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**THE ECONOMICS OF SECURITIZATION: EVIDENCE FROM
THE EUROPEAN MARKETS**

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EUROPEAN MARKETS**

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Abstract

Securitization is the process whereby financial assets are pooled together, with their cash flows, and sold to a specially created third party that has borrowed money to finance the purchase. The borrowed funds are raised through the sale of securities, in the form of debt instruments, into the market. Securitization is thus a technique used to transform illiquid assets into securities.

Securitization creates value by increasing liquidity and funding, reducing the cost of funding, allowing originators to reach a funding sources diversification, improving originators' risk management, increasing the segmentation between the origination and investment functions, and allowing originators to benefit from regulatory (and/or tax) arbitrage and to improve key financial ratios.

Although the economic advantages, securitization also has problems, especially when used inappropriately. Considering the important role played by securitization in the development and propagation of the 2007/2008 financial crisis, the most commonly referred problems of securitization are complexity, off-balance sheet treatment, asymmetric information problems, agency problems, and higher transaction costs.

Besides describing the economic motivations and problems of securitization, this paper provides details on asset securitization characteristics and players, presents the recent trends of securitization markets, describes the role played by securitization in the 2007/2008 financial crisis, and provides some statistics of asset securitization activity in Western Europe between 2000 and 2013.

Key words: securitization, structured finance, financial crisis.

JEL classification: G01; G23; G24

1. Introduction

The global development of the corporate sector has been demanding the creation of new vehicles for fundraising. Professionalization and the growing sophistication of capital markets, as well as increasing access to international markets, require less risky securities and internationally standardized warranties. Therefore, analysis has been increasingly focused on a risk assessment process based on asset segregation and asset pooling, rather than on a company or a group of companies looking for financing. For many countries, this has required adjustments to be made to their financial system, towards new forms of financing, in which the role of securitization transactions has gained increasing relevance.

Securitization means a process by which an entity pools together its interest in identifiable future cash flows, transfers the claims on those future cash flows to another entity that is specifically created for the sole purpose of holding those financial claims, and then issue negotiable securities to be placed into the market. Thus, the aim of securitization is to transform illiquid assets into securities suitable for trade.

The interest of studying securitization is also justified by its dramatic increase in the last decade and by recent events in financial markets. The financial turmoil started in the third quarter of 2007 and continued through to 2008, leading to concerns about the exposure of financial institutions to the most risky segments of the US mortgage markets – the so-called subprime mortgage market – and related financial instruments. The resulting financial market tensions caused investors and regulators to be concerned about (and even doubt) the impact of some types of securitization transactions on financial stability during times of stress, and the ability of different securitization products to spread shocks across different capital segments. As a result, there is an increased need to understand what securitization transactions are, the motivations behind them, their benefits, features and even their problems.

To understand why securitization matters, we are taken back to the Modigliani and Miller (1958) capital structure irrelevance theorem, which holds that capital structure is irrelevant to firm value. In a Modigliani and Miller world, securitization transactions would not exist, as they would offer no advantages over less costly alternatives. However, considering that debt and equity of any firm effectively represent asset-backed securities, the irrelevance proposition can play a fundamental role within a securitization framework. In a world of perfect and liquid financial markets, where asymmetric information is not an issue, tranching or the act of encapsulating an initiative or a pool of assets in an ad hoc organization would not add value and firm's financing structure would be irrelevant. Thus, the existence of market imperfections (at least asymmetric information, market incompleteness, and market segmentation) can explain tranching, 'off-balance sheet financing' and the benefits of securitization instruments. Consequently, securitization may matter, because it creates value by minimizing the net costs associated with the stated market imperfections.

Despite the previously mentioned economic benefits for sponsors and investors, securitization transactions also have disadvantages, especially when used inappropriately. One can identify the following problems related to the use of securitization: (i) complexity; (ii) off-balance sheet treatment; (iii) asymmetric information problems; (iv) agency problems; and (v) higher transaction costs. Besides the fact that securitization instruments are complex *vis-a-vis* straight debt finance transactions or products, two major problems are commonly pointed out, underlying the roots of the 2007/2008 financial crisis: (i) asymmetric information problems; and (ii) agency problems. The increased complexity of structured products related to securitization – like CDOs, squared CDOs, and even more complex securities – destroyed information, thereby making asymmetric information worse in the financial system and increasing the severity of adverse selection and moral hazard problems. The originate-to-distribute business model, which lay behind the subprime mortgage market, was subject to the principal-agent problem, because (i) the mortgage originator had little incentive to make sure that the mortgage was of good credit risk, (ii) commercial and investment banks had weak incentives to ensure that the ultimate holders of the securities would be duly paid for, and (iii) even the credit rating agencies evaluating these securities were themselves also subjected to conflict of interest.

In this paper we will be taking a close look at securitization financing deals. As there are so many different deals, spanning across many different asset classes as well as jurisdictions, we will look to the prominent classes of securitization transactions. The main objective of this paper is to analyze the basic characteristics and market structure of securitization activity and to answer the following questions: (i) What is securitization?; (ii) How is the transaction structured?; (iii) What is the role of each party involved in the securitization process?; (iv) What are the economic motivations and problems of securitization?; (v) What are the major tax, accounting, and legal issues?; (vi) What was the role played by securitization in the 2007/2008 financial crisis; and (vii) How has the Western European market for securitization changed after the 2007/2008 financial crisis?

2. Definition of Securitization

Generally speaking, the term securitization is used to represent the process whereby financial assets are pooled together, with their cash flows, and converted into negotiable securities to be placed into the market; i.e., it is a technique used to transform illiquid assets into securities. As asserted by Roever and Fabozzi (2003) “... *securitization is a form of financing where monetary assets with predictable cash flows are pooled and sold to a specially created third party that has borrowed money to finance the purchase. These borrowed funds are raised through the sale of asset-backed securities (ABS), which can take the form of either commercial paper or bonds*”. Similarly, Fabozzi *et al.* (2006) point out that securitization “... *refers to the sale of assets, which generate cash flows, from the entity that owns them to another entity that*

has been specially set up for the purpose, and the issuing of notes by this second entity. These notes [...] are referred to as asset-backed securities."¹ Securitization is thus a structured finance technique allowing for credit to be provided directly through market processes rather than through financial intermediaries – the so-called financial disintermediation.²

The key element of securitization is that the obligation of the issuer to repay investors is backed by the value of a pool of financial assets or credit support provided by a third party to the transaction. Contrary to the traditional secured bonds, where it is the ability of the originator (or issuer) to generate sufficient cash flows to reimburse the debt that determines the risks of the transaction, in securitization the source of repayments/funds shifts from the cash flows of the issuer to the cash flows generated by the securitized assets and/or a third party that guarantees the payments whenever cash flows become insufficient. This idea is corroborated by Vink and Thibault (2008), which point out that the essential “... *element of an asset securitization issue is the fact that repayment depends only or primarily on the assets and cash flows pledged as collateral to the issue, and not on the overall financial strengths of the originator (sponsor or parent company).*” Therefore, before performing a transaction it is essential to evaluate the assets’ characteristics, because they will affect (i) the creditworthiness of the related securities – represented by a rating assigned by a rating agency; and (ii) the type and magnitude of credit enhancement mechanisms necessary to improve the rating of the securities issued.

The markets for the securities issued through securitization are composed of three main classes [Blum and DiAngelo (1997) and Choudhry and Fabozzi (2004)]: asset-backed securities (ABS), mortgage-backed securities (MBS), and collateralized debt obligations (CDOs). Securities backed by mortgages are called MBS, securities backed by debt obligations are called CDOs, and securities backed by consumer-backed products – e.g., car loans, consumer loans, and credit cards – are called ABS.

Securitization securities are issued as subordinated, negotiable contingent claims (tranches) with varying seniority and maturity, backed by the credit payment performance of securitized assets. These tranches represent different risk-return profiles, with the underlying reference portfolio to be allocated among the various tranches through prioritized contractual repartitioning. It can be presented the following issuers of asset-backed securities: (i) captive finance companies of manufacturing firms that provide financing only for their parent company’s products; (ii) financing subsidiaries of major industrial corporations; (iii) independent finance companies; and (iv) domestic and foreign commercial banks. With regard to banks, securitization technique allows the transformation of heterogeneous assets that are

¹ See, among others, Davidson *et al.* (2003), Roeber and Fabozzi (2003), Tavakoli (2003, 2008), Tasca and Zambelli (2005), Kothari (2006), Jobst (2007), and Krebsz (2011) who explain the structure of securitization transactions.

² See, among others, Caselli and Gatti (2005), Davis (2005), Akbiyikli *et al.* (2006), and Fabozzi *et al.* (2006) for further discussion of structured finance.

mostly not negotiable into liquid and homogenous securities, suitable for trade. The range of assets that can be securitized by banks is very wide and includes mortgage loans, credit card receivables, bonds, auto loans, and loans to small and medium-sized enterprises, among others.

3. The Typical Securitization Transaction Scheme

As pointed out, a securitization transaction is implemented through a transfer of assets from the originator to a Special Purpose Vehicle (SPV) or a Special Purpose Entity (SPE), which then issues securities, in the form of debt instruments, to be placed into the market through a private or public offering. Exhibit 1 presents a graphic representation of the fund flows in a typical securitization transaction. As shown, there are two basic deals involved: (i) the asset sale; and (ii) the issuance of securities (considering ABS in this case). For example, if a bank intends to raise money by selling a specific pool of loans through securitization, it is possible to identify the subsequent fund flows during the life of a securitization transaction: (i) the bank (originator) sells the assets to a separate entity (SPV); (ii) the SPV transforms them into negotiable securities to be placed into the capital market; (iii) the issuance of securities (usually debt obligation instruments) – backed by the acquired assets – in order to finance the asset purchase; and (iv) the cash flows originated by the acquired pool of assets are then used to pay the principal and interest of the securities to the final investors.³

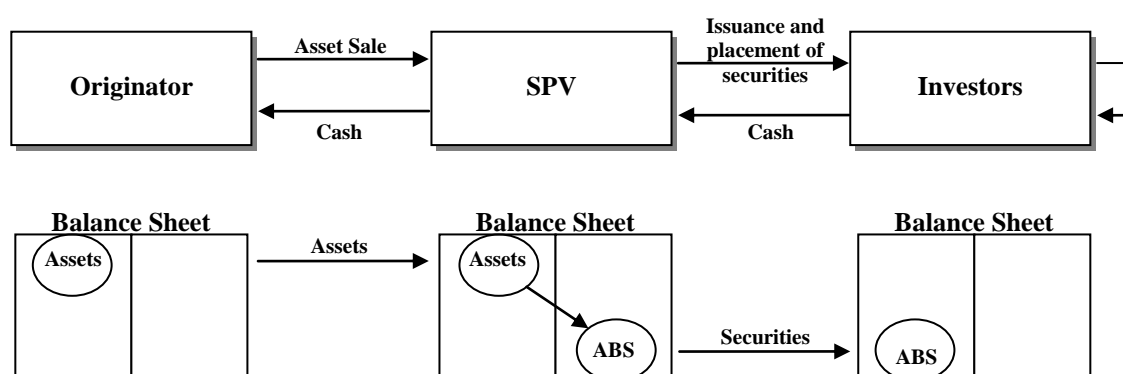


Exhibit 1: Fund flows in a securitization transaction.

Source: Adapted from Roever and Fabozzi (2003) and Tasca and Zambelli (2005).

The standard structure for securitization in Europe is somewhat different from the United States (U.S.) [Davidson *et al.* (2003)]. In the U.S. trusts play an important role. They own assets such mortgage loans and investors have a direct ownership interest in the trust. In Europe, all deals use a variant of the following structure: (i) the originator sells the assets to an SPV; and (ii) the SPV then issues a bond, which is purchased by various investors, backed by the assets owned by the SPV. This vehicle company is usually a company subject to corporate

³ The cash collection related to the securitized portfolio is managed by the Servicer (the originator or a third party), which receives a servicing fee. Servicing involves collecting cash from borrowers, notifying borrowers who may fail, and, when necessary, recovering and disposing of the collateral if the borrower does not make loan repayments by a specified time.

law, but restricted in activity, and may be exempted from certain taxes.⁴ But in Europe, as in any other part of the world, the securitization process involves a standard set of analysis prior to the issuance of securities, namely: (i) assessing the collateral; (ii) modeling cash flows; (iii) quantify risk factors via stress tests or other techniques; and (iv) structuring the transaction – having in mind several factors, such as the client’s wishes, the type of assets, the opinion of the rating agencies, the availability of data, and the investor attraction for the deal.⁵

In order to understand the whole securitization process, Exhibit 2 describes the major steps required to accomplish a typical securitization transaction.

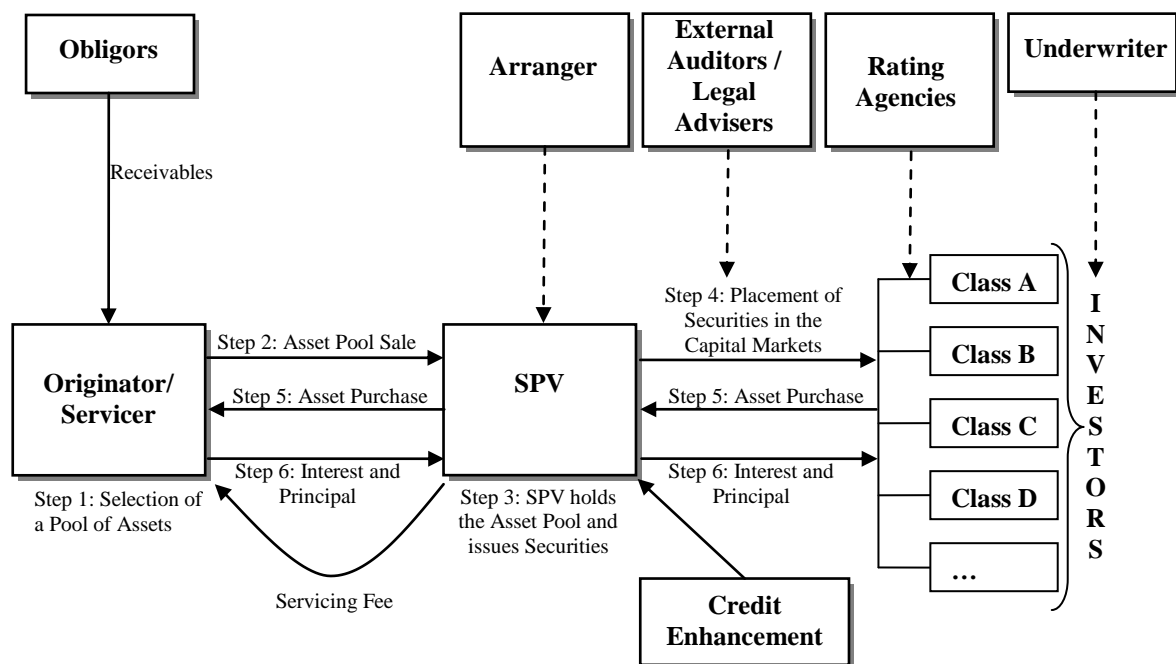


Exhibit 2: Basic securitization process.
Source: The author.

Next we describe the major steps usually presented in a securitization transaction. Step 1: the originator identifies a pool of assets (receivables) that satisfy certain features that make them acceptable to be securitized;⁶ Step 2: the pool of assets is transferred to an SPV at par

⁴ As asserted by Davidson *et al.* (2003), this type of structure “... can be much more costly than a U.S. trust company because in continental Europe it is very common to have a minimum amount of share capital necessary to set up a company.” For example, in Belgium, the minimum is 62 Euro thousands, in the Netherlands 20 Euro thousands, and in Portugal 250 Euro thousands (applied to ‘Sociedades de Titularização de Créditos’). The U.K. tends to be the most popular jurisdictions for SPVs, as well as Ireland, because there is no minimum share capital necessary.

⁵ Structuring the transaction requires to deal with the following issues: (i) timing; (ii) risk; (iii) credit enhancement and rating; (iv) legal process and counterparties – collateral arrangements, counterparty arrangements, bond description, legal opinions, and rating letters –; and (v) costs.

⁶ The originator typically identifies assets with similar characteristics. Theoretically, any asset producing regular cash flows (e.g., residential and commercial mortgages, credit card receivables, etc.) can be securitized.

value and based on a true sale transaction;⁷ Step 3: the SPV holds the asset pool, paying for it by issuing securities;⁸ Step 4: securities are offered to capital markets and structured into different classes;⁹ Step 5: payment of the asset purchase; and Step 6: the originator – who has proximity with the borrowers and typically has an infrastructure and systems in place for doing so – collects cash flows related to the assets (interest and principal); i.e., retains the servicing function.

The highest rating for Class A (the most senior class) is explained by two factors: (i) the assets' segregation from bankruptcy risks of the originator; and (ii) the implementation of different credit enhancement strategies. One strategy is the creation of a credit risk mitigation device by subordination of Classes B, C, D, ..., such that those lower classes provide credit support to Class A. It is possible to say that the size of classes B and C is determined as to meet the rating objective for Class A. Likewise, the size of Class C is determined as to have Class B accorded the desired rating. In other words, the entire transaction is structured to meet specific investor needs. That's why, in a narrow sense, the term structured finance is used almost interchangeably with securitization.

Different credit enhancement mechanisms may be necessary to improve the credit rating of the issued securities and reduce the risks transferred to investors; i.e., credit enhancement serves to protect investors from the risk of collateral not being repaid as expected.¹⁰ These mechanisms can be either internally determined within the transaction structure – internal credit enhancement mechanisms – or externally provided by a third party – external credit enhancement mechanisms. The issuer should examine the various mechanisms of credit enhancement prior to issuance, to determine the most effective combination. As referred by Fabozzi *et al.* (2006), “... *the reason why an issuer does not simply seek a triple-A rating for all the securities in the structure is that there is a cost to doing so [...] In general the issuer, in deciding to improve the credit rating on some securities in a structure, will evaluate the tradeoff associated with the cost of enhancement versus the reduction in yield required to sell the security.*”

⁷ True sale or mutually exclusive use of asset pool's cash flows means that the originator would not have any direct claim on the receivables, nor would the investors in the securities issued by the SPC or the SPV itself have any claim against the general assets of the originator.

⁸ To finance the acquisition of the assets, the SPV issues securities sold to investors. The credit rating of those securities will be based solely on the strength of the asset pool. The issued securities may be senior and junior, or they may be senior, mezzanine, and junior, or they may have various classes, such as class A, class B, class C, and so on. These various classes are created in order to generate differential interests in the pool, such that the senior investors have superior rights over the pool than the subordinated investors.

⁹ The SPV sells securities in the capital markets through a private placement or public offering, with the help of underwriters. These securities are usually purchased by banks, insurance companies, pension funds and other institutional investors.

¹⁰ See, for example, Roever and Fabozzi (2003) and Fabozzi and Kothari (2007) for an in depth description of internal and external credit enhancement mechanisms.

External credit enhancement mechanisms are provided by third-party guarantees, granting for first-loss protection against losses up to certain amount. Examples are: (i) guarantees; (ii) letters of credit;¹¹ and (iii) bond insurance.¹² This kind of guarantee can either apply to all the issued tranches or, more typically, only to one particular tranche. Internal credit enhancement mechanisms are: (i) subordination;¹³ (ii) overcollateralization;¹⁴ (iii) cash reserve accounts;¹⁵ (iv) excess spread;¹⁶ (v) trigger events; and (vi) minimum debt or interest service coverage levels. The type and amount of credit enhancement employed in a transaction represents the matching point of the issuer's need to maximize deal proceeds and the rating agencies' judgment with respect to how much credit enhancement is required to achieve the desired rating on the senior bond classes. One important difference between the approach used to rate securitized debt and bonds is that corporate obligations are rated *ex post* while securitized products are rated *ex ante*. Securitization transactions are thus structured with the idea of issuing securities that meet a specific rating profile [Roever and Fabozzi (2003)].

A central and defining characteristic of securitization is that the cash flows generated by a company's financial assets can support one or more securities that may be of higher credit quality than the company's secured debt. To achieve this higher credit quality, the securities used to fund the securitization rely on the cash flow created by the assets – or guarantee by a third party – rather than on the payment promise of the company. Regarding the securitization financing structure, there are two essential characteristics to be highlighted. The first concerns the SPV, which represents a critical player within the process. Secondly, the transaction is realized through a 'true sale' of assets by the originator to the SPV. The 'true sale' mechanism allows a company to isolate a group of financial assets, separating their risk from the firm.¹⁷ Therefore, the expected return to investors relies mainly on the risk of the cash flows guaranteed

¹¹ It is a financial guarantee through which a bank becomes committed to reimburse credit losses up to a predetermined amount.

¹² Also called a surety bond, a bond insurance is a financial guarantee from an insurance company, commonly called monoline insurance company [e.g., Ambac Assurance Corporation (AMBAC); Financial Guaranty Insurance Corporation (FGIC); Financial Security Assurance (FSA); Municipal Bond Insurance Corporation (MBIA); and XL Capital Assurance]. The guarantee provided is for the timely payments of principal and interest if these payments cannot be satisfied from the cash flow from the underlying loan pool.

¹³ Issuers can increase their advance rates by selling additional bonds of lesser credit quality, which are subordinated in payment priority to the senior bonds issued from the structuring. Subordinated tranches will absorb collateral losses for the benefit of senior bonds.

¹⁴ The overlying bonds are lower in value compared to the underlying asset pool: for example, 250 Euro millions nominal of assets are used as backing for 200 Euro millions nominal of issued bonds.

¹⁵ Usually from part of the debt proceeds, a cash reserve is maintained in an account and used to cover initial losses.

¹⁶ The excess spread results from the positive difference between cash inflows from assets and the interest service requirements of liabilities. It acts as the first line of credit support for the deal and if losses are low, the excess spread will increase.

¹⁷ Contrary to the U.S., in Europe, in many jurisdictions (e.g., Germanic type of law), there is a sale or assignment of the assets to an SPV but the perfection of the sale is often postponed until various trigger events occur in order to avoid complicated borrower notification laws. See Davidson *et al.* (2003) for further discussion of European securitization legislation.

by the pool of assets, rather than the default risk of the originator. The SPV role is critical and provides an investor with greater protection. With the separate incorporation of the SPV – which is intended to isolate the assets – the assets are no longer available to the originator or its creditors.¹⁸ Furthermore, the SPV activity is strictly limited to holding the asset pool and issue in turn securities backed by these assets; i.e., the SPV is not allowed to perform other business activities and to assume other obligations.

Financial intermediaries play a crucial role within the securitization process, which includes the following activities: (i) identification of homogeneous financial assets to be securitized; (ii) identification, together with the credit agency (or credit agencies when necessary), of the financial structure of the securities; (iii) if the credit rating analysis is positive, the arranger writes a pre-sale report (and external auditors implement a due diligence of the asset portfolio); (iv) in line with legal firms, the legal contracts are developed (e.g., transfer agreement, indemnity and warranty agreement, corporate services agreement, servicing agreement, cash management agreement and collateral management agreement, trust deed, deed of pledge, and subscription agreement); (v) planning of marketing activities, including a road show aimed at presenting the transaction characteristics to institutional investors; and (vi) issuance and placement of the securities in the primary market.¹⁹ The next phase in the process is the acquisition of the securities by investors.²⁰

4. Securitization Structures

Securitization can be implemented basically in two ways: (i) in a so-called true sale securitization, the underlying assets are sold by the originator (a firm or more specifically a bank) to the SPV and thus removed from its balance sheet; (ii) in a so-called synthetic securitization, the underlying assets remain on the balance sheet of the originator, and only risk of the underlying assets is transferred to the SPV by buying credit derivatives such as credit default swaps over these assets [ECB (2008)]. Similarly, Tasca and Zambelli (2005) split securitization transactions into two main types: (i) cash flow based (CFB) securitization or funded securitization – structured as a sale of assets by a company (originator) to a special entity (SPV), which then issues securities backed by the underlying assets; and (ii) synthetic

¹⁸ Although the remoteness from bankruptcy may be achieved ensuring independence of the SPV from the originator, in practice this has been thrown somewhat into doubt during the credit crisis as the true sale status has been challenged in some federal courts in the U.S. Originators need to ensure carefully that the assets transferred to the SPV are ring-fenced from further originator interaction and have to analyze cautiously if any structural feature of the transaction may threaten the true sale claim.

¹⁹ Usually a offering circular has to be design to provide information to investors. The underwriter works together with the SPV to place securities in the primary market and usually ensures to the originator the acquisition of those securities that may remain unsold.

²⁰ It is important to notice that interest rate derivatives play an important role in securitization transactions for hedging and yield enhancement. The most commonly used interest rate derivatives are interest rate swaps, interest rate caps, and interest rate corridors. See, e.g., Fabozzi *et al.* (2005) for further discussion of this subject.

securitization – structured in such a way that the credit risk associated with a pool of assets is transferred to a separated entity (SPV). As in synthetic securitization there is no sale of assets, the originator does not receive any cash flow and the SPV is not the owner of the pool of assets, but rather the entity carrying the associated credit risk. This is realized through the use of derivatives like total return swaps and credit derivatives – the most widely used credit derivative is the credit default swap (CDS).

Exhibit 3 provides an overview of the main securitization instruments. Funded securitizations include three main categories: (i) Mortgage-Backed Securities (MBS); (ii) Asset-Backed Securities (ABS); and (iii) cash flow Collateralized Debt Obligations (CDOs).²¹ In practice, CDOs can be classified either as funded securitization, synthetic securitization or a hybrid form incorporating elements of both. In this paper, a cash flow CDO is a form of a funded securitization and a synthetic CDO a form of a synthetic securitization, since synthetic CDOs are much more specific instruments to transfer credit risk from one party to another.

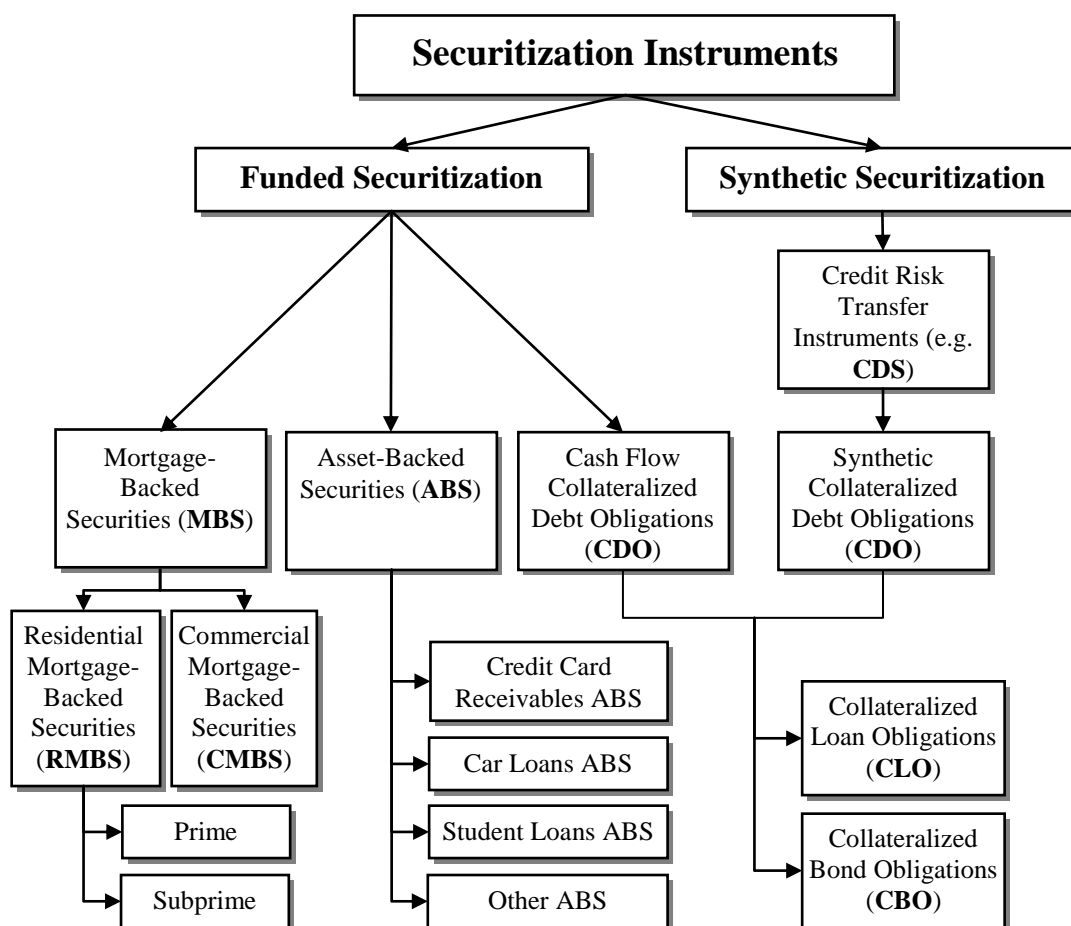


Exhibit 3: Securitization instruments.
Source: Adapted from Criado and Rixtel (2008).

²¹ See, among others, Jobst (2003, 2006b) and Vink and Thibault (2008) for further discussion of this subject. Criado and Rixtel (2008) present an enlightening description of each type of securitization instruments.

Given the important role played by CDOs in the 2007/2008 financial turmoil, we carried out a more detailed analysis of such structures.²² CDOs, first introduced in 1988, are a type of securitization in which an SPV issues bonds or notes backed by cash flows of an underlying pool of assets. These assets include one or more of the following types of debt obligations [Fabozzi *et al.* (2006)]: (i) investment-grade and high-yield corporate bonds; (ii) emerging market bonds; (iii) residential mortgage-backed securities (RMBS); (iv) commercial mortgage-backed securities (CMBS); (v) asset-backed securities (ABS); (vi) real estate investment trusts (REIT) debt; (vii) bank loans; (viii) special-situation loans and distressed debt; (ix) and other CDOs.²³

As for ABS and RMBS, CDOs can also be divided into two main types: (1) cash flow CDOs – backed by a pool of cash-market debt instruments; and (2) synthetic CDOs – investors have economic exposures to a pool of debt instruments, but this exposure occurs via a credit derivative rather than the purchase of the cash-market instruments. Cash flow CDOs are designed to split the credit risk of the underlying pool of assets into various tranches, each of which with a different credit exposure from the other. Thus, the notes issued have different risk profiles as a result of their relative subordination – that is, the notes are structured in a descending order of seniority – and the utilization of additional credit enhancement mechanisms.

Contrary to cash flow CDOs deals, synthetic CDOs are ‘engineering’ so that the credit risk of the assets is transferred synthetically – rather than by a true sale – by the sponsor to investors, by means of credit derivatives. Using this approach, underlying or reference assets are not necessarily moved off the originator’s balance sheet, so it is adopted whenever the primary objective is to achieve risk transfer rather than balance sheet funding.²⁴

A specific type of CDOs are Multisector CDOs, also known as ABS CDOs, ABS of ABS, CDOs squared (CDOs²), or CDOs cubed (CDOs³). Multisector CDOs emerged in 1999 as a response to investors’ desire to securitize their own positions of structured product, with the implementation of both balance-sheet and off-balance-sheet arbitrage deals. These products were used and misused in a way that complexity masked the risk. For example, in a Multisector CDO including subprime collateral, one can find subprime mortgage loans, subprime auto loans, credit card receivables, and mezzanine corporate loans backing mezzanine tranches of CDOs used as collateral in a CDOs². Thus, as pointed out by Tavakoli (2008), “[T]hese deals are nearly impossible for sophisticated investors to fairly value...”

²² For further discussion of the causes and consequences of the 2007/2008 financial turmoil see section 6.

²³ When the underlying pool of debt obligations consists of bond-type instruments is referred as collateralized bond obligation (CBO). When the underlying pool of debt obligations is a bank loan, a CDO is referred to as a collateralized loan obligation (CLO).

²⁴ See, among others, Fabozzi *et al.* (2006), Lancaster *et al.* (2008), and Tavakoli (2008) for further discussion of CDOs’ deals, namely on the difference between cash flow structures and synthetic securitization vehicles.

5. The Economic Motivations and Problems of Securitization

The Modigliani and Miller (1958) capital structure irrelevance theorem holds that capital structure is irrelevant to firm value. Financial transactions, such as securitization, would not exist as it would offer no advantages over less costly alternatives. Considering that in the real world there are a plethora of different capital structures and securitization has been one of the principal means by which firms create their capital structures, securitization largely affects the value of the firm.

According to Hill (1996) securitization can help to reduce real-world costs, like regulatory costs and information costs. Information costs reduction seems largest for firms who face severe ‘lemons problems’ [Akerlof (1970)] – available information about such firms is limited, unfavorable, or particularly difficult to appraise. Hill (1996) points out that securitization offers a low cost and credible way for information about the firm’s receivables to be produced and provided to investors.²⁵ Similarly, Iacobucci and Winter (2005) argue that “... *asset securitization is driven by the propensity of the market to allocate assets to investors who are best informed about asset values.*”

The rationale for the emergence of securitization transactions should be found in the economic advantages of: (i) increased liquidity and funding [e.g., Roever and Fabozzi (2003), Jobst (2006a), and Krebsz (2011)]²⁶; (ii) reduction of the cost of funding [e.g., Goldberg and Rogers (1988), Davidson *et al.* (2003), Roever and Fabozzi (2003), Fabozzi *et al.* (2006), Jost (2006a), and Fabozzi and Kothari (2007)];²⁷ (iii) allowing originators to reach a funding sources diversification [e.g., Davidson *et al.* (2003), Roever and Fabozzi (2003), Fabozzi and Kothari (2007), and Krebsz (2011)]; (iv) improving originators’ risk management [e.g., Cumming (1987), Goldberg and Rogers (1988), Rosenthal and Ocampo (1988),²⁸ Davidson *et al.* (2003), Jobst (2006a), and Fabozzi and Kothari (2007)]; (v) increasing the segmentation between the origination and investment functions [e.g., Davidson *et al.* (2003)]; (vi) allowing originators to benefit from regulatory and/or tax arbitrage [e.g., Cumming (1987), Jones (2000), Davidson *et*

²⁵ Additionally, Hill (1996) argues that securitization may increase the future cash inflows of a firm due to (i) effects of specialization in receivables’ origination and retention – economies of scope; (ii) agency costs reduction; and (iii) regulatory costs reduction.

²⁶ Roever and Fabozzi (2003) refer to securitization as a reliable and relatively unconstrained source of off-balance sheet financing that mitigates traditional funding constraints and can promote a company’s growth. Similarly, Jobst (2006a) points out that securitization “... *allows issuers to raise funds and improve their liquidity position without increasing their on-balance sheet liabilities and capital base in a bid to refinance asset origination or investments...*”

²⁷ If a corporation wants to raise funds creating another legal entity (SPV) and selling assets to that entity who issue bonds backed by those assets, it can achieve a better credit rating for the bonds issued than otherwise will be obtained if the company will chose to issue corporate bonds – with enough credit enhancement, it can issue a bond with a rating triple A.

²⁸ Rosenthal and Ocampo (1988) argue that “... *securitization transactions manage these risks [credit, interest rate, and prepayment risks] more explicitly, and therefore more efficiently, than does conventional lending [... and...] it makes these risks more transparent and it also allocates them far more precisely to the players who are best able to absorb them.*”

al. (2003), and Krebsz (2011)];²⁹ and (vii) allowing originators to improve key financial ratios [e.g., Goldberg and Rogers (1988), Roever and Fabozzi (2003), Fabozzi and Kothari (2007), and Krebsz (2011)].

It is possible to discuss the main motivations for securitization from both the perspectives of a nonbank corporation and a bank corporation. According to Fabozzi *et al.* (2006) the principal reasons a nonbank corporation may elect to issue an asset-backed security are: (i) to reduce funding costs; (ii) to diversify funding sources; and (iii) to accelerate earnings for financial reporting purposes.³⁰ Looking to bank corporations, the literature presents the following four main motivations: (i) the need for new sources of funding – alternative to raising deposits [e.g., Goldberg *et al.* (1988), Fabozzi *et al.* (2006), Loutskina and Strahan (2009), and Cardone-Riportella *et al.* (2010)]; (ii) risk management and the transfer of credit risk, to fund risky financial assets and minimize financial distress costs [e.g., Goldberg and Rogers (1988), Fabozzi *et al.* (2006), Jobst (2006a), and Cardone-Riportella *et al.* (2010)];³¹ (iii) the search for new profit opportunities, by recognizing accounting gains when the market value of loans exceed their book value [e.g., Flannery (1989) and DeMarzo (2005)]; and (iv) the adjustment of capital ratios [e.g., Donahoo and Shaffer (1991), Berger and Udell (1993), Berger *et al.* (1995), Carlstrom and Samolyk (1995), Jagtiani *et al.* (1995), Jones (2000), Calomiris and Mason (2004), Ambrose *et al.* (2005), and Fabozzi *et al.* (2006)].

Fabozzi *et al.* (2006) present the benefits of securitization from the perspective of investors. Securitization transactions allow investors to diversify sector interest, access different risk-rewards profiles, and access sectors that are otherwise not open to them. Thus, the key benefit to investors is the ability of securitization to tailor risk-return profiles. This idea is corroborated by Jobst (2006a), who states that “[I]nvestors of securitized debt can quickly adjust their investment holdings at low transaction costs in response to a change of personal risk sensitivity, market sentiment or consumption preferences.” Krebsz (2011) presents diversification, additional protection mechanisms, the ability to address different type of investors, wider pricing, and rating stability as the main advantages of asset securitization in the perspective of investors.

Although all of the above-mentioned economic advantages, securitization also has problems, especially when used inappropriately. Asset securitization transactions are fairly

²⁹ One of the major economic drivers of a new securitization transaction is Basel II (and ongoing forward Basel III). The applicable calculation rules (e.g., standardized approach vs internal ratings-based approach vs advanced ratings-based approach) highly influence the regulatory capital charge.

³⁰ Similarly, Lupica (1998) presents the following motivations for a nonbank corporation to choose securitize its assets: (i) improving liquidity; (ii) increasing diversification of funding sources; (iii) lowering the effective interest rate; (iv) improving risk management; and (v) achieving accounting-related advantages.

³¹ As pointed out by Jobst (2006a), securitization “... is one operational means of risk management, which allows issuers to reallocate, commoditize and transfer different types of risks (e.g., credit risk, interest rate risk, liquidity risk or pricing risk) to capital market investors at a fair market price.”

complex and involve a significant amount of due diligence, negotiation, and legal activities. As asserted by Davidson *et al.* (2003), “[A] first transaction from an originator can take anywhere from 1 to 2 years to complete [...] Securitization is quite costly in terms of up-front and ongoing fees compared to other types of financing.”³² This idea is corroborated by Cardone-Riportella *et al.* (2010), which point out that the disadvantages of securitization include the fixed costs of setting up the SPV and a potential reduction in the flow of tax benefits from keeping the assets in the balance sheet and financing them with debt. Similarly, Jobst (2006a) presents the structural complexity of securitization as the main driver for the major concerns about this type of structured finance, which are: (i) high accumulation of interest rate risks; (ii) the potential for errors in the rating and pricing of complex security designs; and (iii) the shortcomings of analytical models for assessing risks.

The most commonly referred problems of securitization are: (i) complexity [e.g., Davidson *et al.* (2003), Caselli and Gatti (2005), Fender and Mitchell (2005), Fabozzi *et al.* (2006), and Jobst (2006a)]; (ii) off-balance sheet treatment [e.g., Fabozzi *et al.* (2006) and Rutledge and Raynes (2010)]; (iii) asymmetric information problems [e.g., Gorton (2009), Jobst (2009), Lupica (2009), and Krebsz (2011)]; (iv) agency problems [e.g., Alles (2001), Jobst (2006a), Fabozzi and Kothari (2007), and Jobst (2009)]; and (v) higher transaction costs [e.g., Davidson *et al.* (2003) and Cardone-Riportella *et al.* (2010)]. Considering that there is a broad consensus that securitization played an important role in the development and propagation of the 2007/2008 financial crisis, the referred problems of securitization transactions are essentially presented within the context of the recent financial crisis.³³

The credit crisis of 2007/2008 has somewhat tarnished the positive image prevailing of the positive role played by securitization in dispersing credit risk, thereby enhancing the resilience of the financial system to default by borrowers. Linking singular credit facilities to the aggregate pricing and valuation discipline of capital markets, securitization was expected to help remedy deficiencies in financial markets arising from incomplete capital allocation. But the collapse of the securitization market and the ensuing market turbulence have cast serious doubt on this economic proposition of unbundling, transforming, and redistributing credit risk via securitization instruments. Next, we examine the influence of securitization transactions in the development and propagation of the 2007/2008 financial turmoil.

³² According to Davidson *et al.* (2003) for a 100 Euro millions transaction developed in Europe, “... these costs add to the overall financing costs anywhere from about 15 to 50 basis points, assuming a 7-year bullet financing.” As these costs are essentially fixed, the larger the transactions, the lower is the impact on the final funding level.

³³ See, among others, BIS (2008), Borio (2008), IMF (2008b), Benmelech and Dlugosz (2009), Brunnermeier (2009), and Mishkin (2010). For further discussion of the role of securitization in the 2007/2008 financial crisis see section 6.

6. Securitization and the 2007/2008 Financial Crisis

The 2007/2008 financial crisis was triggered by the exposure of financial institutions to the subprime mortgage market³⁴ and related financial instruments, which were primarily related to securitization.³⁵ Several authors point out that structured finance, specifically securitization, played a significant role in the development and propagation of the financial crisis [e.g., BIS (2008), IMF (2008b), Benmelech and Dlugosz (2009), Brunnermeier (2009), and Demyanyk and Van Hemert (2011)]. As the IMF (2008a) states “... *the proliferation of new complex structured finance products, markets, and business models exposed the financial system to a funding disruption and breakdown in confidence*” and that particular products “... *exacerbated the depth and duration of the crisis by adding uncertainty relating to their valuation as the underlying fundamentals deteriorated.*” The capability of securitization to repackage risks and create ‘secure’ assets from a risky collateral lead to a rapid growth in the issuance of structured securities, most of which were perceived by investors as near risk-free financial assets. During the financial crisis, it was discovered that these securities were actually far riskier than originally perceived by investors and certified by rating agencies. As referred by Gennaioli *et al.* (2010), “[W]hen investors or intermediaries perceive some securities to be safe, they would borrow using them as collateral, often with very low haircuts...” But when investors and intermediaries realized that these securities were actually risky they would sell them, trying to meet their collateral requirements, leading to an additional fragility from fire sales.

Criado and Rixtel (2008) point out a set of weaknesses related with the use of securitization, which were revealed by the financial turmoil, including: (i) banks underestimated their exposure to structured finance products and specific ‘off-balance sheet’ vehicles; (ii) certain banks retained large exposures to specific securitization instruments, such as CDOs without sufficiently understanding their impact on capital and liquidity positions; (iii) banks resorted to more volatile funding sources including securitization products;³⁶ and (iv) the process of securitization may have generated unwelcome incentive problems, considering that

³⁴ According to Kiff and Mills (2007) subprime mortgages are residential loans that do not conform to the criteria for ‘prime’ mortgages and so have a lower expected probability of full repayment, as they are made to more ‘risky’ mortgage borrowers. Standard and Poor’s states that borrowers below A (credit rating) quality are considered subprime.

³⁵ According to Criado and Rixtel (2008) “[A]s risk assessments were adjusted, the financial turmoil spilled over to other financial market segments and risky assets – particularly those linked to structured finance – were abandoned in favor of ‘safe haven’ instruments such as government debt securities.” As pointed out by the authors, financial market turmoil showed the following characteristics: (i) stock prices fell; (ii) volatility levels jumped – particularly in the short-term money markets; (iii) interbank money market interest rates verified unprecedented rises; (iv) credit spreads increased; and (v) central banks injected substantial amounts of liquidity into the markets. The liquidity concerns that dominated the initial phase of the financial crisis were accompanied by credit risk concerns and transformed into crises of solvency related to major financial institutions when they started to report losses that were actually much larger than had been anticipated.

³⁶ When securitization markets closed, the funding capability of specific banks decreased – such as Northern Rock in the United Kingdom – and they were significantly impaired.

banks may not have accurately assessed the credit risk of borrowers, when they put their loans off-balance sheet using securitization techniques.

Two major problems can be pointed out underlying the financial crisis: (i) asymmetric information problems, and (ii) agency problems [see, among others, Calomiris (2009)]. Although financial engineering has the potential to create securities and products that better match investors' needs, they also have hazards. Several authors [e.g., Alles (2001), Jobst (2006a), Jobst (2009), and Mishkin (2010)] argue that securitization may lead to a severe principal-agent problem when the originator retains little or no interest in the pool of securitized assets. In this case, the originator does not have the same incentive to pay attention to the creditworthiness of its customers as would be the case when the assets remains in its balance sheet. This idea is corroborated by Fabozzi and Kothari (2007), which assert that “[G]iven the ability of lenders to pass along subprime loans into the capital markets via credit enhancement [...] lenders have been viewed by critics of securitization as abandoning their responsibility of evaluating the creditworthiness of potential borrowers.”

Referring to asymmetric information, Gorton (2009) argues that an important problem is the loss of information when high complex structures are used to implement a securitization transaction. In the presence of asymmetric information, originators and issuers might be tempted to pursue their own economic incentives, which imposes a substantial agency cost on efficient asset securitization. Asymmetric information problems can come from (i) the information advantage of the originator with respect to the quality of borrowers and the historical performance of individual asset exposures – adverse selection; and (ii) the complex security design of securitized assets, which suggests superior information of arrangers about the true valuation of issued securities. Jobst (2009) corroborates this idea pointing out that “[T]he cause of the crisis can be traced to market failure stemming from conflicts of interest in the securitization process and ill-designed mechanisms to mitigate the impact of asymmetric information.” Empirically, Downing *et al.* (2009), based on a data set of MBS issued between 1991 and 2002, found that informed originators trade lemons in the mortgage market; i.e., the assets sold to the SPV are of lower quality compared to assets that are retained on the balance sheet. This idea is also corroborated by Titman and Tsyplakov (2010). They show that poorly performing originators are more willing to originate riskier mortgages because they have less incentive to carefully evaluate the credit quality of prospective borrowers.

It is commonly accepted that most credit is nowadays created using the originate-to-distribute model in which the originator of a loan sells it to someone (usually a special purpose entity), who adds it to a portfolio of similar loans, and then issues new securities, holding a claim against the income provided by the loan portfolio. The transition from the traditional originate-to-hold model to the originate-to-distribute model, as well as its reliance on credit markets as a continuing source of credit, has been blamed by academics and practitioners for the

financial crisis of 2007/2008. If the originator does not hold the credit it originates, but distributes the loan and its risks to other entities through securitization, the originator has a reduced incentive to monitor the credit granting process. Thus, this model brings with it a major principal-agent problem in the credit screening process, because the credit incentives of the originator are not aligned with those of the entity that ultimately holds the loan. When we add the growing complexity associated with the securitization process, the result is a ‘market for lemons’ problem [Akerlof (1970)], leading to the collapse of the market for securitized assets. However, it should be put into perspective that securitized subprime mortgage backed securities only represent 6% of the approximately (at the end of 2007) \$10 trillion asset securitization market. Thus, the rest \$9.4 trillion of structured products have generally been stable quality securities, with rating transition matrices probabilities equal to or better than the corporate bond market [Lancaster et al. (2008)].

In short, the crisis demonstrated that, in securitization, the value of the underlying cash flows varies with their repackaging, and that repackaging risk does not just eliminate it. Additionally, when market deterioration becomes systemic, SPVs may be unable to withstand market inertia, and triggers will eventually be breached – complex securitization products have introduced systemic risk into the financial system and maybe they have multiplied it. We can thus present some key factors that may help to overcome the shortcomings leading to the credit crisis, namely: (i) reduced complexity; (ii) increased transparency; (iii) increased standardization of transactions; (iv) improved disclosure of underwriting standards; (v) increasing the alignment of incentives between originators and investors; (vi) avoiding active rating shopping; (vii) reduced overreliance on credit ratings; (viii) increased risk management and risk mitigation; and (ix) the need for investors to understand the benefits and drawbacks of arbitrage mechanisms.

7. Tax, Regulatory, Accounting, and Legal Issues

The main tax issue in securitization is related to whether there will be taxation at the level of the vehicle company; i.e., will the payments of the borrowers be considered taxable income to the SPV? Because the sole purpose of the SPV is to buy and hold assets until they liquidate, SPVs have no outside sources of income. The introduction of an entity-level tax would render most securitizations uneconomic. Moreover, originators desire to treat securitization as a financing for tax purposes rather than as a sale. As pointed out by Davidson *et al.* (2003), “[S]ale treatment from a tax standpoint would generally accelerate taxable income. Issuers are also concerned that the securitization is tax effective and does not result in nondeductible interest costs or double taxation of residual income.” In a typical securitization, a trust is used to receive the pool of assets and issue securities backed by these assets, because it

allows to minimize the issuer's tax burden and it also establishes a legal separation between the originator and the pool of assets deposited in the trust.³⁷

From a bank regulatory perspective, the originator is required, under new regulation from January 2011 onwards (Basel III), to retain at least 5% of the transaction for a funded transaction. In a synthetic transaction the originator would equally keep the first-loss piece, by transferring only the risk of higher tranches – via credit default swaps (CDS) or similar instruments – to investors.

The key accounting issue is whether the securitization will be treated as a 'true sale' or a financing operation. Originators generally seek to record a securitization as a sale which requires immediate recognition of gain or loss on the transaction. Thus, based on the proceeds of the sale of the bonds and the value of retained interests, firms may record a gain (or loss) on sale when completing a securitization transaction. As pointed out by Roever and Fabozzi (2003), the principal "... among the accounting issues is whether the financing meets the requirements for off-balance-sheet treatment." Usually, an asset transfer that is treated as a true sale for legal purposes qualifies as off-balance sheet financing if the SPV is a legally independent company from the seller.

The fundamental legal issue in securitization is whether the vehicle company, created for the purpose of holding the collateral, has sufficient title to the assets and is protected from bankruptcy or other disruptions at the issuing [Rutledge and Raynes (2010)].

In summary, the key elements of any securitization transaction are legislation, regulatory framework, and tax environment; i.e., if an originator considers to securitize a portfolio of assets it has to be aware of applicable laws, security regulation, and tax regime that may impact on the transaction. This holds particularly true for a post-credit crisis market. The securitization market has seen considerable regulatory changes during and following the credit crisis, which are likely to continue until 2014/2015.³⁸

8. The Securitization Market

8.1. Introduction

According to Tasca and Zambelli (2005), "[T]he concept of asset securitization was introduced in the US financial system in the 1970s, when the Government National Mortgage Association issued securities backed by a pool of loans, represented by residential mortgages." This is the major reason for the development of the strong U.S. housing finance market.

³⁷ See Davidson *et al.* (2003) for a more detailed description of issuing vehicles – e.g., grantor trusts, owner trusts, revolving trusts, master trusts, real estate mortgage investment conduits (REMICs), and financial asset securitization investment trusts (FASITs).

³⁸ See Krebsz (2011) for further discussion of the legislative initiatives implemented in E.U. and U.S.; e.g., Basel III, EU Green Paper on Corporate Governance, Dodd-Frank Wall Street Reform and Consumer Protection Act – Asset-backed securities, and proposals to strengthen financial supervision in Europe.

Afterwards, securitization technique has been applied to other assets such as credit card payments and auto loans receivables. It has also been employed as part of asset/liability management, in order to manage balance sheet risk for financial institutions.

The first European transaction was also a RMBS, issued in the U.K. in 1987. Around the early 1990s the first securitizations from other European countries have started. The first countries to join the U.K. in issuing ABS were Spain and France. These countries continued to be the main issuers until the mid-1990s, when Finland, Sweden, Ireland, Italy, and Germany joined the growing list of countries using securitization. But it was in the second half of the 1990s that securitization really began to take off as legislative changes in many countries began to simplify the process and to allow securitization to expand into new countries and asset classes. Finally, the introduction of the Euro in 1999 has significantly increased the importance of the European securitization market.³⁹ Thus, till mid-2007 it has rapidly developed within U.S. and Europe.

The diversity of the assets and the direct involvement of the public sector are characteristics differentiating the European market from the much larger and developed U.S. market. While, in U.S., the catalyst for securitization was the U.S. government's objective for encouraging home ownership and creating a secondary market for mortgages, in Europe, there has been no government body to act as a catalyst. In most European countries, larger commercial banks have issued the first MBS with the objectives of regulatory arbitrage, diversification of funding sources, and as a response to the appeal of international investors. A number of governments started to use securitization as a means of reducing public budget deficits in order to meet the Maastricht criteria. Additionally, the lack of a large powerful body to provide for homogenization and standards and the differing legal frameworks on each European government provide a very different setting for securitization than in the United States – the wide divergence in market sizes within the European countries is a reflection of the very different economic, political, historical, legal, and social frameworks.

In Europe, the legal setup of a deal is crucial, complicated, and is the main upfront cost for originators. In a securitization transaction in Europe, there are three important areas to think about with respect to legislation: (1) type of law – Napoleonic (e.g., Belgium, Spain, France, Luxemburg, and Portugal), Anglo-Saxon (e.g., United Kingdom), or Germanic (e.g., Sweden, Denmark, Finland, Norway, Austria, Netherlands, and Germany); (2) securing the assets and cash flows; and (3) local framework for securitization. That is why Adams (2005) asserts that “... *although we may at times discuss the European securitization market as if it were a single market, it is in fact a collection of quite distinct markets, which differ considerably in their legal*

³⁹ According to Altunbas *et al.* (2009), in addition to the inception of the single currency “... *more regional factors such as the closer integration in European financial markets as well as a move towards a more market-based financial system...*” can explain the escalation in securitization in Euro zone.

systems, the nature of their financial sectors, and social attributes. These differences are reflected in the variety of securitization structures and transactions types.”

8.2. Securitization in Western Europe

This section provides a statistical analysis of asset securitization (AS) in Western Europe.⁴⁰ We start by comparing the distribution of AS bonds across time, industry, and nationality of the issuer. The financial characteristics of AS bonds are also presented. Finally, we compare our results for Western Europe with securitization activity in Europe and the U.S.

Information on AS bonds was extracted from DCM Analytics database. DCM Analytics database (formerly Bondware database) is compiled by Dealogic and offers comprehensive information of debt securities issued on the debt capital markets. AS transactions typically consist of several tranches funding the same SPV. Therefore, we focus on the transaction tranches as our basic observation. Additionally, DCM Analytics only provide information about asset securitization securities issued in the capital markets through a public offering.

The distribution by year of AS issues is described in Table 1. Table 2 presents the industrial distribution of AS issues, while Table 3 presents the geographic distribution of AS tranches.

Table 1 shows the evolution of AS issues between 2000 and 2011. AS peaked in 2008 (by value) and fell in 2009. After 2009, we do not have observations in our sample. This is partly explained by the European sovereign debt crisis, which has limited the increase of securitized products, but also by the fact that an increasing number of banks have underwritten their own securitization programs to use them as a guarantee for obtaining resources in the auctions of the European Central Bank (ECB), issuing the so-called Covered Bonds. According to Cardone-Riportella *et al.* (2010), this practice have partially replaced the issue of debt, or the interbank market itself, as sources of finance to enable banks to grant loans.

⁴⁰ We consider the following countries as pertaining to Western Europe: Austria; Belgium; Cyprus; Denmark; Finland; France; Germany; Greece; Iceland; Ireland; Italy; Luxemburg; the Netherlands; Norway; Portugal; Spain; Sweden; Switzerland; and the United Kingdom.

Asset Securitization Bonds			
Year	Number of Tranches	Total Value of Tranches (Euro Millions)	Percent of Total Value
2000	115	26,027	14.5
2001	81	12,990	7.3
2002	77	17,709	9.9
2003	42	14,894	8.3
2004	66	31,555	17.6
2005	53	10,034	5.6
2006	55	10,639	5.9
2007	35	3,469	1.9
2008	39	36,122	20.2
2009	36	15,694	8.8
2010	-	-	-
2011	-	-	-
Total	599	179,132	100.0

Table 1: Distribution of the sample of AS issues by year.⁴¹

Table 2 shows that AS bonds are highly concentrated in one industry; i.e., 75.1% of all AS bonds (by value) are issued by sponsors in the financial industry. Table 3 also shows clear differences between the Western European countries which attract AS transaction. AS bonds are highly concentrated in three countries (89.5% by value and 77% of the total number of issues are made by borrowers located in U.K., Germany, and Italy), with the bulk number of issues concentrated in the U.K. (41.2% by value and 48.7% of all AS tranches).

Asset Securitization Bonds			
Industrial Category of Issuer	Number of Tranches	Total Value of Tranches (Euro Millions)	Percent of Total Value
Commercial	90	21,750	12.1
Industrial	33	11,622	6.5
Utilities	27	8,522	4.8
Financial Institutions	444	134,457	75.1
Transportation	5	2,782	1.6
Government	-	-	-
Other	-	-	-
Total	599	179,132	100.0

Table 2: Industrial distribution of AS issues.

⁴¹ Table 1 describes the characteristics for the sample of bonds in the DCM Analytics database with the deal type code of “asset-backed security” and “mortgage-backed security”. The second column details the number of tranches issued between 2000 and 2011, while the third column describes the total value (in Euro millions). The fourth column presents percentages of the total value for each year.

Asset Securitization Bonds			
Geographic Location of Issuer	Number of Tranches	Total Value of Tranches (Euro Millions)	Percent of Total Value
Austria	1	27	0.0
Belgium	18	1,723	1.0
Cyprus	-	-	-
Denmark	-	-	-
Finland	-	-	-
France	32	1,526	0.9
Germany	117	47,299	26.4
Greece	2	74	0.0
Iceland	-	-	-
Ireland	10	3,309	1.8
Italy	52	39,314	21.9
Luxemburg	3	173	0.1
Netherlands	42	4,270	2.4
Norway	-	-	-
Portugal	11	1,391	0.8
Spain	19	6,228	3.5
Sweden	-	-	-
Switzerland	-	-	-
United Kingdom	292	73,797	41.2
Total	599	179,132	100.0

Table 3: Geographic distribution of AS issues.

Table 4 presents basic characteristics for the AS issues between 2000 and 2011. AS tranches have a mean value of 299 Euro millions, an average maturity 20.9 years and involve on average 2.4 banks per transaction. Further, 31.4% of AS transactions are exposed to currency risk.

Variable of interest	Asset Securitization Bonds
Number of tranches	599
Total volume, Euro millions	179,132
Tranche size, Euro millions	
Average	299
Minimum	0.050
Maximum	22,298
Average maturity, years	20.9
Tranches with guarantee (%)	100.0
Tranches with currency risk (%)	31.4
Tranches to U.K. borrowers (%)	48.7
Tranches to financial institutions (%)	74.1
Average number of banks	2.4

Table 4: Basic characteristics for the sample of AS issues.

The most remarkable finding is that AS bonds are always issued with guarantees. This largely meets the standard characteristics of securitization. Contrary to the traditional corporate

bonds, where it is the ability of the issuer to generate sufficient cash flows to repay the debt obligation that determines the risks of the transaction, in securitization the source of repayments shift from the cash flows of the issuer to the cash flows generated by the securitized assets and/or a third party guarantor, in case of default.

Looking to the evolution of the structured finance markets, it is possible to conclude that securitization has become one of the most visible consequences of financial innovation in recent years. According to the Association for Financial Markets (AFM), the volume of securitized assets in Western Europe grew from 78.2 Euro billions in 2000 to 753.9 Euro billions in 2008. Although the 2007/2008 financial crisis, in which securitization seems to have played a determinant role, the pressing need for liquidity among financial entities provoked a sharp change after the first quarter of 2008. In 2013, a total of 166.7 Euro billions of securitized products were issued in Western Europe, a decline of 77.9% from 2008 (753.9 Euro billions).

Table 5 compares the distribution by year of AS issues in Europe vis-a-vis the U.S. The AFM provides information about asset securitization securities issued in the capital markets through a public offering (such as DCM Analytics) or private placement.

Geographic Location of Issuer	Total Value (Euro Billions)							
	2006	2007	2008	2009	2010	2011	2012	2013
Austria	0.60	-	-	-	-	-	-	-
Belgium	2.30	4.00	34.87	27.43	14.13	19.02	15.41	2.00
Cyprus	-	-	-	-	-	-	-	-
Denmark	-	0.50	-	-	1.49	-	-	0.80
Finland	-	-	-	-	-	-	-	-
France	7.70	3.90	14.09	6.93	8.98	16.35	14.86	9.90
Germany	37.70	18.50	110.61	18.36	13.39	12.91	10.03	22.60
Greece	3.60	5.30	13.47	22.48	0.96	6.37	1.97	-
Iceland	-	-	-	-	-	-	-	-
Ireland	10.70	10.40	35.97	25.13	6.55	-	1.22	1.00
Italy	30.20	26.40	94.82	69.25	15.97	48.08	58.44	27.40
Luxemburg	-	-	-	-	-	-	-	-
Netherlands	28.60	40.80	75.73	44.20	137.57	85.65	48.70	38.70
Norway	-	-	-	-	-	-	-	-
Portugal	5.80	10.80	14.52	10.50	16.93	9.91	1.42	3.30
Spain	44.00	61.10	103.40	64.88	54.92	61.72	18.63	27.50
Sweden	0.20	-	-	-	-	-	-	-
Switzerland	-	-	-	-	-	-	-	-
United Kingdom	192.20	172.60	256.39	88.66	101.52	99.52	76.50	33.50
Western Europe Total	363.60	354.30	753.87	377.82	372.41	359.53	247.18	166.70
PanEurope	1.70	2.10	12.42	20.32	2.60	3.04	0.41	9.10
Other Europe	1.90	1.10	12.91	1.82	1.63	3.38	2.95	4.70
Multinational	3.70	96.20	39.42	23.65	0.74	6.02	0.49	0.40
European Total	370.90	453.70	818.62	423.61	377.39	371.97	251.03	180.90
U.S. Total	NA	2,404.90	933.63	1,358.90	1,276.69	1,013.72	1,550.18	1,508.87

Table 5: Distribution of AS issues by year: Europe versus U.S.^{42 43}

⁴² Data according to the Association for Financial Markets in Europe, available at <http://www.afme.eu/reports.aspx>.

MBS (RMBS and CMBS) continues to make up the majority of placed issuance in Europe (74.4 Euro billions in 2013), followed by ABS (71.6 Euro billions), SME loans (20.2 Euro billions), CDO (9.2 Euro billions), and Whole Business Securitization (5.4 Euro billions).

In Q4 2013, 56.3 Euro billions of securitized product was issued in Europe, an increase of 50.5% from Q3 2013 (37.4 Euro billions) but a decline of 11.9% from Q4 2012 (63.9 Euro billions). Of the 56.3 Euro billions issued, 21.6 Euro billions was placed, representing 38.4%, compared to 17.1 Euro billions placed in Q3 2013 (representing 45.7%) and 27.2 Euro billions placed in Q4 2012 (representing 42.5%).

The volume of securitized assets in the U.S. declined from 2,404.9 Euro billions in 2007 to 933.6 Euro billions in 2008, a decline of 61.2%. In 2013, a total of 1,508.9 Euro billions of securitized products were issued in the U.S., an increase of 61.6% from 2008. As for Europe, MBS (RMBS and CMBS) continues to make up the majority of placed issuance in the U.S. (1,310.6 Euro billions in 2013), followed by ABS (140.4 Euro billions), and CDOs (57.9 Euro billions).

⁴³ The difference between the values obtained from the AFM versus DCM Analytics database is due to the fact that the latter contains only AS transactions issued in the capital markets.

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