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Faculty of Economics and Management

Postgraduate (Master's) Programme of Study:
Master's in Business Administration (MBA)

Postgraduate (Master's) Dissertation

Banks and Securitization

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Supervisor
Prof. Emmanuel Mamatzakis

May 2020

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Summary

A financial technique able to use an asset to generate liquidity and profit even though it could not, this is what securitization is in a few words. With the use of this tool banks are able to sell assets not able to generate any income to a third party specially created to use the asset for issueing securities and sell them in financial markets. The first securitization transaction recorded in the U.S. in the 70s while it reached Europe in th 80s. Since then more and more banks in many countries are utilizing this financial innovation.

Securitization reached its peak just before the recent financial crisis of 2008. In 2006 the volume of asset-backed securities issuance amounted to around 4 trillion dollars in the US and the European Union. The bursting of housing bubble in the US and the collapse of the subprime mortgage market initiated the most severe global financial crisis since 1929. Until the end of 2009, several banks in both continents had to heavily recapitalized with taxpayers' funds, massive stimulus packages were put in place to avoid a repeat of the Great Depression and strong demands were heard for regulatory reform of the financial industry. The 2008 financial crisis led to the collapse of the entire banking system, plummet the stock market and caused a long period of recession. The effect of the financial crisis was global, and a large number of researchers focused on understanding the potential cause of the financial crisis, with many of them blaming securitization.

The work presented in this thesis is about securitization and its development. The objective of thi dissertation is to identify the impact of securitization on banks. To do so, a systematic and comparative literature review is conducted. First of all, the term of securitization is presented along with the advantages and disadvantages that this tool brings to the banks and community. Then, the categories of the assets that can be securitized are described and explained in detail. The second chapter focuses on the process of securitization. All the steps and parties involved in this process are defined and alazyed. At this part, a brief explanation of why securitization takes the blame of the recent financial crisis is mentioned. The next chapter focuses on the securitization activities in Europe and how they developed over time. The last part of the thesis focuses on the existing literature, the market they are focusing, the period and the main outcomes of existing literature is presented. While in the final chapter an attempt to figure out what went worng with securitization and possible ways to avoid similar situations in the future is depicted.

Περίληψη

Τιτλοποίηση απαιτήσεων, μια χρηματοοικονομική τεχνική ικανή να χρησιμοποιήσει ένα περιουσιακό στοιχείο για τη δημιουργία ρευστότητας και κέρδους. Με τη χρήση αυτού του εργαλείου οι τράπεζες είναι σε θέση να πωλούν περιουσιακά στοιχεία που δεν είναι σε θέση να παράγουν εισόδημα. Οι πωλήσεις περιουσιακών στοιχείων γίνονται σε ειδικού σκοπού εταιρίες δημιουργημένες για τη χρήση του περιουσιακού στοιχείου και αφού εκδοθούν τίτλοι μπορούν πλέον να πωληθούν στις χρηματοπιστωτικές αγορές. Η πρώτη συναλλαγή τιτλοποίησης καταγράφηκε στις Η.Π.Α. τη δεκαετία του '70, ενώ στην Ευρώπη τη δεκαετία του '80. Από τότε, όλο και περισσότερες τράπεζες σε πολλές χώρες αξιοποιούν αυτήν την οικονομική καινοτομία.

Η τεχνική της τιτλοποίησης έφθασε στο αποκορύφωμά της λίγο πριν την πρόσφατη χρηματοπιστωτική κρίση του 2008. Το 2006, ο όγκος των εκδόσεων τίτλων που καλύπτονται από περιουσιακά στοιχεία ανερχόταν σε 4 τρισεκατομμύρια δολάρια στις Η.Π.Α. και στην Ευρωπαϊκή Ένωση. Η έκρηξη της φούσκας των ακινήτων στις Η.Π.Α. και η κατάρρευση της αγοράς στεγαστικών ενυπόθηκων δανείων οδήγησαν στη σοβαρότερη παγκόσμια χρηματοπιστωτική κρίση μετά το 1929. Μέχρι το τέλος του 2009, αρκετές τράπεζες και στις δύο ηπείρους χρειάστηκαν να ανακεφαλαιοποιηθούν σε μεγάλο βαθμό με κεφάλαια φορολογουμένων, για να αποφευχθεί η επανάληψη της Μεγάλης Ύφεσης και υπήρξαν έντονες απαιτήσεις για κανονιστική μεταρρύθμιση του χρηματοπιστωτικού κλάδου. Η οικονομική κρίση του 2008 οδήγησε στην κατάρρευση ολόκληρου του τραπεζικού συστήματος, κατέρρευσε το χρηματιστήριο και προκάλεσε μεγάλη περίοδο ύφεσης. Οι επιπτώσεις της χρηματοπιστωτικής κρίσης ήταν παγκόσμιες και ένας μεγάλος αριθμός ερευνητών επικεντρώθηκε στην κατανόηση των πιθανών αιτιών της χρηματοπιστωτικής κρίσης, πολλοί από τους οποίους κατηγορούν την τιτλοποίηση.

Το περιεχόμενο αυτής της διατριβής σχετίζεται με την τιτλοποίηση και την ανάπτυξή της. Αρχικά, παρουσιάζεται ο όρος τιτλοποίηση μαζί με τα πλεονεκτήματα και τα μειονεκτήματα που προσφέρει αυτό το εργαλείο στις τράπεζες και το κοινό. Στη συνέχεια, περιγράφονται και εξηγούνται λεπτομερώς οι κατηγορίες των περιουσιακών στοιχείων που μπορούν να τιτλοποιηθούν.

Το δεύτερο κεφάλαιο επικεντρώνεται στη διαδικασία τιτλοποίησης. Όλα τα βήματα και οι φορείς που εμπλέκονται στη διαδικασία τιτλοποίησης παρουσιάζονται και αναλύονται στο κεφάλαιο

αυτό. Επιπρόσθετα, εδώ γίνεται αναφορά και επεξηγείται γιατί η τιτλοποίηση λαμβάνει την ευθύνη της πρόσφατης οικονομικής κρίσης.

Το επόμενο κεφάλαιο επικεντρώνεται στις δραστηριότητες τιτλοποίησης στην Ευρώπη και στον τρόπο με τον οποίο αναπτύχθηκαν με την πάροδο του χρόνου. Έμφαση δίνεται στην υπάρχουσα βιβλιογραφία όσο αφορά την αγορά που επικεντρώνεται, την περίοδο και τα κυριόταιρα αποτελέσματα που εξάγονται από αυτήν. Τέλος, γίνεται μια προσπάθεια κατανόησης της αποτυχίας εφαρμογής της τιτλοποίησης και τους πιθανούς τρόπους για να αποφευχθούν παρόμοιες αρνητικές καταστάσεις στο μέλλον.

Acknowledgements

Firstly, I would like to thank my supervisor Prof. Emmanuel Mamatzakis for his guidance, encouragement, and valuable suggestions during this research work.

I would like to thank my family and friends for their support and understanding during the project. They have given me the confidence, encouragement, hope and support over the years to allow me to push my boundaries and achieve my goals. Finally, I would like to thank my wife, Maria for always being there for me.

Nicosia, May 2020

Dimitris Koukounis

Dedication

To my daughter, Eleni.

Contents

Chapter 1
Introduction

Securitization is a financial invention which involves the issuance of securities that drive their cash flow from underlying assets (Cetorelli & Peristiani, 2012). The process of transforming various illiquid assets into tradable securities which are then sold on to a range of investors is what is called bank asset securitization. This technique claimed to be one of the biggest financial innovations of the last century (McConnell & Buser, 2011). Banks can use this financial innovation to fund asset growth and alter their capital structures with securitizations substituting for more traditional liabilities such as bank deposits.

The first securitization transaction can be found back in the 70s when then process was used by the United States of America. During that time, the U.S. Department of Housing and Urban Development performed the first asset securitization by issuing bonds of mortgage -backed security. Later, in 1985, the technique of securitization was developed to be used for a new type of loans such as auto-loans. Since, auto-loans are short term and with a lower repayment period, investors showed a higher interest in securitization.

The securitization process reached Europe during the late 80s in the United Kingdom. Even though it reached Europe, it was not developed until the beginning of 2000. In this thesis, the topic of securitization is discussed and analyzed. The main aim is to describe the securitization environment in Europe, analyze short-term and long-term effects of securitization on bank risk.

The first chapter introduces the term of securitization as well as the advantages and disadvantages of this financial tool. The second chapter describes the steps and parties participate in the process of securitization while in the third chapter the European securitization issuance is presented. In the fourth chapter, an extensive literature review is depicted. The fifth chapter is focusing on the authors personal opinion regarding asset securitization and what possible measures should be taken to avoid and discourage firms from fraud and overuse of securitization. The last chapter is a conclusion of this work, summarizing the previous chapters along with the main outcomes and recommendations.

1.1. What is Securitization?

Traditionally, bank lending was about extending loans, holding them until the maturity and monitoring of borrowers' performance during the process. Securitization has significantly changed the role of banks since they are now acting as intermediaries between borrowers and depositors. This transformation enabled banks to off-load part of credit exposure to outside investors and raise new funds to increase their lending capabilities further. Thus, securitization contributes to the so called shadow-banking model of financial intermediation (Pozsar, et al., 2010) which decomposes the simple process of deposit-funded, hold-to-maturity lending conducted by banks into a more complex, wholesale-funded, securitization-based lending process that involves a range of shadow banks.

What type of assets can be securitized? Almost every asset can be securitized, if it has a reasonable predictable stream of future cash flows. The assets easiest to securitize are those that occur in large pools, have a long history which can be used to predict default rates, have a standardized documentation and where the ownership of the assets is transferable. Residential mortgages are the most common securitized asset.

The development of securitization reached a dramatic increase before the global financial crisis of 2008. In 2006, the volume of issued asset-backed securities amounted to about 4 trillion dollars in the U.S. and the European Union. The bursting of housing bubble in the US and the collapse of the subprime mortgage market initiated the most severe global financial crisis since 1929. Until the end of 2009, several banks in both continents had to heavily recapitalized with taxpayers' funds, massive incentive packages were put in place to avoid a repeat of the Great Depression and strong demands were heard for regulatory reform of the financial industry. The 2008 financial crisis led to the collapse of the entire banking system, plummet the stock market and caused a long period of recession. The effect of the financial crisis was global, and a large number of researchers focused on understanding the potential cause of the financial crisis, with many of them blaming securitization.

1.2. Advantages and Disadvantages of Securitization

The securitization process has several benefits not only for the originator but also the investor, the market and the society in general. Some of the most important benefits are the following:

1. Improves the liquidity of the bank by turning illiquid loans into marketable securities.
2. The process of securitization may help to improve the balance sheet of the issuer. If it is allowed by the accounting rules, the issuer will gain the financial benefit to fund itself while the securitized asset will not appear on the balance sheet. The funds can be used to pay the obligations of the issuer thus the issuer will have the potential and liquidity to fund new loans. At the same time the debt to equity ratio and the return on capital are improved.

   Example:

   We have a 10,000 auto loans with a balance of 100 million euros. If we held on to the auto loans we would take a loss every time there was a loss on an auto loan. The auto loans can be separated into two securities: Security A, has a balance of 90 million euros and Security B, has a balance of 10 million euros. Then, any losses on auto loans are allocated to Security B first. Thus, Security A is less risky. Furthermore, distributing the loans in different parts of the country, to different amounts and to different types of cars creates a more diversified pool of auto loans with less risk and more attractive to investors.

   The rating agencies like Standard & Poor or Moody's evaluate the collateral (auto loan in this case) and model the transaction by setting up levels which will result in a rating for the A securities. For this instance, let's assume the rate is BBB (grade for investment). These assets backed securities bonds are marketed and sold to investors in public and private markets. The investors determine the interest rate 'coupon' paid on the bonds. The collective payments made by consumers on the auto loans supplies the cash to pay the bond to investors while the car company gets cash, investors earn a return and get ongoing reports about the performance of the loans. At the same time, the company takes the cash and makes new loans to help sell more cars.

3. Transfer of the credit risk to a third party. Even though the bank has already lent a substantial amount to an individual, it can continue to lend to this person once the loan is securitized.

4. Securitization may reduce the banks' regulatory capital requirements.
5. Several classes of investors are involved in the securitization. The variety of securitized assets provides the opportunity to meet the needs of all types of investors. Securitization offers higher returns on investment than government issued securities.
6. The market in general benefits from the publicly available prices and information that are needed in order to improve the overall market practice. Securitization requires information to be publicly available which is useful in assessment and analyzing complicated trade actions (Levinson, 2014).
7. Since securitization can be used as a tool to achieve monetary policy goals and increase availability of funds that may fund more social programs. Real estate securitization is good example that can be used to pursue housing programs and as a result to provide affordable housing and enhance growth.

Securitization does not only have advantages but also disadvantages. Below are some of the most important drawbacks of securitization:

1. Usually, the best rated assets are the ones securitized first which leaves the originator with the lower rating assets in its capital. This lowers the quality of the originator.
2. Each securitization perform has its administrative, lawyer and assessment costs which sometimes makes securitization a high cost process. This, of course relies on the size of the originator and how it will affect it.
3. The main issue with securitization is the role of asymmetric information. Basically, banks rely on soft information to grant and manage loans. This information cannot be credibly transmitted to the market when loans are securitized. Thus, banks might lack incentives to screen borrowers at origination or to keep monitoring them once the lending has been securitized (Gorton & Pennacchi, 1995;0 Parlour & Plantin, 2007).

1.3. Securitization Categories

There are two main categories of securitization, such as cash securitization and synthetic securitization.

1. With cash securitization, the bank gathers a collection of loans or other assets and transfers loans to a special purpose company or vehicle (SPV) which has the necessary capital obtained

from independent investors. The SPV issues bonds which cover the transferred loan. The bank, by selling those bonds increases liquidity and lowers the issued loans. This category can be distinct in two new subcategories which come from the type of assets used by the bank, the traditional securitization and the securitization of bank loans to business.

a. Traditional securitization is related to bond issuance from a range of loans with expected and known future incomes, like residential loans. It contains a type of loans/mortgages referred as Mortgage-Backed Securities (MBS) and consist of three main types: Residential Mortgage-Backed Securities (RMBS), Commercial Mortgage-Backed Securities (CMBS) and Collateralized-Mortgage Obligations (CMO).
b. Securitization of business is related with mortgages which do not have a known long-term income and a continuous observation and management is necessary. These securitized assets are known as Collateralized-Debt Obligations (CDO) and are divided into two main categories, Collateralized-Loan Obligations (CLO) and Collateralized-Bond Obligations (CBO).

2. With synthetic securitization the transaction offers very similar outcomes as the cash securitization. The main difference is that the originator transfers the credit risks of a portfolio of on-balance sheet assets to another entity usually referred as the protection seller. In the case of synthetic securitization even though the risk is transferred, the actual ownership remains with the originator. In a few words, the securitized assets pool remains with the originator. The main objectives of this type of securitization is to diversify the finding sources, to reduce regulatory capital costs and to obtain economic and regulatory capital relief.

A more descriptive analysis of the types of receivables/assets that can securitized is presented on below:

- Residential mortgage-backed securities (RMBS) – secured by residential property.
- Commercial mortgage-backed securities (CMBS) – secured by commercial real estate (office buildings, shopping malls, etc.).
- Collateralized debt obligations (CDOs) – financial instruments that pool a group of assets.
    - Collateralized bond obligations (CBOs) – collection of low-grade corporate bonds.

- Collateralized loan obligations (CLOs) – pool of leveraged bank loans.
- Commercial real estate CDOs (CRE CDOs) – commercial real estate loans and bonds.

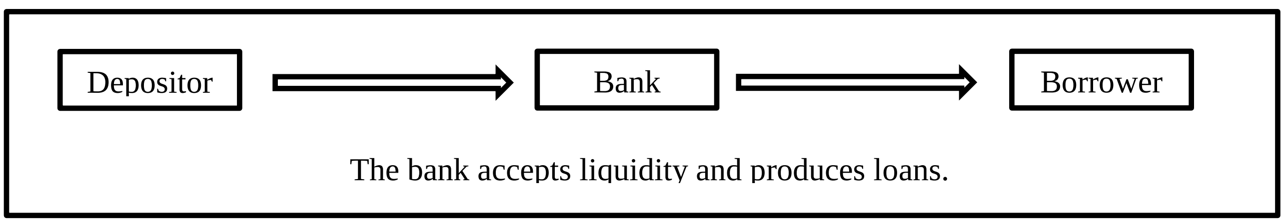
Chapter 2
Securitization Process

1.4. The key-players of the Securitization Process

1.4.1. The Issuer

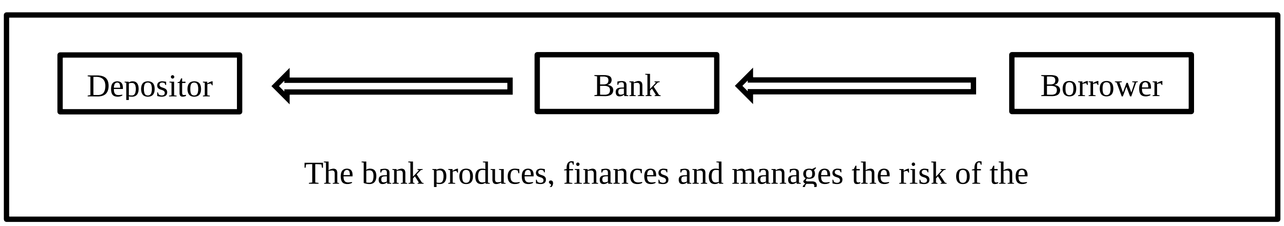
Issuers are one of the main players participating in this process. They are the originators that provide the loans to their customers and then wishes to obtain liquidity through the process of securitization. The traditional function of a commercial bank is to accept savings/deposits of people or companies and then provide to those in need of money the means to cover their needs.

Below is a simple diagram showing what has just been described.



The bank accepts liquidity and produces loans.

In that way banks obtain liquidity from the depositors and provide part of the available liquidity to customers requesting loans. The financial risk has different direction than that of liquidity. The following diagram depicts the flow of financial risk.



The bank produces, finances and manages the risk of the

The business running the whole process of securitization is the seller of the assets. Its aim is to transfer the risk that has gathered on its loan portfolio. This business might be a private or public company. This entity is usually a bank.

1.4.2. Special Purpose Vehicles (SPV)

These types of companies (vehicles) are created specifically for the explicit securitization or it may exist and adapted based on the purpose. The participation of the SPV to the securitization transaction is significant since it is the key player for the specific securitization transaction. Its main activities are limited and concentrated on the process of securitization of the asset without any further delays or actions which may provide the right to the lender to privilege anything. Moreover, the SPV has the necessary capital, tools and facilities for proceeding with its main purpose while being legally and financial independent from the selling company. This secures the safety of the investors from the seller company over the securitization assets. Since the SPV is completely independent and separated from the originator, the lender company provides the bank the right to remove the securitized asset from its balance sheet.

The main and only purpose of the SPV is to be the legal entity that will hold the securitized assets and will be able to guarantee for the issuing of bonds and provide the liquidity to the seller. Basically, the SPV is the issuer of the bonds with its main role concentrated on the securitization without accepting any interventions from anyone involved in the process.

1.4.3. Servicer

To complete the securitization as a process, the investors need to be paid with the total capital they invested along with the interest provided by the bonds. For this to happen, the process needs to continue without any interruptions. The flow of the payments of the securitized assets needs to have enough liquidity so that to satisfy the terms of the bonds. The portfolio of the assets provided needs to be handled with care so that the cash flows continue smoothly.

The regulation is a very significant process that needs to be adopted by a specialized company with its main purpose to be the overlooking of the portfolio and claim the necessary payments. The role of the servicer includes customer service and payments processing for the obligors in the securitized transaction and collecting payments based on the servicing agreement. Additionally, the service is expected to provide administrative assistance to the trustee.

There are several responsibilities related to the servicer such as:

a. Collect payments
b. Transfer payments to accounts managed by the trustee, and

c. Manage deposits and investments of the revenue streams.

1.4.4. The underwriter

Responsible for structuring the asset-backed security. The key role of this entity is to analyze the demands of the investor and design the structure of the security accordingly. Another important role of the underwriter is that of being in charge of the sales transaction, from the SPV to the investor. Underwriters makes money through the transaction as being the middle player; via buying at a lower price and selling to the investor along with a profit margin.

1.4.5. Credit Enhancer

The role of this entity is to provide guarantees to protect the investors if the cash flow is not enough to pay the required interest and principal. The credit enhancer is used to improve the credit rating and thus the pricing and marketability of the securities. Credit enhancers may be a letter of credit, cash collateral account or surety bonds. A letter of credit represents an unfunded commitment of assurances, providing protection against losses on the underlying assets. This letter of credit might also be provided by a third-party institution, thus an external party. A cash collateral account is a loan funded account provided by a third-party firm. This kind of account is usually used to cover short-term gaps in interest and other expenses.

1.4.6. Rating Agencies

The process of securitization is a very complicated and difficult to understand action for every investor possessing the available capital and wishes to invest so that to gain from the interest provided. To assist and assess independently the assets and the risks encapsulated with each securitized asset, the rating agencies come into the equation. So, the securities issued are assessed by a rating agency to allocate a rating to each one. Each investor requires a minimum rating of investment grade in order to proceed with the investment. Some of the most well-known rating agencies are Standard and Poor’s, Moody’s and Fitch. In order to assess the expected loss and risk of the securities they use their accumulated expertise, data, econometric models and modeling skills. The responsibility of the rating agency is to study thoroughly the available data of the asset and to assess the general environment that the securitization is taken place so that to publish a grade of the security.

The rating scale of Moody's is given below:

Aaa	Highest quality and minimal risk
Aa	High quality and very low risk
A	Upper-medium-grade and subject to low credit risk
Baa	Moderate credit risk and may possess speculative characteristics
Ba	Speculative elements and substantial credit risk
B	Speculative and subject to high credit risk
Caa	Poor standing and very high risk
Ca	Highly speculative
C	Lowest rated class of bonds, little prospect for recovery of principal and interest

The rating agency with its study, clarifies to likely investors the potential of each available securitized asset. Thus, making easy to compare during investment since they have the same grading scale. It is remarkable to say that, the rating agencies keep monitor the grade of the assets during its lifespan in order to be able to re-assess the rating of the asset. The rating agency might upgrade or downgrade the grade of an asset accordingly.

1.4.7. Borrower/Obligor

The borrowers do not participate in the securitization process based on their own will, but they are a significant part of it. Based on the contractual agreement they are committed to make the required payments. Thus, the quality and rating of the securitized asset depends on the ability of this party to fulfill its contractual obligations. Possible inability of the obligor to fulfill its obligations may be covered through securitization but this will have an additional cost.

1.4.8. The Investor

The investors are those who initialize and finance the whole procedure. They are the direct borrower in order to get the required liquidity. In brief, the whole process of securitization and the difficulties occurred during the preparation is to protect the investor. Typical investors taking part in securitized investments are institutional investors, insurance companies, investment firms and banks.

1.5. Securitization Procedure

Until now, the main parties taking part in securitization have been described. A brief analysis of all the parties and a diagram is shown as follows (Cetorelli & Peristiani, 2012):

The issuer brings the collateral assets of the asset-backed security (ABS). The issuers might be the banks, finance companies and mortgage companies that are interested to sell their assets.

1. The assets are then sold to an external legal entity which is frequently referred as special-purpose vehicle (SPV). Basically, the SPV buys the assets from the issuer.
2. SPV usually transfer the assets to another special purpose entity – a trust – that issues the security shares.
3. The party responsible for processing the payments and interacting with borrowers is called the servicer. In addition, the servicer is responsible for interacting with the borrowers, implementing the collection measures and if needed liquidating the collateral in the event of default.
4. The trustee is another entity involved in the process. This entity is an independent firm with the responsibility for managing the SPV and representing the rights of the investor. The main role of the trustee is to collect information from the servicer and the issuer to validate the performance of the collateral and to disperse payments to investors.
5. Next is the underwriter whose main responsibility is to analyze investor's demand and design the structure of the security tranches accordingly.
6. Rating agencies and underwriter are working closely to design the tranche structure of the SPV to accommodate investors' risk preference.
7. The securities are typically separated in three main categories as follows:
   a. AAA -senior tranches
   b. Subordinate tranches with a rating below AAA
   c. Unrated residual equity tranche.
8. In order to further protect investors from default and other risks, numerous ancillary enhancements are set.

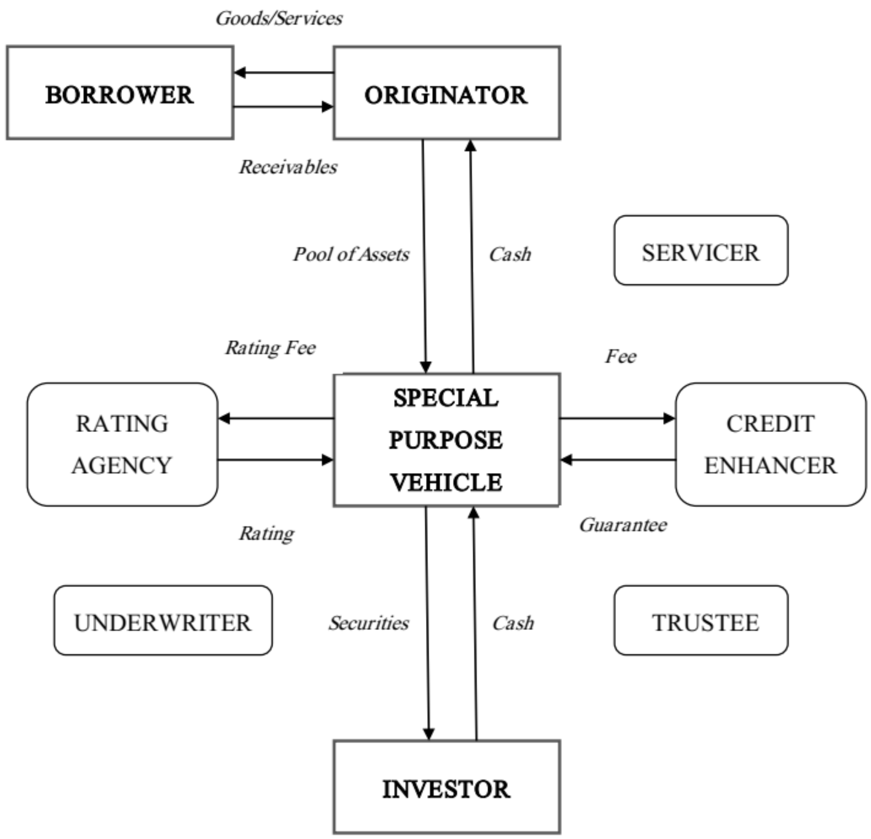


Figure 1: Securitization Transaction (Sarkisyan, 2011)

2.3. Securitization and the Global Financial Crisis

Until now, the advantages and disadvantages of securitization were described and explained in detail and securitization seems to be a quiet useful technique for both the issuer and the investor. With the use of securitization, the cash flow from a pool of illiquid assets was turning into tradable bands and liquidity was obtained promising to make the financial system better diversified and more resilient. Bankers did not have to hold onto and support any loan they provided until it reaches its maturity, since securitization allowed them to transfer the risk and move it beyond the traditional geographical areas that the lender had been operating.

The main issue with securitization is that when the loan moved away from the originator, the incentives which control and monitor the health of the loan were lowered and undermined. The problematic loans were not an issue related to the originator anymore but to someone further down the transaction chain. At the same time the demand for highly rated tranches strengthened and securitization became lees transparent and more complicated (Caprio, et al., 2010). There are other factors affected the securitization market but were ignored by the lenders. The increase in loans interest rates and the increasing cost of living led debtors to face serious difficulties on repaying their loans. The delayed payments caused liquidity issues to many banks and at that stage securitization was blamed for the crisis.

Until 2008, securitization issuance was increasing at a very high rate. Then, the global financial crisis affected the securitized market dramatically. The asset back securities issuance dropped to more than 50% in Europe and about 70% in the USA (SIFMA, 2019). The total decline sums up to more than 1 trillion euros. Even though securitized was affected in such extend by the global financial crisis, it is commonly accepted that securitized products and its derivatives are valuable tools for banks and other financial organizations (Norden, et al., 2011). The benefits are numerous as previously described in this thesis. They allow financial institutes to enhance diversification and liquidity, share the risk and increase their maneuverability.

Chapter 3
Securitization in EU

Asset securitization as a finance technique founds its origins in the USA during the late 1980s (Baums, 1996). During that time the use of securitization in Europe was limited. This may be due to lack of economic incentives and remaining regulatory or legal incentives (Baums, 1996). Securitization during the 1980s mainly focused on assets-backed securities in the USA and residential mortgage-backed securities in the UK. The situation changed during the next decade. The USA was issuing securitized commercial real estate assets while in Europe there was a development of the assets-backed securities and the mortgage-backed-securities (Segoviano, et al., 2013).

If we observe the European Securitization Issuance from Table 1, we can see that from 2001 onwards there is an increase reaching the peak in 2008 with a total rise of 500% in just 7 years. After that, there was a 50% decrease from 2008 to 2009 and since then a declining path was followed until 2015. The recent financial crisis began from the USA and the securitization of residential mortgages of subprime evaluation. The main characteristic of the market during that period was the loss of investment trust which caused the closing of the market and the dramatic increase of the interest rates.

In the next few years, securitization in Europe evolved dramatically, reaching its peak during 2008 (see Figure 3). During the early 2000s, securitization was used to transfer risk and raise funding from several types of securities such as auto-loans, infrastructure and credit cards, small medium-sized enterprise loans, commercial and residential mortgages and collateralized debt obligations (Aalberts, 2009). As it was expected, securitization enhanced the efficiency of financial institutions but at the same time overexposed them to global liquidity risks as part of the global financial crisis (Aalberts, 2009).

Following that enormous increase in 2008 where securitization issuance exceeded 800 billion euros, a sudden drop to almost half of that in 2008 occurred during 2009. This sudden dropped was attributed to the global financial crisis (Wainwright, 2015). From there on up to 2011 a stable situation was observed with securitization issuance stabilizing around 400 billion Euros. Then a 2-year dropped followed, reaching the minimum in 2013 with less than 200 billion Euros in securitization issuance. Regardless of the blame that securitization had a significant role in the global financial crisis, the Bank of England and EU began a consultation in 2014 to examine the use of securitization in stimulating and unlocking additional liquidity to enhance economic growth (Bank of England and European Central Bank, 2014). From there on, securitized issuance was stabilized around 200 billion Euros with a slight increase in 2018. For 2019, only information for the 1st and 2nd quarters are available.

Europe Securitisation Issuance
USD Millions

Year	Belgium	France	Germany	Greece	Ireland	Italy	Netherlands	Portugal	Spain	United Kingdom	Total
1985										55.55	55.55
1986											0.00
1987										1,010.62	1,010.62
1988										5,635.07	5,635.07
1989										3,012.04	3,012.04
1990										3,862.96	3,862.96
1991										5,771.03	5,771.03
1992										1,376.94	1,762.84
1993		561.03		140.00					98.55	3,449.97	4,449.97
1994		3,268.74				402.00			621.03	4,097.57	9,253.22
1995		2,321.99	96.32		482.17	470.00		336.24	391.53	1,843.24	6,600.41
1996	718.96	10,314.13	666.05			560.00	303.62		2,136.45	9,290.19	25,097.89
1997	1,544.83	3,696.21				557.56	1,693.44		868.06	16,809.00	25,632.23
1998	1,796.63	3,772.53	5,776.85		583.60	1,152.32	1,878.05	244.44	3,301.71	10,894.81	34,276.40
1999	821.58	6,487.34	13,281.95		1,213.93	8,514.62	6,064.43	1,111.69	7,095.42	25,046.93	74,342.50
2000	213.55	2,942.14	5,103.10	1,194.27	1,538.63	9,898.53	5,583.38	419.70	7,319.19	35,532.94	85,998.78
2001	153.52	4,295.86	3,299.56	316.20	1,620.89	30,006.25	13,773.18	2,355.65	6,601.04	43,267.88	138,364.02
2002		5,292.93	7,271.46			28,946.96	19,750.05	3,564.92	14,964.14	51,454.84	150,499.19
2003	2,778.10	7,409.38	7,797.85	423.04	2,138.90	35,948.83	28,496.66	13,039.20	28,524.63	90,000.70	245,775.56
2004	2,482.51	7,787.43	8,555.59	921.53		45,274.83	22,443.50	9,576.12	40,064.24	122,765.84	304,851.93
2005	586.10	4,289.29	27,809.36	2,770.65	2,042.95	39,678.80	48,608.14	9,127.54	52,325.79	165,289.54	421,465.25
2006	2,943.66	9,029.52	46,972.95	7,315.67	13,646.15	43,542.21	51,747.80	7,942.57	86,493.15	231,650.60	606,718.94
2007	5,715.55	7,800.80	27,870.90	7,488.24	21,132.32	48,497.62	137,461.20	12,194.57	170,667.57	252,422.41	819,887.60
2008	49,911.96	19,467.50	151,266.50	18,937.43	50,876.46	138,313.03	106,168.22	20,784.62	145,171.91	397,228.43	1,209,250.57
2009	38,807.19	9,605.43	23,398.49	30,363.67	35,589.83	96,943.02	61,529.45	14,384.40	88,595.26	125,307.47	589,682.33
2010	18,201.38	5,631.05	18,164.42	1,295.28	8,745.23	22,295.82	189,010.65	22,710.55	72,417.44	135,695.73	502,814.77
2011	25,242.83	15,349.95	17,900.06	8,760.87		70,403.56	118,386.90	14,610.91	85,336.04	140,423.40	514,052.38
2012	19,385.07	18,974.79	13,313.90	2,549.99	1,549.80	80,987.96	62,588.46	1,852.32	23,755.55	101,244.93	331,545.13
2013	2,648.63	13,263.60	28,991.09		1,372.12	35,553.42	52,180.60	4,425.39	36,625.57	44,515.03	239,677.10
2014	5,673.39	68,212.32	24,436.31	314.50	2,598.08	26,424.25	33,937.66	3,840.31	35,202.34	64,728.63	288,701.76
2015	1,361.42	19,064.57	50,070.24		708.24	36,712.70	23,632.38	5,411.08	28,873.92	50,570.43	239,088.13
2016	4,127.59	23,368.55	19,564.58	1,413.39	5,013.08	45,821.53	37,364.97	1,433.90	37,367.69	61,145.16	501,637.73
2017	13,386.87	41,722.33	14,862.87		5,072.49	34,784.28	17,701.76	1,311.33	30,563.61	52,884.06	267,564.56
2010	18,201.38	5,631.05	18,164.42	1,295.28	8,745.23	22,295.82	189,010.65	22,710.55	72,417.44	135,695.73	502,814.77
2011	25,242.83	15,349.95	17,900.06	8,760.87	0.00	70,403.56	118,386.90	14,610.91	85,336.04	140,423.40	514,052.38
2012	19,385.07	18,974.79	13,313.90	2,549.99	1,549.80	80,987.96	62,588.46	1,852.32	23,755.55	101,244.93	331,545.13
2013	2,648.63	13,263.60	28,991.09	0.00	1,372.12	35,553.42	52,180.60	4,425.39	36,625.57	44,515.03	239,677.10
2014	5,673.39	68,212.32	24,436.31	314.50	2,598.08	26,424.25	33,937.66	3,840.31	35,202.34	64,728.63	288,701.76
2015	1,361.42	19,064.57	50,070.24	0.00	708.24	36,712.70	23,632.38	5,411.08	28,873.92	50,570.43	239,088.13
2016	4,127.59	23,368.55	19,564.58	1,413.39	5,013.08	45,821.53	37,364.97	1,433.90	37,367.69	61,145.16	265,069.79
2017	13,386.87	41,722.33	14,862.87	0.00	5,072.49	34,784.28	17,701.76	1,311.33	30,563.61	52,884.06	267,564.56
2018	10,838.33	23,216.44	15,012.94	117.59	16,865.84	55,160.15	37,042.45	3,644.52	14,963.82	68,611.61	316,252.52

Table 1: Europe Securitization Issuance

After the global financial crisis and its immediate effects to banks and non-banks, the Bank of England and the European Central Bank published a discussion paper in 2014 in order to examine the potential benefits of securitization and outline various obstacles that may prevent the emergence of a robust securitization market (Bank of England and European Central Bank, 2014). Furthermore, the paper presents possible policy options that authorities could consider. As per the discussion paper the barrier to a well-functioning securitization market in the EU are the following:

Impediments to investors

a. Long-term investors may face increased capital requirements that could discourage investment in the future especially for smaller organizations.
b. Liquidity and capital requirements remain uncertain as for regulations which may affect the willingness to participate in the market.

Figure 3 depicts a graphical representation of the historical securitization issuance in Europe from 2000 up to the second quarter of 2019. There is a steady increase from 2000 until 2008, where securitization reached its peak. Some more interesting information is observed in Figure 4, where a breakdown of the asset types is displayed.

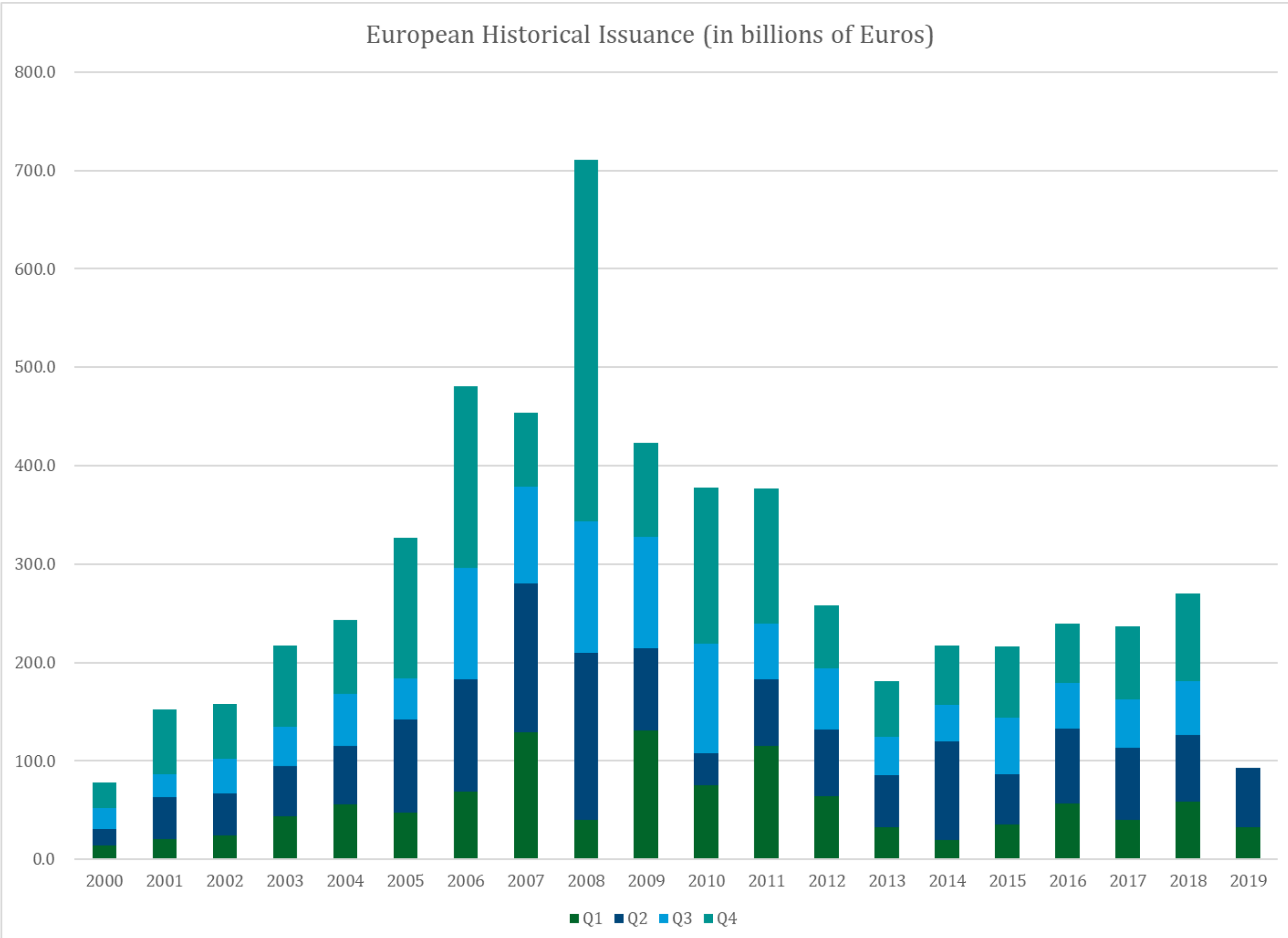


Figure 2. European Historical Issuance (source: AFME)

In EU, many countries are active in terms of securitization deals. Table 1 displays a graphical representation of the most active EU countries. UK leads the race with the highest securitization deals while France, Italy and Spain are following. If the available data of this year is observed, France has the lead in the amount of issuance of securitization deals. Based on the type of assets, residential mortgage backed securities (RMBS) are the most famous securitized transactions while asset backed securities (ABS), collateralized debt or loan obligation (CDO/CLO) are following. If someone compares the available data based on the type of securitized assets, since 2012, RMBS is leading followed by CDO/CLO while in the third place is SME.

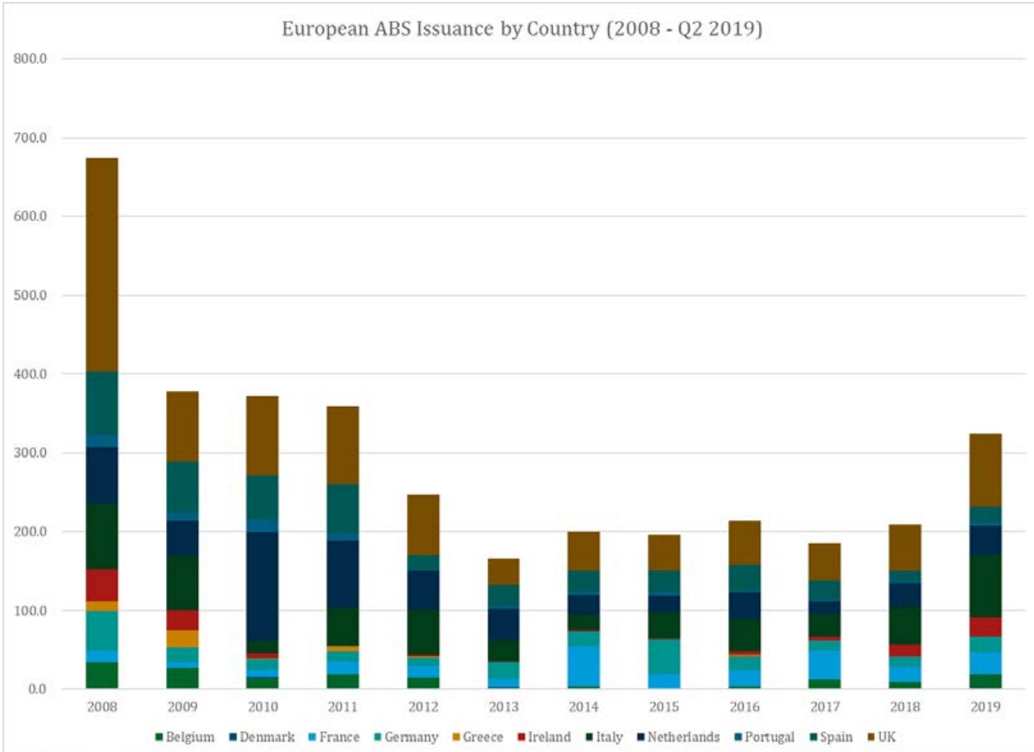


Figure 3: European ABS Issuance by Country

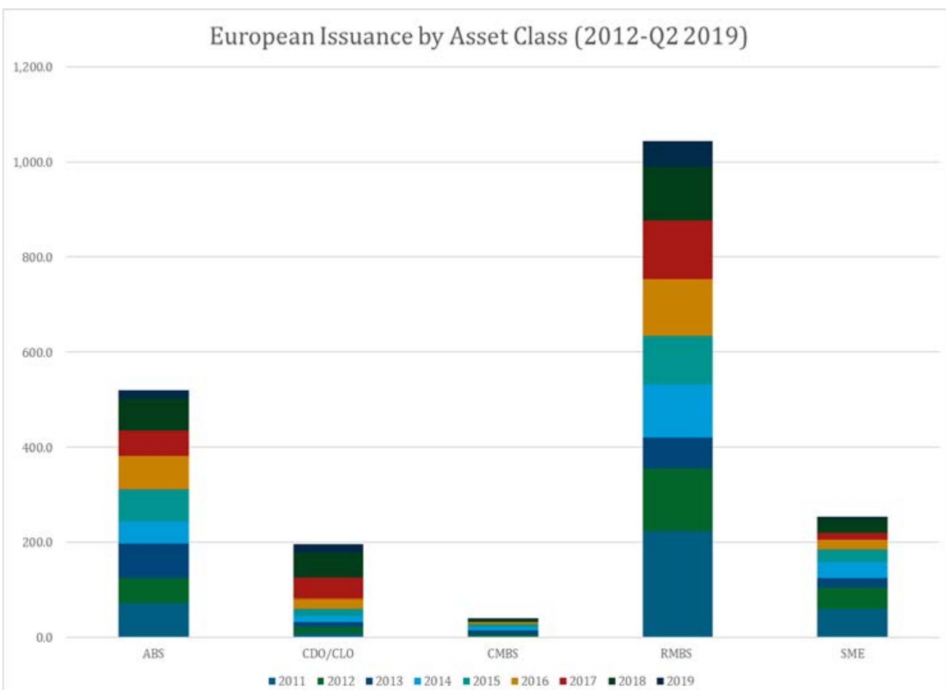


Figure 4: European Issuance by Asset Class

Chapter 4
Literature Review

In this chapter, a thorough review of the existing literature on securitization is presented. This will provide an overall examination of how securitization influences bank behavior and how it affects financial stability. The following section aims to provide existing literature not only for securitization as a tool but also provides its implications, effects on the banks and the market, factors that affect the securitization activities and the issues that may occur during the securitization.

Iglesias-Casal, et al. (2020) analyzes a sample of 535 securitization activities issued by 63 European banks for the period 2000 to 2017. Their analysis showed that securitization caused an increase on the banks' systemic risk during 2000 to 2007 while the systemic risk did not increase after that period. As it was expected, after the financial crisis, systemic risk was at the lowest levels and increased linearly from there onwards. Another significant finding is that during the pre-crisis period the bank's systemic risk increases because of the increase of individual bank risk. This was observed when the securitization was based on mortgage collateral. Moreover, they exploited the differences between countries in terms of legal and regulations matters in relation to securitization. The securitized Italian market kept its traditional usage of securitization. On the other hand, Spanish banks retained riskier tranches on their balance sheets. Instead of using funds obtained from securitization activities to diversify their portfolios, they reinvested in products that did not offer that. In the UK, despite having an increase in systematic risk, the risk was not transferred to the market.

Similar findings were reported by Deku, et al. (2019) that surveyed empirical literature on securitization to examine how this innovation affected banks' behavior and its implications on financial stability. They elaborated a systematic literature review (SLR) that follows a structure process to survey the literature. The authors classified the literature in three main areas. The first area of investigation was the drivers of securitization to explore the ex-ante determinants of banks' decision to securitize assets. Then they explored the effects of securitization on banks' financial performance and risk. Finally, they examined the impact of securitization on bank lending behavior. Their research findings indicated that prior to the financial crisis, banks with higher credit and market risk were more likely to securitize assets. In order to obtain capital relief, banks became riskier and increased systemic risk since they took advantage of securitization. Another significant conclusion of this paper is that even if Europe is one of the largest securitization markets, there is lack of evidence in relation to securitization and European banks' lending behavioral.

Significant findings were reported in the paper published by (Kara, et al., 2019). The authors examined the period from 2005 to 2007 with a sample including 4,652 loans in Europe, and 1,795 of those loans were securitized. More particularly, they examined the relative performance of the corporate borrowers who had loans securitized in Europe before the financial crisis. Banks did not choose to securitize loans with lower quality borrowers to outsiders. As mentioned, the credit quality of the securitized borrowers deteriorated significantly over time in comparison to the control group. This was due to the weakening monitoring measures applied by banks once they securitized a loan. Uncollateralized borrowers show the worse performance.

Weak monitoring measures may be attributed to several reasons. One of those reasons may be the rating favors provided by rating agencies (Efing & Hau, 2015). Efing & Hau, 2015 examined if issuers of asset and mortgage backed securities receive rating favors from agencies. To do this they investigated both the US and the EU market from 1991 to 2011. The required information was extracted from all asset-backed and mortgage-backed securities that were issued in Europe and North America for the period under examination. Their sample was consisted of 7,255 deals from 949 different issuers. The conclusion of this paper is that accurate credit ratings reduce informational asymmetries whereas relative rating favors corrupt their information content and can distort the creation and allocation of credit risk. The favored ratings were related to strong client relationship with the issuer.

Bakoush, et al., 2019 analyzed the impact of bank risk, cost of funding, liquidity and regulatory capital on the relationship between securitization and bank profitability. The paper tests the hypothesis that the four channels mentioned in Figure 5 work as transmission channels between securitization and bank profitability. The data sample used by the authors was obtained from the Federal Financial Institutions Examination Council (FFIEC). Through this study, the authors concluded that securitization activities tend to boost profitability while the factors mentioned earlier act as transmission channels in the securitization-profitability relationship. The authors found out that securitization is related to higher bank risk and cost of funding which may affect negatively the bank stability.

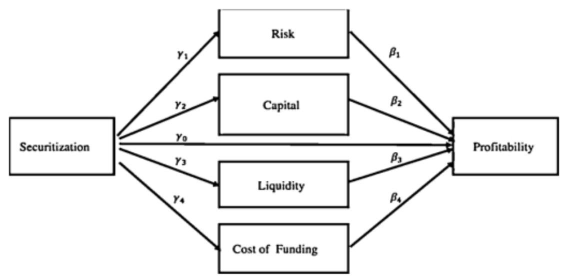


Figure 5: The impact of securitization on bank profitability and the four transmission channels: bank risk, cost of funding, liquidity and regulatory (Bakoush, et al., 2019)

A worth noting paper from Battaglia, et al., 2018 covered significant scientific gaps. The first statement that triggered their research was whether securitization activity decreases the originators' risk. While the second was about the relationship between securitization and risk which may differ among high and low-risk securitizations. Following an analysis of 7,096 securitization deals made by large European listed banks during the period of 2000 and 2017 they found that the bank enjoys the benefit of risk reduction during the year the bank securitizes, but the next year there is an increase on the risk. The effect on the risk differs from high to low-risk deals. For high risk securitizations the analysis showed that banks may securitize opaque assets, since they expected an increase in crash risk. For the low risk securitizations, they found a concurrent risk reduction and an increase in risk as an aftershock.

Chen, et al. (2017) examined the US market with the use of a sample of US commercial banks for the period of 2002 to 2012. They showed that bank loan securitization has an impact on the likelihood of bank failure, while there is a short-term risk reduction the long-term risk increase. The sample used for this study consisted of 342 banks with securitized portfolio and 8,483 banks without.

An attempt to examine the impact of religiosity and ownership structure on the risk profile of securitized banks was carried out by Abdelsalam, et al. (2017). They used a sample of 672 commercial banks from 22 different countries for the period of 2003 to 2012. Their analysis showed that banks with higher securitization activity is related to higher bank risk. This paper used data from Islamic banks since it was expected that due to religious, those banks, might have a more conservative behavior in respect to risk exposure. As expected, Islamic banks kept higher loan loss reserves to gross loans ratio and higher ratio of liquid assets to total deposit ratios. They found out that, even if Islamic banks followed a more conservative approach, higher securitized activity resulted to higher risk exposure.

In the paper of Wu, et al. (2011) the authors examined the period between 2002 and 2007. They determined the effects of securitization on the market's perception regarding the risk exposure of the banks. With the use of an empirical framework, the effect of asset securitization on bank's risk was investigated. The data used in this paper consisted of 143 bank holding companies of US and it was obtained from Bloomberg and CRSP. Through the data analysis, they concluded that securitization reduces banks' exposure to systemic risk. Moreover, there are no evidence of increasing idiosyncratic risk. Another outcome of this paper is that larger banks have higher systemic risk and lower idiosyncratic risk.

While Van Vo & Le, (2016) examined a period from 2001 to 2012, which overlaps the previous paper (Wu, et al., 2011), their outcomes do not agree completely. In their publication, the two authors used sample of 2835 unique bank holding companies. To analyze the available data and assess the credit risk, the authors focused on three balanced sheet ratios, such as nonperforming loan ratios to total loans, net charge-offs to total assets and loan and lease loss provisions to total assets. The results of this research showed that prior to the 2007-2009 crisis, the banks risk was increased because of securitization. On the other hand, after the crisis, there are no evidence indicating any increase on bank risk. This difference is contributed to the fact that the economic crisis and its consequences along with the new rules, have diminished the incentives for the banks to engage in risk taking via securitization.

Three significant indicators of fraud in securitized nonagency examined by Griffin & Maturana, (2016), unreported second liens, owner occupancy misreporting and appraisal overstatements. A huge data set of US residential mortgages was used covering the period between January 2002 and

December 2011. A second lien allows the borrower to take additional debt while providing the borrower less incentive to repay the loans and making the initial debt riskier. The second factor mentioned as ‘Occupancy misreporting’ which refers to the fact that a borrower who owns and occupies a property is less likely to default than borrowers who do not occupy the property. This enables the originator to charge lower interest rates and require smaller down payments for owner occupants. The third factor, appraisal overstatement refers to the situation where the appraiser gives an inflated appraised value for the property and the borrower can secure a larger loan. If the inflated appraisal value differs a lot from the fair value, the borrower can obtain a monetary gain at the expense of the lender. Though out the data set, the authors found out that almost 50% of the loans exhibit at least one misreporting indicator.

The paper of Bonaccorsi di Patti & Sette, (2016) examined the crisis period 2007-2008 in Italy and investigated the impact of securitization on bank behavior during that period. The sample used in this paper consists of 527 banks based in Italy. The main finding is that banks that use securitization tightened credit supply and increased lending rates during that period. This is also related to lower credit growth, higher interest rates and lower rate of loan application acceptance.

The determinants of loan securitization in European banking are examined by Farrugio & Uhde, (2015). To determine what triggers loan securitization in Europe, the authors analyzed 75 securitizing and non-securitizing stock-listed banks in the EU-13 and Switzerland. Based on their analysis, they concluded that securitization in Europe is trigged by two main factors, such as bank-specific and market-and-country specific determinants. In relation to the first determinant, the authors found that larger banks facing lower exposure to credit risk and higher performance were more likely to enter the securitization market prior to the financial crisis. As for the market-and-country-specific determinants, the paper mentioned that European banks with severer competition and higher economic growth are more likely to be involved in the securitization business during the crisis period.

The paper belongs to Marques-Ibanez, et al. (2014) examined extensively the 2007-2009 crisis by using 495 observation from both the EU. The main finding of their research is that the increased use of securitization activity in the banking sector before the crisis enlarged the effect of competition on realized bank risk. The competition was intense and initiated greater use of securitization as well as higher levels of risk.

Another study owned by Krainer & Laderman, (2014) focuses on the US residential mortgage market. They used a sample of more than 1.6 million first-lien loans for the period of 2000 to 2007. During the period of interest, the lenders securitized loans that have a higher degree of risk in comparison to the loans retained in their own portfolios. This emphasizes the fact that indeed, originators seek to securitize riskier loans in an attempt to shed risks costly to hold on their balance sheets.

Banks with greater risk exposure, worse performance measures and low liquidity are more possible to securitize. This situation was observed in the US as mentioned by Casu, et al. (2013), where banks that had a tendency to securitize were more profitable institutions with more diversified structure. On the other hand, those banks had higher funding risks and higher credit risk exposure since they tended to hold larger and less diversified loan portfolios ending up with less liquidity, less capital and show lower loan growth in relation to non-securitized banks. To obtain those conclusions, the authors used univariate analysis on US commercial bank data from 2001 to 2008. Additionally, they examined the impact of securitization on bank performance by determining what would have happened to securitizing banks if they did not securitize. They used PSM which provided them with the tool to compare the performance of first time securitizers with banks that had the opportunity to securitize but they did not. They examined 8 performance indicators which include cost funding, credit risk, profitability, interest income and expense structure, liquidity, loan portfolio, capital and growth. Through their study, they found no evidence that securitization had significant effect on any of the 8 performance indicators.

Securitization activities are not only affecting large business but also private small enterprises. The impact of loan securitization on entrepreneurial activity in the U.S. investigated by Baradwaj, et al. (2015). The specific study showed that there is a relationship between securitization and the lending strategy for small business. Moreover, they showed that entrepreneurship development can benefit from securitization activities. As securitization provides liquidity, the lending supply for non-small business loans increases.

A unique sample of 749 cash and synthetic securitization transactions from 60 bank holding in the EU and Switzerland is used to provide evidence and support the opinion of the authors that credit risk securitization has a negative impact on the issuing banks' financial soundness (Michalak & Uhde, 2011). The period under examination was from 1997 to 2007. The main finding of this paper is that credit risk securitization has a negative impact on European stock-listed banks' financial soundness. In addition, securitization increases bank risk.

Another interesting article (Loutskina, 2011) examines the role of securitization in bank management. As mentioned in this paper, by allowing banks to convert illiquid loans to liquid funds, increases their lending ability and reduces banks' holdings of liquid securities. Additionally, securitization provides banks the ability to increase funding and make banks' lending less sensitive to cost of funds stocks. The author mentions that securitization weakens the ability of the monetary authority to affect banks' lending activity but increases the exposure to liquidity and funding crisis when there is a decrease on the securitization market.

The case of Spain is well investigated and well presented by Carbó-Valverde, et al. (2011). By using more than 20,000 observations on securities and rating changes, they examined the period from 2000 to 2010. Their research findings suggest that loan growth significantly affects loan performance with a lag of at least two years. As a result, the on balance-sheet bank loan performance explains the rating changes of securitized assets with a lag of about a year. This indicates a significant lag before reassessing the securitized assets.

A very interesting article examining both sides of the Atlantic, the Euro-area and the U.S. bank lending standards (Maddaloni & Peydro, 2010). For their investigation, they used the answers from the bank lending surveys, while for the Euro-area covers banks from 12 countries. In their investigation they employed several macro and financial variables like short-term rates, long-term interest rates, GDP growth, inflation and securitization. The findings of this study are that prior to the financial crisis, the short-term rates were low and soften the lending standards. Additionally, there was an increase on the securitization activity resulting to an increase of risk on banks' assets.

Another paper highlighting that securitized banks were riskier and were facing issues with capital, profit and liquidity funds and their portfolios were more likely to have troubled loans (Affinito & Tagliaferri, 2010). The data used covers the Italian market for the period from 2000 to 2006. Riskier banks were more likely to securitized more and earlier. Also, larger, more diversified and previously securitized banks were engaged in securitization activities.

The role of financial regulation in securitization is examined thoroughly in Keys, et al. (2009). As someone may expect that more regulated lenders should originate better quality loans, but this is not the case. They found that banks originated lower quality loans in comparison to less regulated independent mortgage institutions. Since the external regulations did not have the expected effect on loans' performance, the authors examined if moral hazards were initiated by internal incentives. No relationship between the incentives of the top management and the loan's quality is reported. Low default loans were associated with the relative power of the risk management. This was attributed to the fact that the moral hazard problem is less severe for lenders in which the risk movement department has greater bargaining power within the firm. The more the lenders the better loan quality, suggesting that higher competition among the participants can improve the relative performance evaluation and mitigate the moral hazard problem. Moreover, the authors suggested that the right incentives for the originators may help to attenuate the moral hazard problem. This may happen if originators were required to hold some risk.

An attempt to question the well know benefits of securitization and the real motives for banks increasing securitization activities are presented in Sarkisyan, et al. (2009). For their analysis, data from 2001 to 2008 of U.S. commercial banks is used. The first important finding is that banks with securitization activities in the portfolios tend to be more profitable but with higher exposure to credit risk along with higher cost of funding. Following that, they check what would have happened to those banks if they have not securitized. The results showed a comparable cost of funding, credit risk and profitability to first-time securitizers. In addition, they mentioned that other funding, risk management and profitability improvement techniques used by other banks instead of securitization are not outperformed by securitization.

With a huge sample of data consisting of 1948 bank entries originated from 17 different countries Bannier & Hansel, (2007) analyze the influence of several factors on an institution's securitization decision. The required data was obtained from three different sources, the European Securitization Almanac by Deutsche Bank, the Quarterly CDO Deal List by Standard and Poor's and the European Securitization Deal List by Computershare Fixed Income Services Limited. Following a deep analysis of the obtained data, the authors found that when a bank is large, the credit risk exposure is high while the liquidity and performance are low. The main outcome of this study was that banks use loan securitization to transfer risk to the market and improve their liquidity.

To make the situation even more apparent, is good to see the paper published by Uzun & Webb, (2007). The authors examined and presented three important subjects by using a dataset of 112 US banks that securitize, 112 banks that did not participate in securitization for the period of 2001 to 2005. The three subjects presented are the following:

a) The differences between the banks that securitize and those that do not.
   Following the analysis of the information gathered, the results indicate that securitizing banks are larger than non-securitizing banks in relation to the total assets, the total equity capital and tier 1 capital. The total assets of banks that securitize are 5 times larger than the assets of banks that do not securitize.
b) The decision to securitize and what are the decision variables that drive a bank to securitization.
   As the results of their analysis indicate, the size is the most influential factor that drives banks to securitization.
c) The effects of securitization on banks.
   Firstly, they examined the effect of securitization on the bank's capital ratio and find out that securitization extend was negative. Thus, indicating that securitization and capital ratios were inversely related. Additionally, they showed that banks in the effort to change the risk profile, they increased risky assets in proportion to total assets when they securitized.
   Then, they moved one step forward by dividing securitization extend into separating variables based on type of securitized asset. No significant differences between the seven asset classes has been observed. Following a different approach, they found out that banks securitizing mortgages tend to have high capital ratios while holding all else constant.

The following table summarizes the existing literature presented on the above section. The papers are sorted in a descending chronological order with the period, region and level under examination in each paper. The main outcomes of each of the papers is presented in the last row of the table. As it can be observed, the global financial crisis of 2007-2009 is a point of interest, used as a turning point for securitization activities.

#	Authors, date	Period	Region	Level	Main Findings
1	(Iglesias-Casal, et al., 2020)	2000-2017	Europe	Bank	Positive impact of securitization on systemic risk of European banks during 2000-2007. The originators systemic risk was higher before the crisis in comparison with the risk during the crisis.
2	(Kara, et al., 2019)	2005-2007	Europe	Bank	Credit quality of the securitized borrowers deteriorated in comparison with the control group. Weak performance related to weak monitoring activities from banks after securitization.
3	(Bakoush, et al., 2019)	2001-2014	U.S.	Bank	Securitization activities are likely to improve bank profitability. Bank risk, cost of funding, liquidity and regulatory capital act as transmission channels to the securitization profitability relationship. Securitization is related to higher bank risk and cost of funding which may affect negatively the bank stability.
4	(Deku, et al., 2019)	2004-2018	U.S. and Europe	Bank	Banks were riskier before 2007-2009 financial crisis. Increase in systemic risk. Limited evidence for the post crisis period. Mortgage securitization led to deteriorated bank lending standards.
5	(Battaglia, et al., 2018)	2000-2017	Europe	Bank	Decreased bank risk in the year of securitization. Increase in the following year. During crisis period, the risk is

					not reduced with the same degree. High-risk securitizations – banks securitize opaque assets to increase crash risk.
6	(Chen, et al., 2017)	2002-2012	U.S.	Bank	Securitization activities cause short-term reduced risk but higher risk in the long-term. After the 2007-2009 crisis the economic impact of securitization is reduced.
7	(Abdelsalam, et al., 2017)	2003-2012	Africa - Asia	Bank	Higher securitization activity related to riskier profile banks which offer higher ratio of net loans to total assets. Even though Islamic banks followed a more conservative approach, higher securitized activity results to higher risk exposure.
8	(Van Vo & Le, 2016)	2001-2012	U.S.	Bank	Increase in banks risk prior to 2007-2009. After 2009 no evidence indicating any increase on bank risk. The consequences from the financial crisis and the new regulations have eliminate the incentives for risky securitization activities.
9	(Griffin & Maturana, 2016)	2002-2011	U.S.	Mortgage	Mortgage fraud as unreported second liens, owner occupancy and inflated appraisals between 2002 and 2007.
10	(Bonaccorsi di Patti & Sette, 2016)	2007-2008	Italy	Bank	The share of securitized loans before the crisis is related to the degree that banks tightened credit supply to nonfinancial firms. This is also related to lower credit growth, higher interest

					rates and lower rate of loan application acceptance.
11	(Farrugio & Uhde, 2015)	1997-2010	Europe	Bank	Larger banks facing lower exposure to credit risk and higher performance were more likely to enter the securitization market prior to the financial crisis. Competition increases securitization activity.
12	(Efing & Hau, 2015)	1999-2011	U.S. and Europe	Mortgage	Accurate credit ratings reduce informational asymmetries. Relative rating favors corrupt their information content and can distort the creation and allocation of credit risk. Ratings favors were provided by Rating Agencies to issuers that provide them with more bilateral securitization business.
13	(Baradwaj, et al., 2015)	2001-2010	U.S.	Bank	Securitization activities increases lending ability to small business. Small business benefits entrepreneurship.
14	(Marques-Ibanez, et al., 2014)	2007-2009	Europe	Bank	High competition leads to increase in securitization activity even if the known risk was at higher levels.
15	(Krainer & Laderman, 2014)	2000-2007	U.S.	Mortgage	Lenders tend to securitize the riskier mortgages and retained the safer ones to their portfolios.
16	(Casu, et al., 2013)	2001-2008	U.S.	Bank	Banks with greater risk exposure, worse performance measures and low liquidity are more possible to securitize.
17	(Michalak & Uhde, 2011)	1997-2007	Europe	Bank	Securitization has a negative impact on bank profitability and capital

					environment. They mentioned a positive relationship between securitization and the issuing bank's return volatility.
18	(Wu, et al., 2011)	2002-2007	U.S.	Bank	Securitization reduces banks' exposure to systemic risk until 2007. No evidence of increasing idiosyncratic risk. In 2007, banks experienced jumps in systematic and idiosyncratic risks. The higher the bank the higher the systematic risk and lower idiosyncratic risk due to diversification.
19	(Loutskina, 2011)	1976-2007	U.S.	Bank	Securitization reduces bank's holding of liquid securities while increases their lending ability. Securitization is an extra source of funding for the banks.
20	(Carbó-Valverde, et al., 2011)	2001-2010	Spain	Bank	Many bank characteristics affect the rating significantly. Lag of about 2 years in terms of loan performance. Lag of 1 year between the on-balance sheet loan performance and rating change.
21	(Maddaloni & Peydro, 2010)	2002-2008	U.S. and Europe	Bank	Prior to the crisis short- and long-term rates were very low, and the lending standards were softer. There is an increase on securitization activity resulting to an increase of risk on bank's assets.
22	(Affinito & Tagliaferri, 2010)	2000-2006	Italy	Bank	Less capitalized, less profitable, less liquid and with a load of troubled-loans banks were more likely to securitize with larger amounts.

23	(Keys, et al., 2009)	2001-2006	U.S.	Mortgage	Highly regulated banks originated lower quality loans in comparison with less regulated independent mortgage institutions. No relationship between the quality of loan originators and top management's incentives. Firm's power dynamics might have a role to play in aligning incentives. Moral hazard problem is less severe for lenders in which the risk management department has greater bargaining power with the firm. The appropriate originators' incentives might help to attenuate moral hazard problem.
24	(Sarkisyan, et al., 2009)	2001-2008	U.S.	Bank	Banks that use securitization are usually more profitable institutions, with higher credit risk exposure and higher funding cost. Securitization does not seem to be better than other funding, risk management and profitability improvement techniques.
25	(Bannier & Hänsel, 2007)	1997-2004	Europe	Bank	Loan securitization is a suitable funding technique for high risk and low liquidity banks.
26	(Uzun & Webb, 2007)	2001-2005	U.S.	Bank	Securitizing banks are larger. Increase in risky assets in proportion to total assets when they securitize.

Table 2: Literature Review Summary

Chapter 5
Securitized or not?

Undoubtedly, securitization is an important tool for financial institutions and can be used for their benefit. On the other hand, securitization takes a large proportion of the blame for the latest global financial crisis. In this chapter, the tool of securitization will be discussed and some recommendations of what it should be done so that securitization will be used appropriately will be presented.

As it was mentioned in several papers (Iglesias-Casal, et al., 2020; Marquez-Ibanez, et al., 2014) an increase in systemic risk was observed prior to the latest financial crisis. This was due to misuse of securitization, that was not used for risk diversification but just as an additional funding opportunity. Moreover, the use of securitization in combination with compromising lending standards led to an increase in risk. The use of this financial tool for reducing capital levels for certain levels of risk leads to higher leverage and increase in risk. Not only the lenders, but also the borrowers took advantage of securitization. The credit quality of the borrowers deteriorated once their loans were securitized. It seems that originators loss track of the securitized asset's performance and did not follow the appropriate monitoring actions.

The influence of securitization is related with the purpose of its existence since it is about transferring credit risk from its owner to several investors located in different geographical locations. So, when one issue appears to one of the markets is transferred almost simultaneously to other markets and countries. In addition, securitization has its own impact on the recent financial crisis because in many occasions the regulations to keep securitization a safe procedure was not followed. The risk involved were not assessed properly and were not presented with full transparency to the potential investors. On the other hand, the information provided was misleading with the purpose of securitized and not at all the protection of the investor. At the same time, the entities responsible for controlling and monitoring the transactions and procedures did not fulfill their obligations.

Securitization is a process offering financial institutions the possibility to create significant problems with its reckless use in order to serve someone's purpose other than the intended ones. The role of the monitoring and controlling of the financial institutions, the regulations, the global macro-economic environment and mainly the moral hazards involved in the philosophy of securitization should be taken seriously by all the involved parties.

The financial crisis revealed to the world the vulnerable points of the financial system related to securitization. Some of the most significant weakness are the following:

1. The operation of a massive 'shadow' banking system directly connected with the rest of the financial system without any supervision.
2. The moral hazard of the existence of vital financial firms, so vital that could not be left to bankrupt.
3. Weakness of realizing the systemic risks.
4. Luck of an efficient and trustworthy regulatory and monitoring authority to control securitization transactions.
5. Luck of an efficient crisis management mechanism.

Many entities are involved in a securitization transaction and each of those entities aim to get the most possible profit. First of all, the originator of the transaction has a vital and initial role on the transaction. The originator is the one that should determine the quantity and quality of the risk associated with the securitization activity. As long as the originator is involved, it is his duty to properly identify, measure, monitor and control the associated risks. At some point the originator has no control on the securitization transaction but since the necessary information passed through to the next responsible entity then the originator has done his part.

From there on, the SPV takes charge of the financial asset. At this point, the SPV needs to ensure that information asymmetry is kept at low levels. Routine checks to ensure that the risks related with the originator will not impact in any way the investors from collecting the payment for the financial asset. This is called 'Bankruptcy Remoteness' and there are two aspects to ensure this (Schwarcz, 2013). The first one is to confirm that in the case of an originator's bankruptcy will not affect the transferred assets, by using the so-called ‘true sale’. This means that the sale will be removed from the bankrupt firm.

While the role of each participant is by far vital in each securitization transaction, when there is fraud involved it makes the situation even worse. As Griffin & Maturana, (2016) mentioned in their paper, more than 50% of the loans examined in their study found to have an element of fraud. With fraud involved, risk calculations by all parties elaborated are not representing the real situation. To make things even more complicated, rating favors from rating agencies are introduced into the equation (Efing & Hau, 2015).

A joint publication of the Basel Committee on Banking Supervision (BCBS) and the International Organization of Securities Commissions (IOSCO) was referred to three criteria for simple, transparent and comparable securitizations identifying what is necessary to for such an activity. They identified three main risk related to the securitization process as follows:

1. The asset risk criteria consisting of asset nature, performance history, payment status, consistency of underwriting, asset selection and ongoing data.
2. Securitization structure criteria consisting of cash flow redemption, priorities and observability of the payments, voting and enforcement rights, documentation disclosure and legal review.
3. Fiduciary and servicer risk criteria. This criterion is about the contractual responsibilities of the fiduciary and the transparency to the investors.

To accomplish a transparent and regulated securitized environment the European Commission proposed a new set of rules applicable for securitization transaction within Europe. The regulations were published by the official journal of the European Union at the end of 2017 and would go in force at the beginning of 2018. The new regulation consists of two parts. The first part called “Securitization Regulation” is about the new rules related to risk retention, due diligence and transparence of the securitization transactions. Moreover, new criteria have been set out for ‘simple, transparent and standardized’(STS) securitization transactions. This STS criteria involve a set of standards to ensure fraud-less securitization transactions (Coiley, et al., 2018).

New rules and regulations were introduced to the market in the last few years targeting to avoid undesirable consequences similar to the financial crisis. Since these new regulations were added recently, people need to wait and observe how the market will react.

Even though, the new regulations are in place, an external monitoring authority should be in charge of controlling and monitoring that all the countries are following them. Europe consists from a lot of countries and a lot of securitization activities are being placed in a daily basis. Each country should have an external supervisory authority responsible for controlling securitization activities. Then this authority should report to the European Commission. This authority should be completely independent from all the parties involved in securitization transactions. Being responsible in such a vital position, the supervisory authority will control each securitization transaction end-to-end. This may add costs and delays in the process cycle, but it will ensure that all necessary activities are being followed without any fraud. In addition, parties that try to bypass the legal way should be penalized.

The situation with securitization can be parallelized to the current pandemic of Corona virus which currently threatens the globe. This virus started from China and slowly spread all over the world. World Health Organization proposed some measures and directions that each country should follow. Countries that took the required measures managed to control the spread and minimize the consequences to the community. In some cases, some countries did not realize the significance of the virus and therefore, they did not act appropriately. The delay to react led to outcomes that could not overcome with the most serious one, the failing of health care systems and even worse the loss of human lives.

This was the case with securitization; corrupted and “illegal” transactions spread all over the banking sector. Authorities did not realize the importance of the uncontrol development of this activity which led to the failing of the banking sector and all the consecutive consequences to the society. In many cases, extreme situations need to be faced directly with extreme measures.

Chapter 6
Conclusions

Securitization is a financial innovation which is an important funding tool for banks. The ability of securitized assets allowed banks to enforce liquidity, diversified their portfolios and reduce credit risk. Additionally, securitization gave the opportunity to consumers to get loans with more beneficial terms.

The use of securitization and the experience until nowadays showed that it depends on the way of usage which can result to benefits but also downsides. The recent financial crisis and its consequences are attributed by many scientists to the use of securitization. The financial innovation that can transfer the credit risk managed also to hide the risk. Thus, it will be decent to ask ourselves "Is Securitization the reason of the financial crisis or is it the way we use it?"

There were many cases that people took advantage of securitization and used it as a tool to hide information and gain profit. In some cases, rating agencies did not rate correctly the assets. The complicated process along with the 'right' intentions managed to hide information from investors. Until the time taken by the authorities to realize the degree of the problem, it was late, and the consequences were inevitable.

Following the crisis, many authorities (ECB, Bank of England, etc.), they understood that securitization is vital, took new measures and provided the tools to avoid similar situations in the future. Extra measures and supervisory authorities should be put in place to discourage financial institutions to hide information. Simple, transparent and standardized securitization is healthy and beneficial for all the involved parties.

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