ASSET SECURITIZATION: EFFECTS ON VALUE OF BANKING INSTITUTIONS

Pedro Martínez-Solano[a,*], José Yagüe-Guirao[b], Fulgencio López-Martínez[c],

[a] University of Murcia, Faculty of Economics and Business, Dpt. Management and Finance, Campus Universitario de Espinardo, 30100-Murcia (SPAIN), tel: +34 868 883747, fax:+34 868 887537, email: pmsolano@um.es

[a] University of Murcia, Faculty of Economics and Business, Dpt. Management and Finance, Campus Universitario de Espinardo, 30100-Murcia (SPAIN), tel: +34 868 883862, fax:+34 868 887537, email: ppyague@um.es

[c] Caja de Ahorros del Mediterráneo, Alicante (SPAIN), email: flopezm@cam.es

[*]Corresponding author

Abstract

This paper examines the reaction of the Spanish stock market to the announcement of securitization operations by listed banks in the period 1993-2004. Results indicate the existence of positive and significant abnormal returns on the day immediately following the announcement date. The average cumulative abnormal returns over windows of varying lengths around the announcement date are also positive and significant. The market's reaction is stronger when the bank has a higher proportion of equity in its capital structure, is less profitable and when it has previously undertaken securitization transactions.

K**eywords:** Securitization, banking, profitability, efficiency, event study.

JEL classification: G14, G21.

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Asset securitization: effects on value of banking institutions

1. Introduction

In recent years, largely as a consequence of the strong growth in the Spanish property market, financial institutions' credit investment has grown much more than the resources they have managed to capture from their traditional business of deposit taking. Accordingly, there is a need for equity capital and cash that the banks must finance through rights issues, debt – either short or long-term – or divestitures. One of the most common ways of financing this growth has been to convert bank loans into marketable securities by asset securitization.

Asset securitization can create value by increasing profitability, improving leverage ratios, increasing liquidity, and reducing or reallocating credit or interest risk (Ambrose, Lacour-Litte and Sanders, 2005). In recent years, a few empirical studies (Lockwood, Rutherford and Herrera, 1996; Thomas, 1999; Thomas, 2001) have analysed the changes in wealth for banks that securitize assets occurring on the US market, but their findings are not at all clear.

The objective of this paper is to analyse the effects of asset securitization on the value of the seller banks in the Spanish market. For this purpose, we examine the securitization operations undertaken by Spanish banks listed on the Spanish stock market between 1993 and 2004. This study is of interest for various reasons. First, the Spanish market is a large and growing market in Europe. Securitization has grown spectacularly in recent years in Spain, both in terms of the number of new issues and the trading volume on the Spanish debt market (AIAF[1]). Specifically, by country of collateral, Spain was the second (after United Kingdom) largest European Securitization Issuer in 2005 (European Securitization Forum Data Report, 2006). However, no

previous empirical evidence exists for the Spanish market. Second, previous evidence is scarce and largely limited to the US market. Hence, it would be useful to study other countries with less developed capital markets, such as Spain (La Porta, López-de-Silanes, Shleifer and Vishny, 1997). Finally, it is important to note that our study does not suffer from the limitations of the previous studies (Lockwood *et al*., 1996; Thomas, 1999; Thomas, 2001) which do not have the announcement date available. In contrast, we use the date of the announcement of the securitization, and thus we can analyse wealth effects more accurately.

Our results show that the Spanish market reacts positively to banks' announcements of securitization issues. We find abnormal returns of around 0.474% on the day immediately following the announcement date of the securitization operation to the Spanish Securities and Exchange Commission (CNMV). This shows that the market discounts the potential benefits as soon as it has the first official news of the securitization program. Finally, we find that the market's reaction around the announcement date is greater when the seller bank has a greater proportion of equity in its capital structure, when it is less profitable, and when it has a longer history as a securitizer.

The remainder of the paper is organised as follows: in the second section, we describe the asset securitization process and its effects on shareholder wealth. In Section 3 we summarise the evolution and current situation of the Spanish securitization market. Sections 4 and 5 describe the methodology and the sample used, respectively. Section 6 reports the results. Finally, we outline our main conclusions.

2. Literature review

Securitization is the process of transforming illiquid assets into marketable securities that are sold in the securities markets. Any assets with predictable cash flow can be securitized, the most common being mortgage loans, consumer loans, credit card receipts, trade receivables, automobile loans, leases, etc. Securities issued exclusively against credit and loans with mortgage guarantees are referred to as mortgage-backed securities (MBS). When securities are backed by non-mortgage loans, they are referred to as asset-backed securities (ABS).

Thus, through the securitization process a bank or financial institution – *originator*- sells certain assets of its balance sheet to a trust or a separate entity, called special purpose vehicle (SPV)[2]. The SPV is funded by issuing securities whose payments are backed by the performance of the bought assets. Usually, the securities issued by the SPV are tranched into different risk classes. To enhance the marketability of the securities issued by the SPV, they are usually evaluated by bond-ratings agency. Specifically, as Jiangli and Pritsker (2008) state, the least risky tranches receiving the highest credit rating, and the most risky tranche (often the equity tranche) receiving no rating at all. The credit rating assigned by the rating agency depends on the risk of the underlying pool of assets as collateral and on the credit enhancements implemented to increase the safety of securities bought by investors. The credit enhancement can be provided by the originator or by third parties, such as other banks or insurance companies, and can be implemented in several ways: reserve funds, over-collateralization of the SPV, retention of a securities tranche by the originator, subordinate loans to the SPV, spread accounts, etc.

2.1 Effects of securitizations on bank shareholders wealth

Although the securitization process is not limited to financial institutions, these are the main users of this market. This paper focuses on studying the effects of such operations on the value of seller banks. Specifically, from the originator's bank perspective, securitization of loans or other credit rights has effects on their return, liquidity, and risk profile.

In the first place, profitability can improve as a consequence of the reduction in assets, or through the reinvestment of the freed up resources. In the first case, once the loans have been transferred to the SPV, the bank chooses to monitor and service these loans on behalf of the entity for a fee. Thus, asset securitization effectively converts income that is based on a margin on assets into a fee-based income. Fee-based income improves return on equity (ROE) for financial institutions; this is because the income can be supported by a lower equity base. Moreover, using the liquidity obtained to fund new loans increases the business for the same or a similar level of assets and capital. In this respect, Wolfe (2000) shows that banks can create an asset-securitization pipeline structure through which they pump existing loans to investors and use the cash proceeds to originate new loans in order to repeat the process. This process enables banks to grant many loans with only a small amount of capital employed. In this way, banks systematically improve their return on equity. Furthermore, this process reduces asymmetric information because rating agencies provide continuous monitoring of the seller bank and the SPV. Moreover, a continuous history of successful securitizations signals financial strength because under market discipline only reputable lenders will continue to securitize.

On the other hand, to ensure a sufficient level of solvency, financial authorities require banks to hold a prescribed amount of capital in proportion to their asset

portfolio, the capital adequacy ratio. This ratio measures the relation between the capital and risk weighted assets and off-balance-sheet activities' risks. As a consequence the reduction in the on-balance-sheet assets that involves, the securitization can constitute a possible mechanism for minimising bank's capital adequacy requirements. Consistent with this, Pavel and Phillis (1987) find binding capital requirements to be one factor leading to increased securitization by banks. Also, Donahoo and Shaffer (1991) demonstrate theoretically that capital requirements influence the decision to hold or securitize assets. By securitizing loans the bank is only required to hold capital and reserve requirements against the residual tranche of the SPV that it is forced to keep. Therefore, securitization can reduce the capital requirements and allow a bank to modify its capital structure in order to reduce its overall cost of capital. However, the final result will depend on the weight taken by the type of securitized asset in the calculation of the capital adequacy ratio.

Secondly, securitization is a financing source on the asset side that increases the bank's liquidity. The improvement in the liquidity ratios is a consequence of the transformation of illiquid (non-tradable) assets into cash through the sale of the securitized assets to the SPV. However, positive effects on firm shareholders' wealth depend on efficient reinvestment of the liquidity generated. Moreover, securitization is an alternative financing source to equity and debt financing and, in contrast to debt, the originator firm does not need to repay. Pennacchi (1988) shows that loan sales allow some banks to finance loans less expensively than by the traditional deposit or equity issue because bank funds received via loan sales can avoid cost associated with required reserves and required capital. Therefore, banks can finance themselves at a potentially lower cost (Benviste and Berger, 1997; James, 1988). However, securitization may also be a very expensive source of liquidity. Effectively, the bank is replacing funding with a

money market cost by another whose cost is linked to the yield to maturity of Government bonds. Therefore in periods of positively sloped yield curves, the difference in cost may be substantial.

Thirdly, securitization also can alter the risk of the bank because of the quality of assets that are removed from their balance sheet, and sold to a trust or a separate entity. Some studies suggest a reduction in bank risk as consequence of securitization, while others find that it may increase. Thus, Greenbaum and Thakor (1987) point out the reduction of risks and diversification of portfolios as one of the main benefits of securitization for seller firms. Indeed, securitization leads to an improvement in the management of interest rate and credit risks (Hess and Smith, 1988; Rosenthal and Ocampo, 1988). In this sense, Cantor and Rouyer (2000) indicate that a securitization may transfer credit risk away from originator to securitization investor when the tranches sold to the market are riskier than the lender's unsecured debt prior to the transaction.

However, securitization also may increase the level of risk if the bank securitizes its better assets and, therefore, the assets that remain on-balance sheet after securitization are their poorer quality assets (Greenbaum and Thakor,1987; Murray, 2005). In fact, Ambrose *et al.* (2005) find evidence that lenders retain higher risk loans for their portfolio while selling lower risk loan to the secondary market, motivated for regulatory capital incentives or a concern for reputation. Securitization may then increase credit risk and consequently capital requirements need to reflect the risk of assets held on balance sheet (Wolfe, 2000). Furthermore, Stiroh (2006) find that securitization income is a volatile activity, and it is positively related with bank risk.

2.2 Empirical evidence

Studies on the effects of securitizations on the value of the asset seller have been very scarce to date and have focused on the US market. One of the first papers directly testing the effects on the sellers' share prices is by Lockwood *et al*. (1996). These authors use an event study methodology to test for the existence of abnormal returns around the date of the announcement of the securitization issue. They use a sample of 294 ABS securitizations carried out both by financial and non-financial institutions during the period 1985-1992. Initially, Lockwood *et al*. (1996) find negative effects on the banks' shareholder wealth. However, further examination reveals that strong banks experience wealth gain while weak banks experience wealth loss at the time of an ABS announcement.

Subsequently Thomas (1999) analysed a sample of 236 ABS securitizations carried out in the United States between 1991 and 1996. His results contrast with those of Lockwood *et al*. (1996), since he finds significant positive abnormal returns for banks' shareholders, although the returns decrease with the creditworthiness of shareholders.

Later, Thomas (2001) attributes the differences between previous studies to the fact that the time periods analysed do not coincide. He analyses the US market for a longer period – between 1983 and 1997 – using a total sample of 1,416 MBS and ABS securitizations. His results support the existence of temporal effects, since when the market has been under pressure, securitization has been associated with losses to the asset seller. When the market has been calm, securitization has generated gains for the shareholders. Also, Thomas (2001) finds that for the larger and more frequent securitizers, the act of securitizing has been wealth-increasing, which suggests that securitization serves a certifying role of the seller's activities.

More recently, Higgins and Mason (2004) examine the effects that recourse to securitized debt may have on short and long term stock return of sponsors. In order to do that they analyse 17 discrete recourse events that support securitized credit card receivables sponsored by 10 different credit card banks. Their results show, on average that sponsors stock prices increase in both short and long term following recourse.

These empirical papers generally present poor results in terms of the analysis of effects of securitization on the sellers' share prices. We should bear in mind, as Thomas (2001) points out, that these studies have not always been able to use the announcement date. Instead they use either the issue date or a combination of the announcement date and issue date. Thus, their results may have been affected by the market having previous knowledge of the securitization process.

3. The Spanish securitization market

The origin of securitization in Spain can be traced to 1992 with the enactment of Law 19/1992[3], which regulates mortgage-backed securities issuance, and the first operation was recorded in the official register of the CNMV on 20 March 1993 by the *Banco de Crédito Hipotecario*. The first years saw little activity, but after 1998 the growth in the Spanish securitization market was truly spectacular, and particularly so since 2002. This turning point coincides with the approval of the Royal Decree 926/1998[4], which regulates SPV's issuance of asset-backed securities. Figure 1 plots the evolution in the volume of securitization issues registered at the CNMV during the period 1993-2004.

In the early years of our sample period, the volume of securitizations issuance was relatively modest in Spain, ranging from €241 million in 1993 to €810 million in 1997. A huge leap occurred in 1998, with the market reaching a volume of €6.274 billion, as a consequence of securitizations extending to other asset types apart from

mortgages. Volume growth was constant until 2002 when it suddenly accelerated to (€19.92 billion), in 2003 (€37.83 billion), and even more so in 2004, when it reached €51.00 billion. The spectacular development of recent years has converted the Spanish securitization market into the second most active in Europe, after the UK market, according to data provided by the European Securitization Forum. During the period 1993-2004 the firms making use of securitization in Spain have been almost exclusively banks, savings banks, credit unions and financial institutions. Securitization issues from non-financial firms began in Spain in 2003. The Spanish financial institutions, particularly in the first stages of the process, came together to set up various SPVs in order to achieve sufficiently large issue sizes for this type of market. The majority of the issues were listed on the Spanish fixed income market (AIAF).

For legal reasons, in the first few years, only mortgage-backed securitization issues were carried out, but as of 1998 the first asset-backed securities (ABS) were issued. The ABS issuances have proved to be the real catalysts of this market, achieving substantial growth: from the year 2000 the number of securitization issues backed by non-mortgage collateral has exceeded the number of mortgage-backed securities issues. 2003 saw the largest difference between these two types of securitization operation, with 33 ABS and only 6 MBS, the former being responsible for 86% of the total volume issued.

4. Methodology

The methodology employed to examine the Spanish stock market reaction to announcements of securitizations by banking institutions is the so-called event study. The objective of this methodology is to discover any abnormal returns on the firm's shares as a consequence of a particular event. These abnormal returns are obtained as

prediction errors, using the market model as a standard of the normal return. Thus, the abnormal returns are estimated according to the following expression:

$$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt}) \qquad (1)$$

where AR_{it} and R_{it} are the abnormal and observed returns, respectively, for each day t and for each security i; R_{mt} is the market return on day t; and $\hat{\alpha}_i$ and $\hat{\beta}_i$ are the estimations of the parameters of the market model, which are obtained assuming that the random disturbances are independent both temporally and in cross section, while following a normal distribution with constant variance (OLS).

However, the abnormal returns obtained from this procedure could be incorrect, as a result of possible biases that may be generated by the presence of non-synchronous trading and conditional volatility of the daily returns. In order to test the robustness of the results we make the corresponding adjustments. First, to eliminate the bias arising from infrequent trading, we introduce a lag and a lead of the market return as additional independent variables in the market model, in line with the approach to corrections proposed by Dimson (1979) and Scholes and Williams (1977). Second, with regards the specification of the error term, in order to model the behaviour of the conditional variance we assume the GARCH(1,1) specification[5]. In this way the process of generation of returns and volatility given by the market model with a lag and a lead in the market factor used and GARCH(1,1) structure in the conditional variance is defined as follows:

$$R_{it} = \alpha_i + \beta_{i-1} R_{mt-1} + \beta_i R_{mt} + \beta_{i+1} R_{mt+1} + h_{it}^{1/2} \eta_{it}, \qquad t = -140,...,-5$$

$$h_{it} = \alpha_0 + \alpha_1 \varepsilon_{it-1}^2 + \alpha_2 h_{t-1} \qquad (2)$$

where R_{it} is the return on security i for day t; R_{mt} is the observed return on the market portfolio for day t; $\varepsilon_{it} = h_{it}^{1/2}\eta_{it}$ is the random disturbance of the model; h_{it} is the conditional variance, with $h_{it} = E_{t-1}[\varepsilon_t^2]$ and $\varepsilon_{it} \mid \varepsilon_{it-1}, \varepsilon_{it-2}, \ldots \sim \mathrm{N}(0, h_{it})$; $\eta_{i\tau}$ is an i.i.d. process of Gaussian white noise with $E[\eta_{it}] = 0$ and $E[\eta^2{}_{it}] = 1$. We estimated the parameters of the system formed by equations (2) by the maximum likelihood method, using Berndt *et al.*'s (1974) non-linear optimisation algorithm, obtaining standard errors which are robust to non-normality by Bollerslev and Woolridge's (1992) QML method.

We obtain the daily returns of the securities as the natural logarithm of the ratio between the prices on two consecutive days $R_{it}=Ln(P_{it}/P_{it-1})$, using the daily closing prices adjusted for dividends, equity rights issues and stock splits. We obtain this information from *Sociedad de Bolsas*, a company that manages the Stock Exchange Interconnection System (SIBE) of the Spanish stock market. We use the series of returns of the Spanish stock market index IBEX35[6] to measure the market return.

The period used in the estimation of the models proposed for obtaining the normal returns includes the 136 days prior to the announcement. Specifically, the estimation period begins 140 days (t=-140) and ends 5 days (t=-5) before the announcement date.

The examination of the share price behaviour extends for an interval of 9 days and centres on the announcement date (t=0), from day -4 to day +4 (event period). Thus, we consider the possibility of the market anticipating the information about the event, or of there being delays in the adjustment of the share prices. This methodology consequently requires that we specify an event date. In theory, this date should be the day on which new information about the analysed event reaches the market. This date is difficult to determine. In this paper we take as the announcement date the day that prior

notice of setting up the SPV is given to the Spanish Securities Exchange Commission (CNMV) by the bank securitizing its assets. The pre-notification is the first report that any listed firm is required to make to CNMV as soon as any relevant financial decision is adopted.

Starting from the abnormal returns obtained, we carry out a cross-sectional estimation of the mean abnormal return obtained on each of the days included in the event period, $\overline{AR}_t$, as follows:

$$\overline{AR}_t = \frac{1}{N}\sum_{i=1}^{N}\overline{AR}_{it} \qquad (3)$$

where N is the number of observations making up the sample. If we assume that the abnormal returns of the securities are independent and identically distributed, applying the central limit theorem the $\overline{AR}_t$ will distribute following a normal distribution.

Next, we can temporally aggregate the mean abnormal returns, $\overline{AR}_t$, to obtain the mean abnormal returns accumulated throughout a particular period (*K*, *L*), $\overline{CAR}_{K,L}$, where *K* and *L* represent day numbers which always refer to the event date:

$$\overline{CAR}_{K,L} = \sum_{t=K}^{L}\overline{AR}_{\tau} \qquad (4)$$

Different tests are possible, both parametric and non-parametric, to test the statistical significance of the abnormal, simple and cumulative returns. There are numerous parametric tests, all based on student's t, in which each test tries to adjust due to the potential problems in the estimations of the abnormal returns (cross-sectional heteroskedasticity, increase in the variance in the event period, contemporaneous correlation). In this paper, we use three different tests of statistical significance. On the

one hand, two parametric tests: (a) the portfolio time-series method proposed by Brown and Warner (1985), which takes into account the potential contemporaneous correlation between the returns[7]; and (b) Boehemer *et al.*'s (1991) cross-sectional test, which together with the cross-sectional heteroskedasticity also considers the possible increases in the variance of the abnormal returns. We also use Corrado's (1989) non-parametric rank test, which is consistent with non-normality as it makes no assumptions about the distribution of the returns. It is, therefore, particularly valid in cases of small samples.

5. Sample

The original sample consists of all the securitization issues undertaken by banks whose shares were listed on the SIBE, known as the Spanish stock market, in the period 1993-2004. Of the 73 securitization operations observed, we eliminated a number of them from the sample for various reasons. First, in two cases we could not identify the date of prior notice to the CNMV. Secondly, we eliminated 27 cases because another event occurred around the announcement date in the period (-4, +4). As the literature has shown, events such as announcements of earnings, of dividends changes, of stock splits, of equity and debt issues or of takeovers, dividend payments, and trading suspensions have a significant effect on share prices. Thus, the final sample used consists of 44 observations.

In the sample used, the listed Spanish banks sell their assets to 38 different special purpose vehicles. Of the 44 observations, 35 correspond to announcements made by banks in which they are the only seller financial institutions. The remaining nine observations correspond to announcements of the creation of eight special purpose vehicles whose various financial institutions sold assets simultaneously. Of these, five correspond to the creation of one of these SPVs. In the creation of two SPVs, at least

two sample banks participate in each, while one sample bank participates in each of the remaining four multi-seller SPVs.

Table 1 provides descriptions of some of the characteristics of the final sample used in the study. Panel A reports the distribution by years. We can see that the announcements are concentrated in the period 1999-2004, with the final two years containing the largest number of announcements (9 each). In the distribution by months (Panel B), we see that the announcements to the market mainly take place in March (11) and June (7), while in the distribution by days of the week (Panel C), they tend to be made on Tuesdays (13) and Thursdays (11). Hence it is unlikely that the results of the study are affected by the seasonal behaviour of the daily stock returns in January and on Mondays, a common finding in the previous empirical literature.

As we can see in Panel D of Table 1, the announcements included in the sample correspond to securitizations carried out by ten banks. Among these, we should stress the *Banco de Santander*, with nine announcements and a value of assets sold amounting to €6.8 billion. We highlight the case of *Bankinter* for its high mean value of assets sold in the three operations included in the sample (a mean of around €1 billion each). Finally, Panel E reports the distribution by types of securitized assets. These are divided almost equally between mortgage-backed securitizations (MBS), with 25 announcements, and asset-backed securitizations (ABS), with 17.

6. Results

Table 2 reports the mean daily and cumulative abnormal returns around the event date. Panel A shows the returns obtained when we use the market model estimated by OLS as the standard of normal returns. In Panel B the mean abnormal returns are calculated as prediction errors using the market model adjusted for

infrequent trading and estimated under the GARCH(1,1) specification. In both cases we report the values of the statistics used to test their statistical significance, specifically the parametric tests of Brown and Warner (1985) and Boehmer *et al*. (1991), and Corrado's (1989) non-parametric test. To obtain the abnormal returns of Table 2, we used a period of 136 days prior to the event day (-140,-5) in the estimation of the expected or normal returns. To analyse the robustness of these results, we considered alternative estimation periods including simultaneously days prior and days subsequent to the event date, as well as periods made up entirely of post-event days[8].

The results in Table 2 suggest that the stock prices of Spanish banks react positively to the pre-notification to the CNMV that they are participating in a securitization issue. Although no significant reaction occurs on the day of the announcement, the market reacts positively and significantly on the day immediately following the event day, day +1. In Panel A of Table 2 we see that the mean of the excess returns is around 0.47% on t=+1, which is statistically significant at the 5% level for all the statistical tests used here. If we compare this with the results in Panel B of Table 2, after correcting the market model for infrequent trading and GARCH effects, the mean abnormal return on the day following the announcement date is 3 basic points higher, at around 0.50% and statistically significant at the 5% level. Although we do not have data about the announcement timing to confirm it, it could be possible that the market reacts on day +1 because the news may have been released after the market closes on the announcement day. Moreover, in neither panel do we observe significant abnormal returns in the rest of days of the event period.

The analysis of cumulative abnormal returns for different windows around the announcement date confirms the Spanish stock market's positive post announcement reaction. Specifically, for the windows prior to the notification to the CNMV, (-1, 0), (-

2, 0) and (-4,-1), the means of the cumulative abnormal returns are not statistically significant. In contrast, the mean cumulative abnormal return in (0, +1) is around 0.50%, and significant at the 5% or 10% level, according to the statistical test considered. Similarly, the interval including the notification day and the following two days (0, +2) shows a cumulative abnormal return of around 1%, which is statistically significant at the 1% or 5% levels, depending on the statistical test used. The behaviour of the prices makes the cumulative abnormal return in the period (-2, +2) reach a value of around 1.15%, which is significant at the 1% and 5% level.

The positive reaction of the Spanish stock market to announcements of asset securitizations by banks differs markedly from the Lockwood *et al*. (1996) findings for the US market. These authors conclude that the shareholders of banks experience statistically significant wealth loss of 0.64% over the period including the announcement date and the immediately preceding day. Our results for the Spanish market appear to be more in line with those of Thomas (1999), in which the mean cumulative abnormal return for the banks' shares reaches 3.95% for the 50 trading days prior to and including the day after the announcement (or issue) date.

6.1 Market's reaction on registry date

Along with the date of prior notice or pre-notification to the CNMV, another of the key dates in the asset securitization procedure is when the issue prospectus is registered in the CNMV. In this document, all the definitive characteristics of the securitization operation are reported in detail. This registry always occurs after the prior notice. For the original sample used in this paper, the mean (median) distance between both dates is 34 (28) calendar days.

In this section we examine if the market reacts in any way to the registering and publication by the CNMV of the securitization issues prospectus. For this purpose, we carry out a similar analysis to that for the pre-notification day. In this case, the sample used consists of 39 observations, after eliminating 34 from the initial sample of 73 because of other events occurring around the registry date that could possibly contaminate the effect we wish to examine.

Table 3 reports the means of the abnormal returns, both daily and cumulative, around the registry date. Panel A shows the returns obtained by using the OLS estimation of the market model, while Panel B shows the results adjusted for non-synchronous trading and conditional volatility of the results. Regardless of the estimation method used, we do not find statistically significant abnormal returns on hardly any of the days of the event period, except for days -2 and +4 from Panel B. These results are confirmed by the cumulative abnormal returns obtained in different intervals of several days centering on the registry date. All of which are statistically insignificant.

Our findings suggest that Spanish investors react significantly when the first news or information about banks' decisions to securitize part of their assets reaches the market. The market does not react when this operation is subsequently registered, since this process merely confirms the operation and provides more detailed information than was published in the pre-notification.

6.2 Cross-sectional analysis of market reaction

As seen above, the Spanish market reacts positively when banks announce their intention to carry out a securitization. In principle, this investors' reaction could be justified by their anticipation that the securitization will have positive effects on the

banking institution's profitability, liquidity and solvency. Likewise, the market reaction could depend on the bank's solvency, on its profitability, on the value and the type of securitized assets, and the frequency of securitizations by the bank.

With regards to the characteristics considered, we use two different proxies for bank solvency. On the one hand, we calculate the ratio of equity to liabilities (SOL). We use this measure because it is difficult to estimate the capital adequacy ratio given that it is necessary to have confidential information from the bank. In short, with this variable we are taking into account the level of capitalization of the seller bank. According to Lockwood *et al.* (1996), it is expected that the market reaction to securitization announcements by firms with low level of capitalization, or financial slack, will be less than the reaction to announcements by firms with higher financial slack. The market may view low financial slack as indicative of an eroded capital base. Thus, the sale of assets by low slack banks may be interpreted by the market as confirmation of financial distress, their difficulties for achieving the legal capital requirements, and the use of securitization to reduce these requirements. Also, the SOL ratio proxies the risk level of the bank, because as the Ayuso *et al.* (2004) findings show, the risk profile of each institution affects the level of surplus capital maintained. On the other hand, like Thomas (1999), we consider the creditworthiness of the asset seller (RATING) as an alternative measure. The credit rating corresponds to Fitch's (or S&P when ratings from Fitch are not available) debt rating for the seller bank, with the value 1 being given to AAA rating, 2 to AA+, 3 to AA, etc. down to 19 to C-.

Secondly, the level of liquidity of the bank could affect the market reaction around securitization announcements. A direct benefit of asset securitization as a method of financing is the ability to accelerate the conversion of financial assets into cash. In this respect, we expect banking institutions with greater liquidity problems to

use the asset securitization to increase their balance sheet liquidity. Therefore, the securitization operations by banks with lower liquidity may be interpreted by the market as a forced sale of assets by a firm in distress or, in other words, a confirmation of a poor financial situation, and the stock market could react more negatively. We introduce the bank's liquidity (*LIQ*) measured using the ratio of net liquid assets to total assets.

Securitization can improve the firm's profitability, either because of the reduction in assets, because of the restructuring of the capital structure as a consequence of the reduction of regulatory capital induced by asset securitization, or as a result of the reinvestment of the freed up resources. Thus, we expect that the beneficial effects of securitization will be greater in firms starting out with lower profitability levels. We calculate the return on equity (*ROE*) as earnings before tax over equity capital.

The market's reaction can also depend on the value of the assets that the bank sells to the SPV (*ASVAL*) and on the characteristics of the assets backing up the securitization issue. With regard to the securitization program size, it could be expected that the larger the value of securitization, the greater the abnormal returns. Furthermore, the market's reaction may depend on the quality of the assets sold to the SPV. Greenbaum and Thakor (1987) suggest that the effect of securitization on the originator wealth depends on the quality of asset securitized. If the banks securitize their best asset, the quality of their balance sheet assets will fall, and therefore a loss in shareholders wealth is expected when the securitization programs are announced. Thus, we include the dummy variable *MBS*, which takes 1 when the majority of the securitised assets are mortgage-type, and 0 otherwise. The securitized assets with mortgage guarantees are less risky than those asset sold without mortgage guarantees. Therefore, the sale of assets with different kinds of guarantees would affect the quality of a bank's asset, and therefore the post-announcement bank's shareholders wealth.

The effect of a securitization announcement may depend on the surprise factor of this operation for the market. Thus we consider the number of previous securitization programs undertaken by the bank (PREV). As Thomas (2001) hypothesizes the effect of the securitization on the originator's stock price depends on the frequency of the securitization issues and the reputation established on the knowledge of the securitizer's activities.

Therefore, to analyse the factors that may explain the positive abnormal returns around the announcement date, we estimate the following cross-sectional model:

$$\overline{CAR}_{(0,+1),i} = \alpha_0 + \alpha_1 SOL_i + \alpha_2 LIQ_i + \alpha_3 ROE_i + \alpha_4 ASVAL_i + \alpha_5 MBS_i + \alpha_6 \text{PREV}_i + \varepsilon_i \qquad (5)$$

where $\overline{CAR}_{(0,+1),i}$ is the mean cumulative abnormal return in the period (0,+1), 0 is the date of the pre-notification to the CNMV; *SOL* is the capital ratio; *LIQ* is the corporate liquidity ratio; *ROE* is the return on equity ratio; *ASVAL* is the value of assets sold (in log); *MBS* is a dummy variable taking 1 when securitized assets are mortgage-type and 0 otherwise; and *PREV* is the number of previous securitization programs undertaken by the seller bank. The ratios used in the analysis are estimated using the financial statements corresponding to the end of the half-year immediately prior to the announcement date. We obtained these data from the CNMV files. Table 4 shows descriptive statistics of the independent variables of Model (5) and the correlation matrix.

The Model (5) and its different specifications are estimated by ordinary least squares. Given the small size of the sample, we implement the *bootstrapping pairs* procedure to evaluate the statistical significance of estimated coefficients to test the robustness of the results. From the original sample of 44 observations we randomly draw samples of (y, X) with replacement B bootstrap. Using these bootstrap samples,

we regress the model B times, obtaining *t* statistics of model coefficients. We repeat this procedure 1000 times (B=1000), and from the sample of bootstrap statistics $\{t_{i,b}: b=1,2,\ldots B\}$ we obtain the empirical distribution of statistic *t* and use this distribution to fix the acceptance and rejection regions. We apply the *bootstrapping pairs* procedure instead of the *bootstrapping residuals* because for cross-sectional data is the most commonly used method (Johnston and Dinardo, 1997).

Table 5 shows the results of the estimation of different specifications of the model (5), reporting estimated coefficients with their asymptotic *p*-values and bootstrap *p*-values. Columns 1 and 2 report the estimation of the model (5) using the two proxies for bank solvency, SOL and RATING, respectively. In the remaining columns we estimate different specifications of the model to avoid the potential multicollinearity problems derived by the high correlation between several independent variables, especially PREV with SOL and ROE, and RATING with ROE (as seen in Table4). As there are multicollinearity problems, it also provides results with some of the explanatory factors isolated.

Our results suggest that the variable with highest significant explanatory power is the ratio of solvency or equity to debt. In all models, the estimated coefficient for SOL is positive and significant at a level of 1%, except for the 5% level according to the bootstrap procedure in column (1). Moreover, as seen in column (5), this variable explains in itself around 28% of the cumulative abnormal return. Excess returns are higher for seller banks with a higher proportion of equity in their capital structure. The other proxy used for bank solvency, RATING provides consistent results. We observe that the coefficient for RATING is negative and statistically significant at the 1%, 5% or 10% level. The higher the creditworthiness of the seller bank, the higher the abnormal returns. Furthermore, we can interpret these results as the market considers that the

banks with higher creditworthiness and solvency obtain higher gains from securitizations. These findings are totally consistent with Lockwood *et al.* (1996) and Thomas (2001). They conclude that shareholder wealth effects are higher for well-capitalized asset sellers. However, our findings contradict Thomas (1999), who reports a negative relationship between the creditworthiness of asset seller and the excess returns to securitization.

Our findings suggest that the higher creditworthiness and the higher capitalization of the seller bank, the greater the shareholders' wealth gains around announcement date of the securitization. The market may asses that the well-capitalized banks are in a better situation to take advantage of securitization as a method of optimising their capital structure. Securitization can reduce minimum capital requirements and increase capital buffers. Thus, by securitizing assets banks free up capital and modify their financing structure to reduce their overall cost of capital, and thereby improve their return on equity. Equally, the improvement of ROE could be achieved if the capital buffer generated by securitization process is used to fund new loans, with the consequent increase in business using the same amount of funds.

We also hypothesized that gains from securitization were higher in those seller banks with a lower level of ROE. Our results seem to confirm this hypothesis. In column 7 of Table 5, where the return on equity is the only explanatory factor included in the regression model, the coefficient for ROE is negative and statistically significant with an asymptotic (bootstrap) *p*-value of 0.07 (0.00). In this case ROE explains 5% of the excess returns. In other specifications of the model, the sign of the ROE estimated coefficient is always negative, although in several cases non-significant. The lack of significance of ROE when it is included with other independent variables could be an indication of multicollinearity problems in the original model.

Something similar is seen in estimated coefficients for PREV. In the complete specifications of model (5) – columns 1 and 2- the coefficients are not significant. The reason could be the higher correlation between PREV with other independent variables, especially SOL, RATING, and ROE. However, when we regress the dependent variable on the intercept and PREV, the coefficient for the latter is positive and statistically significant. This is consistent with the findings of Thomas (2001), who concludes that frequent securitizers are rewarded with higher excess shareholders returns. These findings are a confirmation of investor confidence in the announced securitization on the basis of knowledge of the past securitizations. Moreover, these findings support the existence of positive effects linked to the creation of an asset-securitization pipeline structure that enables a bank to expand their loan its provision business without increasing their liabilities or their capital levels (Wolfe, 2000).

With regard to the rest of the explanatory variables, none are related significantly to abnormal returns arising from securitization announcements. Specifically, it seems that the market reaction does not depend on the liquidity situation of the bank or on the value of assets sold. However, at least the estimated coefficients for LIQ and ASVAL show the expected sign, which suggests that market reaction is higher when securitization announcements are undertaken by banks with lower levels of corporate liquidity and when the amount of assets sold is higher. Finally, the creditworthiness of the assets sold does not seem to be relevant either, because there are no significant differences in the market reaction to the news about issuances of MBS or of ABS.

7. Conclusions

Previous literature examining the wealth effects of securitization on banks is scarce and focuses on US market. Furthermore, their findings are not at all clear. In order to shed light on this issue, this paper analyses the Spanish stock market's reaction to listed banks' announcements of asset securitization operations between 1993 and 2004. Our findings are also interesting since the Spanish securitization market is the second largest in Europe after United Kingdom. Additionally, it is also interesting to study other countries with less developed capital markets, such as Spain

We find that the banks' share prices experience significant excess returns on the day immediately following the notice or pre-notification to the CNMV (the Spanish SEC) of the setting up of SPVs, which is taken as the announcement date. Analysis of the cumulative abnormal returns in different intervals of several days around the event date confirms the positive response of the Spanish market. Likewise, we have analysed the behaviour of the banks' share prices around the date when the issue prospectus is registered at the CNMV. In this case, we find no significant abnormal returns around this date. Therefore, our findings suggest that in the Spanish market, the banks' share prices discount the potential benefits of the securitization on the first day that the securitization program is made public.

The cross-sectional analysis of the market's reaction to the announcement of securitization issues shows that Spanish investors react more strongly to announcements from banking institutions with a higher proportion of equity in their capital structure and lower profitability levels. This evidence seems to be consistent with the idea that investors anticipate the potential benefits of the securitization in terms of freeing up equity, which allows the firm to improve its profitability. It is also observed that the excess returns are related positively to the number of securitizations undertaken

previously and, consequently, with the reputation of the bank in this field. This suggests that a continuous history of successful securitizations signals a bank's strong financial position and the market reacts positively, because of market discipline reduces moral hazard and ensures that only reputable lenders continue to securitize.

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[1] AIAF is the Spanish bond market (fixed income market) in which securities issued by industrial companies, banks and Regional Public Administrations are traded.

[2] Under Basel II SPV is commonly referred to as a Special Purpose Entity (SPE).

[3] Ley 19/1992 *sobre régimen de las Sociedades y Fondos de Inversión Mobiliaria y sobre los Fondos deTitulización Hipotecaria.*

[4] Real Decreto 926/1998 *sobre Fondos de Titulización de Activos y Sociedades Gestoras de los Fondos de Titulización.*

[5] Several empirical studies show that GARCH(1,1) is the best specification for describing the daily returns series in the Spanish market (Abad and Rubia, 2001; Gómez-Sala and Gil, 2004).

[6] The IBEX35 is the official index of the SIBE. It is based on the 35 most liquid stocks traded at the SIBE. Stocks included in IBEX 35 index represent, on average, 58.74 % of the overall market capitalisation and 93.59 % of the effective trade volume of the SIBE in the sample period (Monthly Bulletin of *Sociedad de Bolsas*).

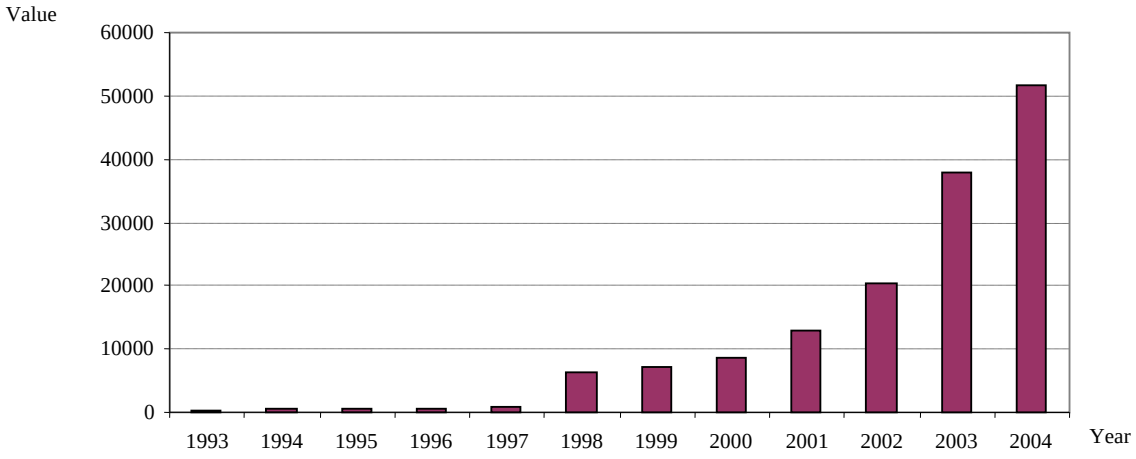
[7] The problem of contemporaneous correlation between the returns appears when the announcement date of the whole sample is the same, with the problem becoming worse if the firms belong to the same sector (Chandra *et al*., 1990). Given the concentration in our sample in the banking sector and a certain temporal concentration in some of the announcements, we considered it appropriate to apply this test.

[8] The results are similar to those reported here, and are available from the authors on request.

Figure 1

Spanish securitization issuance

Face value in millions of euros



Source: Annual Report of CNMV (2004), and the authors from issues prospectuses published at Official Registry of CNMV

Table 1. Sample characteristics

Our sample contains 44 announcements of securitization programs by banks listed on Spanish stock market in 1993-2004. Securitizations are classified in two types: mortgage-backed securitization (MBS) and asset-backed securitization (ABS).

Panel A. Distribution by years

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
#	1	1	1	0	0	1	6	5	5	6	9	9	44
%	2.27	2.27	2.27	0.00	0.00	2.27	13.64	11.36	11.36	13.64	20.45	20.45	100

Panel B. Distribution by months

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
#	2	0	11	1	3	7	1	1	5	3	6	4	44
%	4.55	0.00	25.00	2.27	6.82	15.91	2.27	2.27	11.36	6.82	13.64	9.09	100

Panel C. Distribution by days

	Monday	Tuesday	Wednesday	Thursday	Friday	Total
#	4	13	8	11	8	44
%	9.09	29.55	18.18	25.00	18.18	100

Panel D. Distribution by banks

Bank	Number	%	Total value of assets sold (in millions of euros)	Mean value of assets sold (in millions of euros)
Banco Bilbao Vizcaya	3	6.82	2,125	708
Banco Español de Crédito	5	11.36	2,579	516
Banco Guipuzcoano	7	15.91	947	135
Banco Pastor	7	15.91	2,591	370
Banco Popular	3	6.82	2,207	736
Banco Sabadell	3	6.82	2,050	683
Banco Santander	9	20.45	6,829	759
Banco Valencia	1	2.27	472	472
Banco Zaragozano	3	6.82	945	315
Bankinter	3	6.82	3,059	1,020
Total	44	100	23,804	

Panel E. Distribution by type of securitization

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
MBS	1	1	1	0	0.	1	4	3	3	2	1	2	19
ABS	0	0	0	0	0	0	2	2	2	4	8	7	25

Table 2. Abnormal return on announcement date

Mean daily abnormal returns ($\overline{AR}$) and mean cumulative abnormal returns ($\overline{CAR}$) around announcement date. Sample contains 44 observations. Abnormal returns are estimated as prediction errors. Panel A: expected returns are calculated from market model, whose parameters are estimated by OLS. Panel B: estimation of expected returns carried out from market model with lead and lag, in order to consider the effects of non-synchronous trading, and applying GARCH specification to adjust for kurtosis and heteroskedasticity. Estimation period is (-140, -5), where day 0 is the announcement date, specifically, it is the date of prior notification to CNMV. Statistics used to test significance of abnormal returns are by Browner and Warner (1985) [B&W], Boehmer *et al.* (1991) [BMP], and Corrado (1989) [Corra].

	Panel A: Market model. OLS estimation.				**Panel B: Market model with lag and lead and GARCH specification**			
Day	$\overline{AR}$ **(%)**	**B&W**	**BMP**	**Corra.**	$\overline{AR}$ **(%)**	**B&W**	**BMP**	**Corra.**
-4	-0.171	-0.91	-0.93	-0.47	-0.172	-0.95	-0.74	-0.45
-3	-0.262	-1.39	-1.62	-1.57	-0.271	-1.39	-1.49	-1.59
-2	0.192	1.02	0.65	0.86	0.205	1.08	0.48	1.09
-1	0.181	0.96	0.82	0.86	0.234	1.25	1.21	1.14
0	0.027	0.14	0.50	0.73	-0.002	-0.01	0.29	0.43
1	0.474	2.51**	2.13**	2.13**	0.497	2.69**	2.03**	2.10**
2	0.272	1.44	0.85	1.39	0.225	1.01	0.44	1.23
3	-0.015	-0.08	-0.11	-0.02	0.020	0.10	-0.24	0.14
4	-0.061	-0.32	-0.49	-0.33	-0.061	-0.33	0.21	0.03
(0,+1)	0.500	1.88*	2.03**	2.03**	0.495	1.85*	1.94*	1.79*
(0,+2)	0.772	2.36**	2.33**	2.46**	0.720	2.07**	1.90*	2.17**
(-1, 0)	0.208	0.78	0.90	1.13	0.232	0.86	1.26	1.11
(-2, 0)	0.400	1.22	0.97	1.42	0.437	1.33	1.18	1.53
(-2,+2)	1.145	2.72***	2.67**	2.68***	1.159	2.65**	2.13**	2.67***
(+1,+4)	0.669	1.77	1.53	1.58	0.680	1.72	1.55	1.74
(-4,-1)	-0.060	-0.16	-0.67	-0.16	-0.004	-0.01	-0.11	0.09
(-4,+4)	0.636	1.12	0.66	1.20	0.675	1.17	0.93	1.37

Note: (***) significant at the 1% level; (**) significant at the 5% level; (*) significant at the 10% level

Table 3. Abnormal return on registry date

Mean daily abnormal returns ($\overline{AR}$) and mean cumulative abnormal returns ($\overline{CAR}$) around date of registry of fund in CNMV. Sample contains 44 observations. Abnormal returns are estimated as prediction errors. Panel A: expected returns are calculated from market model, whose parameters are estimated by OLS. Panel B: estimation of expected returns carried out from market model with lead and lag, in order to consider the effects of non-synchronous trading, and applying GARCH specification to adjust for kurtosis and heteroskedasticity. Estimation period is (-140, -5), where day 0 is the announcement date, specifically, it is the date of prior notification to CNMV. Statistics used to test significance of abnormal returns are by Browner and Warner (1985) [B&W], Boehmer *et al.* (1991) [BMP], and Corrado (1989) [Corra].

	Panel A: Market model. OLS estimation.				**Panel B: Market model with lag and lead and GARCH specification**			
Day	$\overline{AR}$ **(%)**	**B&W**	**BMP**	**Corra.**	$\overline{AR}$ **(%)**	**B&W**	**BMP**	**Corra.**
-4	0.182	0.88	1.16	1.18	0.235	1.31	1.80	1.53
-3	0.202	0.98	1.25	0.89	0.145	0.80	0.80	0.72
-2	0.176	0.86	1.65	1.47	0.206	1.20	1.93*	1.65*
-1	-0.207	-1.01	-1.08	-1.40	-0.182	-1.07	-1.05	-1.32
0	0.152	0.74	1.14	1.43	0.133	0.77	0.91	1.14
1	-0.227	-1.10	-1.14	-1.42	-0.179	-1.02	-1.00	-0.92
2	0.160	0.78	1.53	1.47	0.095	0.54	0.86	0.78
3	0.017	0.08	-0.15	0.74	0.071	0.41	0.85	0.99
4	-0.186	-0.90	-1.77	-1.38	-0.223	-1.25	-2.13**	-1.84*
(0,+1)	-0.074	-0.26	-0.19	0.01	-0.046	-0.19	-0.20	0.15
(0,+2)	0.086	0.24	0.69	0.85	0.049	0.16	0.28	0.57
(-1, 0)	-0.055	-0.19	-0.13	0.02	-0.049	-0.20	-0.28	-0.13
(-2, 0)	0.121	0.34	0.77	0.87	0.158	0.53	0.83	0.85
(-2,+2)	0.055	0.12	0.65	0.69	0.074	0.19	0.50	0.59
(+1,+4)	-0.235	-0.57	-0.84	-0.30	0.405	1.16	1.60	1.30
(-4,-1)	0.353	0.86	1.46	1.07	-0.236	-0.67	-0.91	-0.50
(-4,+4)	0.270	0.44	0.90	0.99	0.302	0.58	0.91	0.91

Note: (***) significant at 1% level; (**) significant at 5% level; (*) significant at 10% level

Table 4. Explanatory variables

This table reports descriptive statistics for independent variables considered in the cross-sectional analysis of the abnormal returns around securitization announcement date. *SOL*, ratio of equity to liabilities; RATING, the credit rating, corresponds to Fitch's (or S&P when ratings from Fitch are not available) debt rating for the seller bank, with the value 1 being given to AAA rating, 2 to AA+, 3 to AA, etc. down to 19 to C-; LIQ: ratio of net liquid assets to total assets; *ROE*: earnings before taxes over equity; ASVAL, value of assets sold by the bank; MBS, dummy variable = 1 when most assets sold by the bank are mortgage-type, 0 otherwise; PREV, number of previous securitization programs undertaken by the seller bank. The accounting information to estimate the different ratios comes from financial statements of the prior semester relative to announcement date.

Panel A. Descriptive statistics

	SOL	RATING	LIQ	ROE	ASVAL	PREV
Mean	0.1325	5.38	0.1292	0.0678	541	4.20
Standard deviation	0.0293	1.37	0.0786	0.0252	520	4.13
Percentile 10	0.1035	3.30	0.0409	0.0475	60	0.30
Median	0.1276	6.00	0.1269	0.0641	298	3.00
Percentile 90	0.1810	7.00	0.2062	0.0869	1,164	10.1

Panel B. Correlation Matrix

	SOL	RATING	LIQ	ROE	ASVAL[a]	MBS	PREV
SOL	1						
RATING	-0.49***	1					
LIQ	0.19	0.03	1				
ROE	-0.22	-0.46***	-0.37**	1			
ASVAL[a]	0.20	-0.13	-0.21	-0.20	1		
MBS	-0.26*	0.12	0.27*	-0.05	0.10	1	
PREV	0.67***	-0.14	0.19	-0.43***	0.37**	-0.23	1

Note: (***) significant at the 1% level; (**) significant at the 5% level; (*) significant at the 10% level

(a) Natural logarithm of ASVAL

Table 5. Cross-sectional analysis of abnormal returns

Table reports results of estimation of Model (5) by OLS. Sample contains 44 observations. Dependent variable is mean cumulative abnormal return in interval (0, 1), which is obtained using as standard of return the market model estimated with lead and lag in market returns and adjusted by GARCH. Independent variables are: *SOL*, ratio of equity to liabilities; RATING, the credit rating corresponds to Fitch's (or S&P when ratings from Fitch are not available) debt rating for the seller bank, with the value 1 being given to AAA rating, 2 to AA+, 3 to AA, etc. down to 19 to C-; LIQ: ratio of net liquid assets to total assets; *ROE*: earnings before taxes over equity; ASVAL, natural logarithm of the value of assets sold by the bank; MBS, dummy variable = 1 when most assets sold by the bank are mortgage-type, 0 otherwise; PREV, of previous securitization programs undertaken by seller bank. The accounting information used to estimate the different ratios comes from financial statements of the semester prior to announcement date. The White's heteroskedasticity test rejects the presence of heteroskedasticity in the residuals from each estimation.

$$\overline{CAR}_{(0,+1),i} = \alpha_0 + \alpha_1 SOL_i + \alpha_2 LIQ_i + \alpha_3 ROE_i + \alpha_4 ASVAL_i + \alpha_5 HIP_i + \alpha_6 \text{PREV}_i + \varepsilon_i$$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	-0.053	0.124	-0.052	0.034	-0.059	0.042	0.029	-0.000
	(0.11)	(0.01)**	(0.07)*	(0.21)	(0.00)***	(0.01)**	(0.02)**	(0.99)
	[0.10]	[0.00]***	[0.08]*	[0.28]	[0.00]***	[0.02]**	[0.00]***	[0.93]
SOL	0.622		0.547		0.512			
	(0.00)***		(0.00)***		(0.00)***			
	[0.02]**		[0.00]***		[0.00]***			
RATING		-0.011		-0.006		-0.006		
		(0.00)***		(0.06)*		(0.04)**		
		[0.00]***		[0.08]*		[0.05]*		
LIQ	-0.019	-0.029						
	(0.75)	(0.63)						
	[0.74]	[0.64]						
ROE	-0.207	-0.573	-0.150				-0.295	
	(0.23)	(0.01)**	(0.31)				(0.07)*	
	[0.12]	[0.00]***	[0.21]				[0.00]***	
ASVAL	-0.001	-0.004	-0.001	-0.002				
	(0.78)	(0.39)	(0.71)	(0.66)				
	[0.82]	[0.38]	[0.83]	[0.67]				
MBS	0.012	0.009	0.012	0.011				
	(0.14)	(0.26)	(0.11)	(0.20)				
	[0.17]	[0.28]	[0.11]	[0.17]				
PREV	-0.001	0.001		0.002				0.002
	(0.55)	(0.47)		(0.03)**				(0.03)**
	[0.66]	[0.46]		[0.07]*				[0.04]**
Adj. R^2.	0.28	0.23	0.30	0.13	0.28	0.07	0.05	0.09

Note: asymptotic *p*-values in brackets; bootstrap *p*-values in square brackets.

(***) significant at the 1% level; (**) significant at the 5% level; (*) significant at the 10% level