of MBS)

[25] SIFMA (total MBS outstanding); Federal Reserve Statistical Release Z.1, Table L.111 (US depository holdings of MBS)

[26] Ginnie Mae, *Foreign Ownership of Agency MBS*, Sept. 2022, *at* https://www.ginniemae.gov/newsroom/publications/Documents/foreign_ownership_of_agency_mbs_september2022.pdf.

[27] *Id.*

[28] SIFMA; Federal Reserve Statistical Release Z.1, Tables L.109 and L.111; Ginnie Mae, *Foreign Ownership of Agency MBS*, *supra* note 26.

[29] AFME.

[30] AFME.

[31] AFME.

[32] There is a small amount of pan-European CMBS, but virtually none for consumer obligations.

[33] AFME statistics do not securitization type by country, but from 2019-2022 there were 134.9€ billion of CLOs issued. That number almost exactly matches the total pan-European issuance of 134.8€ billion.

[34] Danish mortgages are financed almost exclusively through covered bonds. Danish covered bonds have traditionally differed from other European covered bonds because under its "principal of balance," whenever a mortgage loan is made, a pass-through bond is automatically issued into an existing bond series. In contrast, other covered bond systems have dynamic and non-matched cover pools The Danish structure means that the mortgage is callable by the borrower not just by paying the par amount of the debt, but also by acquiring the bond at market price. Thus, if rates fall, the borrower can refinance, while if rates rise, the borrower can redeem the associated bond at a discount.

[35] European Covered Bond Council; AFME.

[36] Directive (EU) 2019/2162, Art. 6(1); Regulation (EU) No 575/2013, Art. 129. Switzerland does not have such restrictions and there are Swiss covered bonds backed by auto loans.

[37] *See* Viral V. Acharya, Philipp Schnabl, & Gustavo Suarez, *Securitization without risk transfer*, 107 J. FIN. ECON. 515 (2013) (examining asset-backed commercial paper conduits).

[38] Charles W. Calomiris & Joseph R. Mason, *Credit Card Securitization and Regulatory Arbitrage*, 26 J. FIN. SERVS. RESEARCH 5 (2004); Adam J. Levitin, *Skin-in-the-Game: Risk Retention Lessons from Credit Card Securitization*, 81 GEO. WASH. L. REV. 813 (2013).

[39] *See, e.g.*, 12 C.F.R. § 3.42(e) (for national banks). The punitive capital treatment is that the bank must treat the underlying securitized assets as if they were on its own balance sheet and to deduct from its common tier 1 equity capital an amount equal to any after-tax gain-on-sale from the securitization.

[40] Regulation (EU) No 575/2013, Art. 248.

[41] Dodd-Frank Wall Street Reform and Consumer Protection Act, P.L. 111-203, § 941, 124 Stat. 1890-96, July 21, 2010, *codified at* 15 U.S.C. § 78o-11.

[42] 79 Fed. Reg. 77742, Dec. 24, 2014.

[43] 79 Fed. Reg. 77753, Dec. 24, 2014.

[44] 79 Fed. Reg. 77761, Dec. 24, 2014.

[45] Fannie Mae and Freddie Mac have begun to engage in synthetic credit risk transfer transactions using credit-linked notes. ADAM J. LEVITIN & SUSAN M. WACHTER, *THE GREAT AMERICAN HOUSING BUBBLE: WHAT WENT WRONG AND HOW WE CAN PROTECT OURSELVES IN THE FUTURE* (2020).

[46] 79 Fed. Reg. 77754, 77756, Dec. 24, 2014.

[47] 79 Fed. Reg. 77755, 77756-60, Dec. 24, 2014.

[48] Loan Syndications & Trading Ass'n v. SEC, 882 F.3d 220 (D.C. Cir. 2018). CLOs are generally assembled differently than other securitizations, as the CLO (the vehicle) will be prefunded by investors and will then go and purchase leveraged loans and bonds, according to its investment guidelines, whereas other securitizations will have a pool of assets assembled first by a sponsor and then transferred to a securitization vehicle in exchange for the securities, which will then be sold by the sponsor to investors following a disclosure about the securitized assets.

[49] Adam J. Levitin, *Skin-in-the-Game: Risk Retention Lessons from Credit Card Securitization*, 81 GEO. WASH. L. REV. 813 (2013).

[50] 17 C.F.R. §§ 229.1111(h)(1), 229.1125.

[51] 17 C.F.R. § 230.424(h).

[52] 17 C.F.R. § 239.45(b).

[53] Reg AB now requires transactions that want to use the quick sale process to include a certification from the CEO of the depositor (the entity that transfers the loans to the securitization entity) that the prospectus information is correct and that the deal should be able to generate the cash flows to pay all of the securities in full. The certification provision means that a violation of the transaction's representations and warranties is a securities law violation directly enforceable by investors, not merely a contractual violation with remedies limited to put-backs of nonconforming loans to the depositor.

It also requires that the transaction provide that if defaults hit a specified level, an investor vote is triggered upon the request of no more than 5 percent of the total interest in the pool. If that vote is affirmative, there will be an independent investigation of possible representation and warranty violations on at least all loans that are more than sixty days delinquent. Based on the findings of the investigation, the trustee must then decide whether to pursue put-backs, and the trustee must provide investors with a summary of any report provided to investors. This process removes the put-back decision from the hands of the servicer, although it still allows the trustee substantial control over the scope of the review and the process by which votes are solicited.

Third, the transaction must allow the party bringing the put- back request to seek arbitration or mediation at its option if the dispute is not resolved within 180 days. That means that put-back requests no longer assume good faith informal resolution but contain a relatively cost-effective resolution mechanism. And finally, trustees are required to disclose all investor requests to communicate with each other, which facilitates surmounting collective action thresholds.

[54] *See* 79 Fed. Reg. 57,201–02 (Sept. 24, 2014).

[55] 17 C.F.R. § 230.506.

[56] *See* Commissioner Luis A. Aguilar, Statement, *Correcting Some of the Flaws in the ABS Market*, Aug. 27, 2014, *at* https://www.sec.gov/news/statement/2014-08-27-open-meeting-statement-abs-laa.

[57] 12 U.S.C. §§ 1455g; 1723c, 15 U.S.C. §§ 77c(a)(2), 78c(a)(12).

[58] FIN 46(r), as amended by SFAS 167.

[59] For certain asset classes, like credit cards, where the securitization sponsor—the card issuer—maintains an on-going relationship with the cardholder, the result has been consolidation for all transactions.

[60] SFAS 140, as amended by SFAS 166.

[61] Certain additional factors are required for excluding securitization exposures. In additional to not being GAAP consolidated, the bank must have transferred the credit risk to third parties, there must be only eligible clean-up calls, no early amortization, and the securitization cannot be of lines of credit.

[62] Regulation (EU) No. 2017/2402, Art. 8.

[63] Larry Cordell, Yilin Huang, & Meredith Williams, *Collateral Damage: Sizing and Assessing the Subprime CDO Crisis*, Fed. Res. Bank of Phila. Working Paper No. 11-30/R (May 2012), *at* https://www.philadelphiafed.org/-/media/frbp/assets/working-papers/2011/wp11-30r.pdf; Larry Cordell, Greg Feldberg, & Danielle Sass, *The Role of ABS CDOs in the Financial Crisis*, 25 J. STRUCTURED FIN. 10 (2019).

[64] Larry Cordell, Yilin Huang, & Meredith Williams, *Collateral Damage: Sizing and Assessing the Subprime CDO Crisis*, Fed. Res. Bank of Phila. Working Paper No. 11-30/R (May 2012), *at* https://www.philadelphiafed.org/-/media/frbp/assets/working-papers/2011/wp11-30r.pdf.

[65] Juan Ospina & Harald Uhlig, *Mortgage-Backed Securities and the Financial Crisis of 2008: a Post-Mortem*, NBER Working Paper No. 24509 (April 2018), *at* http://www.nber.org/papers/w24509.

[66] William W. Bratton & Adam J. Levitin, *A Tale of Two Markets: Regulation and Innovation in Post-Crisis Mortgage and Structured Finance Markets*, 2020 U. ILL. L. REV. 47 (2020).

[67] Regulation (EU) No. 2017/2401 and 2017/2402.

[68] Regulation (EU) No. 2017/2402, Art. 6.

[69] Regulation (EU) No. 2017/2402, Art. 6(3).

[70] *See* Regulation (EU) No. 575/2013, Pt. 3, title II, Ch. 2.

[71] Regulation (EU) No 575/2013, Art. 125.

[72] Regulation (EU) No 575/2013, Art. 126.

[73] European Commission, Report from the Commission to the European Parliament and the Council on the Functioning of the Securitisation Regulation, COM(2022) 517 final, at 8 (Figure 3).

[74] Regulation (EU) No. 2017/2402, Art. 5.

[75] Regulation (EU) No. 2017/2402, Art. 7(1)(a)-(c).

[76] Regulation (EU) No. 2017/2402, Art. 7(1).

[77] Regulation (EU) No. 2017/2402, Art. 18-22.

[78] Regulation (EU) No. 2017/2401, Art. 260, 262, 264.

[79] The underwriting must comply with Directive 2008/48/EC, Art. 8, or Directive 2014/17/EU, Art. 18. It must also exclude borrowers with bad credit scores (although the level if not specified), and cannot be dependent on refinancing or rolling over the debt. The underwriting must also be the same as for the originator's non-securitized loans, and if the assets are residential mortgages, the borrower's income must be verified. Regulation (EU) No. 2017/2402, Art. 20.

[80] Regulation (EU) No. 2017/2402, Art. 20.

[81] Regulation (EU) No. 2017/2402, Art. 21.

[82] Regulation (EU) No. 2017/2402, Art. 22.

[83] Regulation (EU) No. 2017/2402, § 29, L347/40.

[84] AFME.

[85] Regulation (EU) No. 2017/2402, Art. 6(2).

[86] Regulation (EU) No. 2017/2402, Art. 9(1).

[87] Regulation (EU) No. 2017/2402, Art. 8.

[88] Regulation (EU) No. 2017/2402, Art. 9(2).

[89] 15 U.S.C § 1639b; 12 C.F.R. § 1026.42(e) (qualified mortgage safe harbor).

[90] Regulation (EU) No. 2017/2402, Art. 3.

[91] IFRS 10.

[92] IFRS 9.

[93] This Report does not attempt to cover regulatory capital requirements for insurers or reinsurers under Solvency II or under the various American state-level insurance regulation regimes.

[94] Regulation (EU) No. 575/2013.

[95] Regulation (EU) No. 575/2013, Art. 125(1).

[96] Regulation (EU) No. 575/2013, Art. 129.

[97] *Id.*

[98] Regulation (EU) No. 575/2013, 244.

[99] Regulation (EU) No. 575/2013, Art. 263.

[100] Regulation (EU) No. 575/2013, Art. 264.

[101] *See, e.g.*, Benjamin Keys *et al.*, *Did Securitization Lead to Lax Screening? Evidence from Subprime Loans*, 125 Q. J. ECON. 307 (2010); Adam J. Levitin, *Skin-in-the-Game: Risk Retention Lessons from Credit Card Securitization*, 81 GEO. WASHINGTON L. REV. 813 (2013); Jan-Pieter Krahnen & Christian Wilde, *Skin-in-the-game in ABS transactions: A critical review of policy options*, 60 J. FIN. STABILITY (2022). A related concern is adverse selection in securitization. EU, but not American, regulations address by requiring that securitized assets be originated under the same underwriting terms as ones retained. Regulation (EU) No. 2017/2402, Art. 9

[102] *See* George A. Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 Q. J. ECON. 488 (1970).

[103] This Report simplifies the matter of which entity in the securitization process makes such representations and warranties and to whom.

[104] EBA Guidelines are somewhat more granular, but are still at a relatively high level of generality. EBA/GL/2018/19.

[105] Adam J. Levitin & Susan M. Wachter, *The Commercial Real Estate Bubble*, 3 HARV. BUS. L. REV. 83 (2013).

[106] EU Commission (2022), Has the Securitisation Regulation been successful in achieving the following objectives?, COM(2022) 517 final report from the commission to the European Parliament and the Council on the functioning of the securitisation regulation.

[107] Laura Noonan, *Europe seeks to revive moribund securitization market*, FIN. TIMES, Jan. 23, 2023, *at* https://www.ft.com/content/f6ea9a3c-ff8e-4059-b887-d1296bf7fdaa;

Kalin Anev Janse & Rolf Strauch, *Reviving securitization in Europe for CMU*, July 15, 2021, European Stability Mechanism blog, *at https://www.esm.europa.eu/blog/reviving-securitisation-europe-cmu*. The use of 2008 as a benchmark year is likely because the data currently published by the Association for Financial Markets in Europe (AFME) begins in 2008. Older AFME publications, however, contain data going back to 2000.

[108] SIFMA and AFME.

[109] SIFMA.

[110] AFME.

[111] AFME.

[112] SIFMA.

[113] Directive (EU) 2019/2162, Art. 6.

[114] De Nederlandsche Bank, *Value of outstanding Dutch securitisations below that of covered bonds for the first time*, Mar. 21, 2022, *at* https://www.dnb.nl/en/statistical-news/snb-2022/value-of-outstanding-dutch-securitisations-below-that-of-covered-bonds-for-the-first-time/.

[115] Directive 2008/48/EC, Art. 8; Directive 2014/17/EU, Art. 18.