Securitization and financial solvency: Empirical evidence from Portugal

Carmen López-Andión\textsuperscript{a}, Ana Iglesias-Casal\textsuperscript{b}, M-Celia López-Penabad\textsuperscript{c}\textsuperscript{*} and J-Manuel Maside-Sanfiz\textsuperscript{d}

\textsuperscript{a}Department of Quantitative Economics, University of Santiago de Compostela, Santiago de Compostela, Spain, tel. +34881811641, carmen.lopez.andion@usc.es, Orcid 0000-0002-7994-5335

\textsuperscript{b}Department of Quantitative Economics, University of Santiago de Compostela, Santiago de Compostela, Spain, tel. +34881811546, ana.iglesias.casal@usc.es, Orcid 0000-0002-2393-4696

\textsuperscript{c}Department of Finance and Accounting, University of Santiago de Compostela, Santiago de Compostela, Spain, tel. +34881811626, celia.lopez@usc.es, Orcid 0000-0001-8738-4366. Corresponding author.

\textsuperscript{d}Department of Finance and Accounting, University of Santiago de Compostela, Santiago de Compostela, Spain, tel. +34881811616, josemanuel.maside@usc.es, Orcid 0000-0001-5621-6546

Carmen López-Andión, is a Lecturer in Quantitative Economics at the University of Santiago de Compostela (USC). Her research interests are focused on econometric methods, banking and finance, with a particular emphasis on housing markets and securitization. She obtained her PhD from the USC. Recently she has gained recognition of six years research. Among other journals she has published in: The Journal of Business Economics and Management, The International Review of Economics & Finance, Applied Economics, The Business Research Quarterly, Finance a úver and The Spanish Journal of Finance and Accounting.

Ana Iglesias-Casal, is a Lecturer in Quantitative Economics at the USC. Her research interests are focused on econometric methods, banking and finance, with a particular emphasis on securitization. She obtained her PhD from the USC. She has gained recognition of six years research. Among other journals she has published in: The Journal of Business Economics and...
Mª Celia López-Penabad, is a Lecturer in Finance at the USC. Her research interests are focused on banking and finance, with a particular emphasis mortgage markets and on securitization. She obtained her PhD from the USC. She has gained recognition of twelve years research. Among other journals she has published in: The Journal of Business Economics and Management, The International Review of Economics & Finance, Applied Economics, The Business Research Quarterly, Finance a úver and The Spanish Journal of Finance and Accounting.

José Manuel Maside-Sanfiz, is a Lecturer in Accounting at the USC. His research interests are focused on banking and finance, and on environmental accountancy. He obtained his PhD from the USC. He has gained recognition of six years research. Among other journals he has published in: Journal of Business Economics and Management, International Review of Economics & Finance, Applied Economics, Business Research Quarterly Finance a úver and Spanish Journal of Finance and Accounting.
Securitization and financial solvency: Empirical evidence from Portugal

This paper analyses the effect of securitization issues on the solvency of Portuguese financial institutions. For this purpose we use an unbalanced panel model estimated using GMM methods and find that securitization has a slightly positive impact on the soundness of the issuing entity. We study 35 financial entities and 60 traditional securitizations issued by 9 originators between 2001 and 2013. The analysis reveals that the financial entities’ soundness improved slightly, showing that securitization enhanced the quality of the originators’ portfolios and increased the regulatory capital requirements. We also found that efficiency and profitability improve the risk-adjusted ROAA and that efficiency increases regulatory capital requirements. The robustness analysis confirms the positive effect of securitization on solvency, where both credit quality and liquidity are shown to be significant variables.

Keywords: securitization; Z-score; soundness; Portugal; financial entities.

Subject classification codes: G28, G21

1. Introduction

Securitization is now an important component of markets that function properly. It remains nothing more than a technique for raising funding and as a support mechanism for lending in the real economy. In addition, securitization makes markets more closely aligned with one another. In general, a securitization transaction may be defined as the transformation of illiquid assets into negotiable stocks, providing the originator with an instrument for transferring risk and raising funds.

E.U. securitization markets have been shrinking significantly since the global financial crisis of 2007/08, due largely to the stigma associated with the misuse of securitization prior to the crisis. From 2008 onwards, the issue of securitized products in Europe has fallen by 80%, in spite of the fact that European securitization has been shown to be relatively safe; they have generated virtually no losses at all (European
Union, 2015). Reactivating a safe securitization market might have important long term benefits for those countries with the most highly developed securitization markets –The UK and the Netherlands -, and also for countries such as Italy, Spain, Ireland, Portugal and Greece where the provision of credit tends to be more problematical. Further, a single harmonized framework for securitization in the EU might make it possible to establish securitization markets in those countries in which they still do not exist, such as in Central and Eastern Europe.

If the predominantly circumspect attitude towards securitization is to change, policy makers will need to be more forward-looking. Various European and International institutions\(^1\), have carried out much work to bring this about. They have attempted to create quality standards, increase transparency and simplify structures but investors and agents working in European markets remain cautious. They cite a lack of transparency and standardization and the unavailability of data related to the underlying assets as key sticking points (ECB, 2014).

This work attempts to provide a better understanding of securitization in Portugal where securitization was less pervasive than in other EU countries.

Portuguese institutions first carried out securitization in 1997 even though there was a distinct lack of specific regulation. Initially, securitization operations made use of offshore structures and the types of assets being securitized were limited to consumer credit, car purchase, leasing agreements and long-term rental.

Between 2001 and 2005, most Portuguese securitization involved using securitized funds almost exclusively as a vehicle, the securitized assets did not appear on the balance sheet (off-balance) and the securities issued were normally acquired by non-residents.
From 2005 onwards securitizations were still normally carried out using securitization funds as a vehicle, but the companies involved were becoming increasingly important and the securitized assets started to remain on the originator’s balance sheet (on-balance) as a consequence of regulatory changes. In the main, the securities issued by securitization funds and by companies continued to be bought by non-residents, but in 2007 the originators began to buy the issued securities themselves.

From 2010 to the present day, securitizations have been carried out by companies whose role is nothing more than the securitization itself. Operations prior to 2010 were closed prior to their stipulated redemption dates. The securitized assets normally remained on the originator’s balance sheet and the issued securities were usually bought by the originators. Most of these originators were institutions that used these securities as collateral to obtain liquidity through the European Central Bank (ECB).

Securitization in Portugal evolved over a ten year period until it became common practice. The volumes of securitized assets, however, remained modest; the maximum reached €242,115.40 million in 2011 and by 2015 this had fallen to €132,193.60 million. These discreet volumes are echoed in the paucity of specific empirical research².

It is within this framework that we aim to study the financial stability of the principal Portuguese financial institutions. We use a broad timeframe to determine both the impact and the repercussions of the phenomenon of securitization in Portugal. To this end, we propose a model that tries to explain stability, defined via a Z-score ratio. The model takes into consideration the volume of the funds subject to securitization and includes variables that reflect the originators’ specific characteristics.
We find that securitization is significant and affects solvency positively in the Portuguese market between 2001 and 2013, although this effect is only slight.

One might say that securitization in Portugal has led to a minor increase in the solvency of the country’s financial entities. This positive effect is a consequence of an increase in the capital ratio and the light improvement in the quality of originators’ portfolios.

This work includes all the types of financial institutions in the Portuguese financial market, like savings banks, entities that the majority of studies tend to ignore. By so doing, this analysis attempts to better reflect the reality of the Portuguese financial system and hence glean more far-reaching insights and results that may useful across a range of spheres.

The analysis is set out as follows: the next section reviews the existing literature, while the third section describes the sample, variables, hypotheses and the econometric methodology employed. The fourth section provides the main results, the validity tests carried out for the models and the robustness checks. The final section presents the conclusions.

2. Literature review

The vast body of literature that deals with securitization may be divided into two main areas; one which analyzes why entities carry out the securitization and a second that looks at its effects on both on the entities themselves and upon the market in general. The objectives of this work fall within the latter category and looks at the effects of securitization.

The literature that deals with securitization effects is both extensive and contradictory. Analyzes fail to agree on the costs and benefits of securitization in terms of the risk to the originators and to the financial system as a whole. These differences
are due to the fact that securitization affects risk via two basic channels. First, it may place greater or lesser risk within the market as a whole (direct effect). Second, the resultant liquidity may modify the levels of risk in the originator’s portfolio depending on the reinvestment strategy (indirect effect).

This section contains an exhaustive review of the wide gamut of literature on the subject with the aim of assessing the effects of securitization on the solvency of the originators. To do this, we first group the results according to the structure first put forward by Kara, Ozkan and Altunbas (2016) whereby theoretical and empirical works are categorised according to whether they were prior or subsequent to the financial crisis. After this, and in greater detail, we analyze the literature that looks at the solvency of the originators.


Empirical evidence is contradictory. Some studies seem to show that those entities that most use securitization are also those that lend to the highest risk agents, maintain the riskiest portfolios, retain the riskiest tranches and, in general are subject to
the highest levels of risk (Cebenoyan and Strahan, 2004; Hansel and Krahnen, 2007; Casu et al., 2013; Martín-Oliver and Saurina, 2007; Bannier and Hänsel, 2006; Michalack and Udhe, 2012; Affinito and Tagliaferri, 2010; Battaglia and Gallo, 2013; Battaglia, Gallo and Mazzuca, 2014). In contrast, other studies indicate that securitization reduces Banks’ insolvency risk, increases profitability, provides liquidity and leads to a greater supply of loans (Jiangli and Pritsker, 2008; Cebenoyan and Strahan, 2004; Loutskina, 2011; Altunbas et al., 2009; Goderis et al., 2007). There are even studies that find no relationship between securitization and bank risk-taking (Benmelech et al., 2012; Shivdasani and Wang, 2011; and Nadauld and Weishbach, 2012; among others).

There are various reasons why the empirical findings are at times ambiguous and contradictory. First, the studies look at different segments of the securitization market which have characteristics that cannot be compared. Second, an important volume of the analyses focus on the U.S. while others look at different European markets which have substantial structural differences because of the diversity of the types of participating entities, accounting norms and legislation and the levels of risk assumed and or the associated losses. However, there is consensus with respect to the conclusions obtained in analyses that look specifically at mortgage securitizations. In the main, these studies focus on U.S. mortgages (Keys et al., 2010; Purnanandam, 2011; Dell'Ariccia et al., 2012; Mian y Sufi, 2009), and come to the conclusion that the banks that were active in the securitization of mortgages issued low quality mortgage loans, had lower mortgage application rejection rates, had higher default rates and lost the incentive to evaluate and control.

Prior to the crisis, a common view was that securitization stabilized the financial system since it was easier for entities to diversify and manage and allocate risk right
across the economy (Kara, Marques-Ibanez & Ongena, 2016). Many considered that the rapid expansion of the securitization market which boosted the growth of credit markets was a key factor in the global financial crisis of 2007/08. The costs and benefits of securitization for the banks and the financial system as a whole began to come under a more critical lens in the pertinent literature. Academic research intensified and emphasised the empirical evidence that might suggest that securitization was responsible for determining the behaviour of the originators and triggering the crisis and indeed, after the crisis, this view held sway. The pros and cons of securitization are still hotly debated (Carbo-Valverde, Degryse, & Rodríguez-Fernández, 2015).

On revising the empirical evidence on the relationship between securitization and the banks’ financial solvency, we once again find that conclusions are ambiguous. The use of the event study methodology in conjunction with the modified market models of Lockwood et al. (1996), Franke and Krahnen (2006), Hänse and Krahnen (2007) and Uhde and Heimeshoff (2009) provides empirical evidence that shows that securitization has a positive impact on the growth of the banks’ post-event systematic risk.

Studies performed using panel data reach the conclusion that the growth in the bulk of risk transmitted has a negative impact on the quality of the entity’s assets and hence for its financial soundness (Dionne and Harchaoui 2003; Michalak and Udhe 2012; Otero González et al. 2016; López-Andión et al. 2015). Nevertheless, other researchers present evidence suggesting that a reduction in financial soundness only takes place with the securitization of credit cards. They argue that mortgage loans and home equity lines of credit have a positive effect (Uzun and Webb 2007; Jiangli and Pritsker 2008).
In the following section, we describe the database and the econometric method utilized in the paper. These were considered to be the best alternatives for clarifying how securitization affects the financial solvency of the entities while taking into account certain features of the originators.

3. Data and methodology

3.1. Data and sources

Our database is made up of 60 issues of mortgage-backed securities (MBSs) and asset-backed securities (ABSs) carried out in Portugal between 2001 and 2013. More than 65% of the securitized assets were mortgages. The data were obtained by referring to the National Stock Market Commission (CMVM Comissao do Mercado de Valores Mobiliarios – acronym in Portuguese) and the existing Portuguese asset securitization management companies’ web pages.

The database used consists of 9 banks and savings banks that have acted as originators and 33 financial institutions that do not carry out securitizations. Bankscope allowed us to complete our database with further relevant financial information. Table 1 presents the main descriptive statistics.

Table 1. Descriptive statistics

3.2. Variables and hypotheses

We employed the Z-score ratio as an indicator of the financial solvency of the entity. This ratio, an alternative to the Altman Z-score (Altman 1968), is employed in several empirical studies of financial solvency, among them those by Battaglia and Mazzuca (2011), Ben Salah and Fedhila (2012), Michalak and Uhde (2012), and Shaffer (2013). The indicator is defined as follows:

\[
Z \approx \frac{ROAA + K}{\sigma}
\]  
(1)
The ROAA is the return on average assets before taxes, K is the equity as a percentage of the total assets, and σ is the standard deviation of the ROAA.

There are different approaches to the construction of the Z-score in terms of the standard deviation of the return on assets used that are applied in the literature. Some studies use the standard deviation of returns over the lifetime of a bank in the sample (Laeven and Levine 2009), while others use a rolling time window (Demigürç-Kunt and Detragiache 2011; Čihák et al. 2012; Sarkisyan and Casu 2012). We tested both alternatives, and the utilization of the rolling time window for different time periods sometimes gave a value for the standard deviation of the ROAA that was too small. This created a value for the Z-score that was abnormally high and lacking in credibility. In addition, this process provoked a substantial reduction in the size of the sample. For all of these reasons, we opted for the former alternative, the standard deviation of returns over the total period.

The Z-score specifies the amount of standard deviations that an entity’s asset returns have to fall for it to become bankrupt. In brief, it is a measure of how far an entity’s asset returns must decrease below their estimated value before the institution’s equity is drained and the entity becomes insolvent. Hence, the higher the Z-score, the lower the probability of insolvency and the greater the entity’s financial stability. We constructed this indicator for each of the banks included in the database on an annual basis.

Below, we set out the specifications of the hypothesis that we test in this analysis according the established objectives.

H1. Securitization affects the financial solvency of originating entities either positively or negatively via their Z-Scores.
H2. Securitization may have a positive or a negative effect on the quality of the originating entity’s portfolio via their ROAA to the Standard Deviation of the ROAA ratio.

H3. Securitization may increase or decrease the quantity of regulatory capital that the originator has when measured via the relationship between $k$ and the Standard Deviation of the ROAA, whereby the entity’s leverage is affected.

For each of the three hypotheses the expected signs obtained from the above postulates were either positive or negative.

As an explanatory variable, we used the ratio of the volume of securitization issued to total assets for each of the financial entities (Altunbas et al., 2009). A priori, the relationship between the volume of securitization and financial solvency is not easy to see. It might be that the banks used securitization to transfer risk and that the relationship was positive. Conversely, the mechanism might have amplified the positions of risk held by the originators, and therefore the relationship would have been negative.

To analyse the relationship between securitization and financial solvency, one must take into account the factors that are specific to each bank, macroeconomic factors and a concentration index\textsuperscript{4} that probably affect solvency. Some of the bank-specific control variables included lags to avoid problems of simultaneity.

We incorporated the bank’s net interest margin (Otero González et al., 2016) and the liquidity (Michalak and Uhde, 2012) to consider the effect that profitability and liquidity might have on solvency. It should be anticipated that both these aspects affect stability positively and are hence inversely connected to insolvency. To determine the efficiency of the banks, we included the cost–income ratio (Otero González et al., 2016) and expected a negative relationship. Additionally, to control for the credit risk and the
quality of the loan portfolio, we used an indicator of impaired loans (Battaglia and Gallo, 2013). For this variable we anticipated a negative relationship.

3.3. Econometric methodology

To estimate the financial solvency of Portuguese financial entities, we propose a panel data model defined as follows:

$$z_{it} = \alpha + \beta z_{it-1} + \theta s_{it} + \sum_{k} \gamma_k x_{k,it} + v_{it}$$

(2)

where $z_{it}$ represents the Z-score as an indicator of the solvency of the financial entity $i$ in year $t$, $s_{it}$ is the indicator of the securitization of credit risk – the ratio asset securitization/total assets, and $x_{k,it}$ is the set of control variables. These are the variables that are specific to each of the entities described above; $\alpha$, $\beta$, $\theta$, and $\gamma$ are the coefficients, and $v_{it}$ is the composite error term, $v_{it} = u_{it} + \eta_i + \mu_t$, which takes in unobservable components that are specific to each entity and/or that may vary over time, where $u_{it}$ represents the remaining disturbance. The time-specific effects are included by using a set of time dummies.

To carry out the estimation we used the generalized method of moments (GMM). We opted for this method since there is a correlation between the delayed endogenous variable and the unobservable effects. We used three widely-used alternatives: a GMM system developed by Arellano and Bover (1995) and Blundell and Bond (1998), first-differences GMM (Arellano and Bond 1991), and a forward orthogonal deviation GMM (Arellano and Bover 1995). The first-difference GMM carries out the estimation of the model with the variables in differences and uses its lagged values in levels as instruments of the endogenous variable. The GMM system method estimates two equations, one in levels and one in differences, additionally
including lags of the differences in the endogenous variable as instruments for the equation in levels. The forward orthogonal deviation GMM method involves a transformation of the data in such a way that each observation of a given economic unit may be expressed in terms of deviations from the mean future observations. It includes a weighting that allows the new error term to maintain the same characteristics as the original disturbances $u_{it}$. This process has an important advantage over the widely used first-difference GMM method in that it reduces the loss of observations when working with unbalanced panels with skips, as in our analysis.

The estimations carried out were subsequently subjected to the customary autocorrelation and validity tests for the set of instruments used.

4. Empirical results

Table 2 presents the main empirical results. Each variant of the model was estimated by applying three specific alternative dynamic panel methods: a) system GMM, b) first-difference GMM and c) forward orthogonal deviation GMM. The difference between specification 1 and specification 2 is given by the control variables, liquidity and impaired loans. In case 1 these variables appear in logarithms, while in case 2 they are expressed in ratios with respect to total assets and total gross loans, respectively.

In Table 3, in specifications 3) and 4), the dependent variables are the Z-score components, $Z_1$ and $Z_2$, respectively.

The parameter estimates were completed with the Arellano and Bond tests for the significance of the first- and second-order autocorrelation coefficients of the first-differenced residuals. There is no serial correlation in the disturbance term $u_{it}$ in equation (2) if the first-order autocorrelation coefficient is significantly different from zero but not the second-order autocorrelation coefficient. The results of the Hansen test for the joint contrast of instrument validity are also included.
4.1. Main findings

The equations estimated in Table 2 show the impact of the asset securitization/total assets ratio on the financial solvency which is reflected in the Z-score. The effect of this ratio is significant and positive regardless of the estimation method used. Most control variables do have significant effects, although their significance depends on the estimation method used. The cost–income ratio is always significant in the regressions except in equation 2b. In this equation it is the net interest margin and the liquidity ratio which are both significant and their coefficients both take the expected sign.

An important result is that the lagged ratios, in both of the forms analysed here, are non-significant for almost all of the models tested. This might be due to the correlation that it maintains with other regressors in the equation.

Table 2. Z-score and securitization. Regression results.

The autocorrelation tests and the instrument validity test offer quite satisfactory results for all the specifications.

In view of our results, it may be affirmed that the volume of securitization issued significantly and positively influences entities’ financial solvency. Increases in the volume of securitization increase the Z-score and hence impinge positively on soundness. This implies that, with respect to hypothesis H1, securitization positively affects the solvency of the originating entities.

This result agrees with the empirical evidence provided by panel data analyses such as those of Uzun and Webb (2007) and Jiangli and Pritsker (2008).

Given that our dataset spans an extensive time period, we tried to examine whether the economic crisis that so severely affected Portugal had a significant impact on the effects of securitization on solvency. We differentiate between two periods:
2001-2007 and 2008-2013. Before the crisis, securitization continues to have a significant, positive effect, but ceases to exist after the crisis\textsuperscript{5}.

### 4.2. Z-score components and securitization

To analyse hypotheses H2 and H3, we completed the study with some additional estimations. We carried out regressions of the two Z-score components, \( Z_1 \) and \( Z_2 \), on the explanatory and control variables.

The Z-score can be broken down into its two components:

\[
Z \equiv Z_1 + Z_2 = \frac{\text{ROAA}}{\sigma} + \frac{K}{\sigma} \tag{3}
\]

\( Z_1 \) is a measure of the banks’ portfolio risk (risk-adjusted return), and \( Z_2 \) is a measure of leverage risk.

The first three columns of results in Table 3 indicate that the volume of asset securitization/total assets has a positive effect on \( Z_1 \), which is an indicator of the risk of the activity carried out by the bank, improving the quality of originators’ portfolio. This result provides empirical evidence that securitization has a positive impact on the ROAA adjusted to risk, and in so doing improving the quality of the originator’s portfolio and, by extension, the solvency (hypothesis H2). Two other factors that affect this indicator are profitability and efficiency. They take the expected signs and indicate that greater profitability and efficiency improved the adjusted ROAA and, in consequence, solvency. The three final columns of Table 3 reveal that asset securitization/total assets ratio is both significant and positively affects \( Z_2 \), which is a measure of the bank’s risk coverage in terms of capital. In this case the only significant control variables are liquidity (model 4b) and efficiency, the latter of which indicates that a greater cost/income ratio negatively affects \( Z_2 \).
This result allows us to affirm that securitization means that there is a greater proportion of regulatory capital on the part of the securitizing entity (hypothesis H3). This increases the entity’s Z-Score and, by extension, its solvency.

The proportion of an entity’s regulatory capital is determined by the regulations in place at any given time. The period being analyzed is affected by two regulatory frameworks; Basel I and Basel II. This has meant that there has been a change in the requisite quantity of regulatory capital. Formerly, there was a simple fixed percentage which was replaced by a methodology based, fundamentally on a credit rating awarded by the ratings agencies for each tranche of securitization. In addition, the performance and behaviour of the Portuguese changed after 2005, prior to this year the securitized assets did not appear on the balance sheet and afterwards they did. After the 2007/08 crisis, the fact that peripheral countries were affected by sovereign ceilings has meant that countries like Portugal cannot obtain high credit ratings for their senior tranches. In consequence, over recent years, the originating entities have been obliged to increase their proportion of regulatory capital by up to 5 or 6 times that of the securitized portfolio (Gómez-Churruca and Cerqueira de Gouveia, 2015).

Table 3. Z-score components and securitization. Regression results.

This result allows us to affirm that, as a consequence of securitization, there has been a process of regulatory capital requirement readjustment that has obliged entities to fulfil higher capital requirements. This process of regulatory capital readjustment runs counter to the findings of López-Andión et al. (2015) in which the Spanish originators actually had lower regulatory capital requirements but, at the same time, there was a slight worsening of the quality of originator’s portfolios. In this study securitization had a negative impact on the issuing entities’ soundness. Spain is also a country affected by sovereign ceilings but not to the same extent as Portugal. This, in
combination with different time-frames, a specific regulatory framework and a level of market maturity which is substantially different might all go towards explaining the divergence in results.

Securitization never took off in Portugal as it did in other countries. Probably Portuguese entities never considered it to be an instrument that might improve their ability to manage credit risk and thus allows them to operate with greater leverage. We can affirm that the banks’ portfolios did not deteriorate and therefore that securitization did not make Portuguese banks less risk averse. The direct and indirect effect of securitization has, in fact, led to an improvement in portfolio quality while at the same increasing capital ratios.

4.3. Tests of Robustness

In order to test robustness we use an alternative measure of solvency to the Z-Score; the default rate, which is defined as the ratio of impaired loans to gross loans. In this case, we expected a negative relationship between the securitization and this particular measure of the credit risk. The control variables that were incorporated into the equation are the loan impaired charges/total assets and net loans/ total assets ratios (Otero González et al., 2013), used respectively as measures of the quality of the assets and the liquidity. The ROE was included as a measure of performance as was total assets (Battaglia and Gallo, 2013) which acted as a measure of the size of the entity.

Table 4: Default rate and securitization. Regression results

The results (Table 4) indicate that the securitization ratio has a significant negative effect on the default rate, which confirms that securitization improves the entity’s credit solvency and, hence, we may affirm that, taken together, the direct and indirect effects are positive.
The net loans/total assets ratio reflects a significant inverse relationship between liquidity and the default rate of Portuguese credit entities. In contrast, the loan impaired charges/total assets ratio is positively correlated to the dependent variable. Both results were expected. The size of the entity and the return on equity has no significant effect on the default rate.

5. Conclusion

Using a sample of 60 traditional securitizations issued by 9 financial entities operating in the Portuguese market between 2001 and 2013 and estimating an unbalanced panel model using GMM methods, we found that securitization has a slight, positive impact on the issuing entities’ soundness. With regard to the control variables, we found that efficiency affects solvency in the majority of regressions studied and the control variables profitability, liquidity and the quality of the portfolios all take the expected signs when these are significant.

A breakdown of the Z-Score into its two components allows us to carry out an analysis that reveals that, as a consequence of securitization, there has been a process of regulatory capital readjustment that means that entities actually have higher regulatory capital requirements and there was a slight improvement in the quality of originators’ portfolios during the 2001–2013 period when measured using the risk-adjusted ROAA.

The robustness analysis provides support for the findings of this study by highlighting that securitization negatively affects the default rate and by revealing both the quality of portfolios and the liquidity of originator to be significant variables.

Our findings are in line with those of previous works, such as those by Uzun and Webb (2007) and Jiangli and Pritsker (2008). Hence, we may affirm that securitization in Portugal has had a slight but significant positive effect on the solvency of the
financial entities operating in this country. We believe that the characteristics of the
Portuguese securitization market, focusing on traditional securitization, which was
transparent and, consisting in the main of mortgage securitizations, have had a positive
impact on the solvency of the originators. These operations were originally conceived of
in order to remove the securitized assets from the balance sheet and are currently
conditioned by limitations imposed by credit ratings which are, in turn, dictated by
Portugal’s status as a peripheral country. In short, we can affirm that, in combination,
the direct effect of the transmission of risk to the market and the indirect effect derived
from the reinvestment of the liquidity obtained actually improve the solvency of
Portuguese entities.

This type of study is important, since it attempts to stimulate the debate
regarding the role of securitization as an alternative yet attractive form of financing for
credit entities and to foment a sustainable, efficient, robust recovery of the European
securitization market. The dearth of studies that look at the Portuguese securitization
market makes this study even more salient. Further, the positive effect on the
originators’ solvency revealed in this paper shows that the blanket-opprobrium of
securitization is not warranted in the case of Portugal.

References
Affinito, M., Tagliaferri, E., 2010. Why do (or did?) banks securitize their loans?
Compilation and measurement issues”. *Statistic department Banco de Portugal.
Eurosystem*. Accessed: 8 September 2016


---

1 The European Commission has already introduced incentives for properly structured securitisation in the Delegated Regulations for Solvency II (2015/35) and the Liquidity Coverage Ratio (LCR - 2015/62), adopted in October 2014. Both the ECB and the BoE have carried out work on this area. A task force led by the BCBS and IOSCO has been involved in developing International standards to facilitate the identification of simple, transparent, comparable securitisations, while the European Banking Association (EBA) has been fulfilling a similar role for European banking standards.

2 To the best of our knowledge, empirical, Amaral Loureiro (2013); and theoretical, Pinto and Marques (2007), Almeida and Crespo (2010, 2011) and Almeida, Crespo and Santa (2012).

3 Of the 42 entities, only 35 were included in the estimations, since no data were available for any of the variables for the remaining 7 entities.

4 Following Michalak and Udhe (2012) and López-Andión et al. (2015) our model included: the rate of GDP growth, inflation, short term interest rates and the Herfindall Index; but neither was found to be significant. As a result we did not include these variables in the final model. The results will be made available to those interested.

5 The analysis has been carried out for the referred periods. The results will be made available to those interested.