

ADVERSE EFFECT OF LOAN SECURITIZATION ON THE STOCK PRICES OF BANKS: EMPIRICAL EVIDENCE FROM EUROPE AND AMERICA

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ABSTRACT

Securitization through its influence on the off balance sheet is likely to become a crucial determinant of the stock prices after the 2007 financial meltdown. Depending on the tranche values and total assets of financial institutions, this paper tries to investigate the reaction of securitization on stock prices. The impact of securitization is analyzed by ordinary least square method in a semi panel structure model in addition to the effects of earnings and book value for the role they play in the market valuation of accounting information before and after the mandatory adoption of International Financial Reporting Standards. To supply more information to the Ohlson (1995) model, an alternative model is used in this paper. The evidence from the estimated model shows that higher securitization causes lower stock prices. Although earnings value does not have any impact on stock prices, book value has negative impact on stock prices. However, the value relevance of earnings and book value becomes significant after the compulsory introduction of IFRS.

KEYWORDS

Book value, Earnings per share, International Financial Reporting Standards (IFRS), Securitization, Stock price.

1. INTRODUCTION

Bank loan securitization has become a burning issue after the 2007 financial meltdown because of the dramatic increase in securitization of loans and its impact in the financial markets. In defining securitization, Agostina and Mazzuca (2009) explained it as an economic transfer of assets by an originating institution to a third party. Although, some economists have linked securitization of bank loan with the financial turmoil, Mordel (2010) considered it as a process of cash flow repackaging through which non-tradable assets are converted into liquid assets. Precisely, banks by selling interest from pooled loans can raise more capital which enable them to issue more loans by moving pooled loans off its balance sheet. Though by off balance sheet treatment, the credit risk is transferred and a new source of funding is created, it is argued that shareholders wealth is ruined which creates long term underperformance. (Franke and Krahnhen, 2005)

One might argue that the impact of securitization on the stock price and its relevance with market value may show significant results concerning the changing stock prices. This significance depends on how closely the accounting values and stock prices are related. (Senthilnathan, 2009) As a result, financial reporting standards play an important role in the information quality of securitization on the financial statements. Since 2005, all listed companies in the European Union are required to produce their financial statements in conformity with adopted International Accounting Standards known as IFRS/IAS. Particularly disclosing information regarding consolidation accounting and securitization of loans on balance sheet was made an essential rule. However, there are specific regulations on securitization for countries like UK, USA and more recently Belgium, France, Ireland and Italy (PWC, 2004)

This paper uses market value relevance as a proxy and tries to examine two issues, first, whether stock prices decreased because of securitization and second, whether value relevance increased as a result of IFRS application. Many studies have examined IFRS for its value relevance, by observing only European countries that voluntarily applied International reporting but omitted the impact of securitization. By contrast, impact of securitization is considered as an additional variable together with the earnings and book value in this paper. This paper also investigates the impact of these variables after the compulsory requirements of IFRS. Hence 64 financial institutions from Europe and USA from 1994 to 2011 were analyzed to see the value relevance of securitization, earnings and book value in order to qualify with the financial reporting standards.

The motivation of this research paper is to see whether securitization can be used as a determinant of stock prices regarding the recent financial crisis and for this purpose, both periods prior to financial meltdown in 2007 and after this crash is considered. Semi panel structure in OLS method is used to observe the securitization ratio and stock process of each bank together with earnings and book value in order to analyze the relation between stock prices and loan securitization of these institutions. This method is used because of highly unbalanced panel data structure. Moreover, in response to the research question, new variables are adopted to the equation which may have an impact on the dependent variable; the stock price, in order to conduct better regression analysis. For this reason, securitization is taken as the third independent variable in addition to other independent variables of earnings and book value in using Ohlson (1995) framework.

As a result, the empirical evidence shows that, after the compulsory adoption of the IFRS, the book value impact on stock price increased. On the other hand, it is observed that the IFRS adoption has no significant influence on earnings value; the impact of accounting earnings is significant on stock prices. Similarly, no significant effect on securitization is found because of the mandatory adoption of the IFRS. However, stock prices are significantly and negatively influenced by securitization.

This paper is structured in the following manner. First, it introduces the literature review by recognizing the ongoing debates on stock price reaction as a result of the bank loan securitization and the accounting variables when considering the IFRS adoption. The next section develops the methods for identifying the empirical framework, describes the data and the research constraints. Then the empirical results are presented with discussion about the robustness of the results and finally the last section concludes the discussion.

2. REVIEW OF LITERATURE

Relevant information plays an important role to investors as it conveys information for evaluating banks and their stock prices. Similarly, reliable information works as an incentive in capital market and optimal investment allocation. (Agostina et al., 2010) After the implementation of IFRS in 2005, all European companies must publish their financial statements in accordance with these IFRS rather than their local GAAP. This requirement raised a question that in the context of information processing on capital markets, which accounting standard is more value relevant. Previous studies regarding value relevance of the local GAAP and IAS shows that it is depended upon the model applied for valuation. According to Bart, Landsman and Lang (2008), greater the value relevance, higher will be the information quality. After observing different capital markets and by comparing local GAAP with IAS, a number of studies argue that IAS application provides better value relevance for accounting values and thus increases the quality of information compared to local GAAP (Bart et al., 20078; Swartz and Negash, 2006b; Bartov, Goldberg and Kim, 2005) In contrast, specific proposal given by Eccher and Healy (2000) states that accounting values under IAS compared to Chinese GAAP are not more value relevant. Hence, regarding Ball, Robin and Wee's (2003) claim of incorporating transparency and indexes in classifying countries according to their accounting standard might stress that accounting standard can rely only on the authority and compulsion.

It is worthwhile to mention that the findings of the studies before the mandatory adoption of IFRS/IAS may not be relevant after the compulsory application of these regulations. Many studies state that capital market is taking advantage of this mandatory reporting as it increases the value relevance of the listed firms. (Daske, Hail, Leuz, Verdi, Morais and Curto, 2007) Besides, O'Keefe (2011) highlighted that the quality of information is higher which are produced in

accordance with IFRS rather than that of the local accounting systems. Similarly, Agostino et al. (2010) highlights that, in transparent entities specially, the information quality regarding earnings and book value increased because of the introduction of compulsory adoption of IFRS/IAS.

Securitization is seen as a process of transferring non-tradable assets to liquid securities by the way of cash flow repackaging. (Mordel, 2009) This process enables the financial institute to remove assets from the books. According to the literature before the financial crisis, benefits of securitization include reduced funding cost, transferred credit risk, capital saving and new profit opportunities which can be advantageous comparatively. (Rosenthal and Ocampo, 1988; Gorton and Souleles, 2005; Affinito and Tagliaferri, 2008) On the other hand, securitization has been identified as one of the reasons for crisis, which is being emphasized after the financial meltdown. In this context, optimists considered securities as a financial innovation whereas pessimists have seen it as a cause of the crisis. (Ashcraft and Schuermann, 2008) Mainly, O & D model is considered as a reason for risky loans as it provides incentive to securitized bank to monitor their borrowers less which makes the loan more risky. (Affinito and Tagliaferri, 2008)

According to Calamiris and Mason (2004), because of the efficient contracting mechanism of securitization market, adverse selection cost is reduced as the need for equity capital goes down. On the other hand, complex nature of such structured products create asymmetric information which leads to the problem of moral hazard and adverse selection. (Mishkin, 2011) Bernanke (2007) also highlighted the valuation problem of such complex structured products. Although banks benefit from capital requirement regulations, securitization raises risks through misdirected incentives. (Affinito and Tagliaferri, 2008) The counter view on securitization points out the systematic risk because of the inadequate capital level in the balance sheet in the equity part of the securitized deals. (Higgins, 2009) So, it can be argued that after the financial crisis as a result of insufficient capital to recover losses, the banks with securitized loans are facing negative impact on their stock prices in the market.

Credit rating agencies (CRAs) also played an important role in the market of securitization. But these agencies might have misled the investors of securities as well as investors of the stocks of these banks. In connection to this issue, Mishkin (2011) states that risk taking behavior were incentivized because of the credit rating agency's erroneous rating which led to providing investors with inaccurate information.

As several economist linked financial turmoil with securitization, updated regulations have been implemented to prevent the negative impact of securitization. For example, Basel III, Tier 4 capital ratio has been increased to 6% from 4% after the crisis. Similarly, Core Tier 1 capital ratio is now 4.5% (McNelis, 2011) which was 2% before the crisis. This update allowed the banks to deal with large adverse events.

To sum up, based on the nature of the underlying assets and market conventions, securitization provides peculiar opportunities and risk. For example, it might be helpful for financial system if liquidity triggers securitization. On the other hand, banks can be exposed to risk if avoiding capital requirement is the reason of securitization. As a result, different opinions regarding securitization might provide different responses in capital market.

3. HYPOTHESIS

Standard OLS estimator in a semi panel structure is used to analyze the model depending on the highly unbalanced data structure. OLS regression is tested further with yearly and country dummies for each individual to deduce the effects of unobserved information which might be correlated with the explanatory variables. Barth, Landsman, Lang and Williams (2006) highlighted that; each country might have different market reactions as a result of institutional factors.

The null and alternative hypotheses that are set out to see whether securitization is a significant indicator in refining the stock price are as follows:

H₀: δ_s = 0 Securitization is not a determinant of the stock prices

H₁: δ_s ≠ 0 Securitization is a determinant of the stock prices

According to the hypothesis, the probability values are taken as a benchmark in order to comment on the acceptance or rejection of the hypothesis. Therefore, if the probability value is below or equal to 5%, null hypothesis is rejected and alternative hypothesis is accepted. (Studentmund, 2006)

4. RESEARCH METHODOLOGY

To reveal the relationship between accounting values and stock prices and to give information about the data used, this chapter indicates certain models. This chapter also provides the methodology that has been taken into consideration for analyzing the relationship. The main purpose of this research on value relevance is to see how closely the accounting book values and market prices are associated with each other. Conclusions will be drawn based on the findings to determine how much investors should be relying on information obtained from financial statements to determine the banks stock prices.

The Ohlson (1995) Framework which is the most popular development in capital markets, will be introduced first then the model extended by Agostine et al. (2010) will be augmented to identify the degree of reaction on the stock prices to the volume of securitization by the insertion of securitization in the model. The standard OLS estimation techniques of regression will be used in this empirical process to analyze the model.

Further, specific to the European countries, a robustness check is carried out by considering different time spans prior to and after the compulsory adoption of IFRS.

4.1 THE MODELS

Firstly, the Ohlson Model which considers dividend discount model (DDM) by examining dividends, future earnings and book value to build the origin of a valuation model is introduced. This model is based on 'clean surplus relation' (Source of the Model: Swartz, 2006a, pp.29-30; Swartz and Firer, 2006c, pp.70-71) and is explained as follows:

$$bv_t = bv_{t-1} + x_t - d_t \quad (1)$$

Where:

bv_t = Company book value at time t,

x_t = earnings for period t,

d_t = dividends for period t.

The clean surplus relation (1) can be examined further by removing infinite growth in book value, referring an accounting based expression for equity value, known as the residual income valuation model:

$$P_t = bv_t + \sum_{\tau=1}^{\infty} R_f E_t [x_{t+\tau}] \quad (2)$$

Where abnormal earnings are specified as;

$$x_t \equiv x_t - (R_f - 1)bv_{t-1} \quad (3)$$

Hence, abnormal earnings (~ a symbolizes abnormal) are calculated by subtracting change for capital from earnings where R_f denotes risk free rate.

Regarding the time variant behavior of normal earnings, the information dynamics are created by adding abnormal earnings and information other than abnormal earnings, v_t.

$$X_{t+1} = \omega x_t + v_t + \hat{\epsilon}_{1t+1} \quad (4a)$$

$$v_t = \gamma v_t + \hat{\epsilon}_{2t+1} \quad (4b)$$

Where the disturbance terms $\hat{\epsilon}_{1t+1}$ and $\hat{\epsilon}_{2t+1}$ are with zero means and constant variances, while the parameters of the process ω and γ are fixed and known.

On whole, the combination of equations (2), (4a) and (4b) reveals a linear equation for P_t :

$$P_t = \alpha_0 + \alpha_1 BVPS_{it} + \alpha_2 EPS_{it} + \alpha_3 postIAS_t + \alpha_4 BVPS_{it} * postIAS_t + \alpha_5 EPS_{it} * postIAS_t + \delta T + \epsilon_{it} \quad (5)$$

As a consequence of this model, net book value of assets, abnormal income and abnormal dividends as an indicator of other information contributed in forming the equation of valuation. In this relation, Swartz, et al. (2006c) stated that the book value and accounting earnings provide definite company value, so these should be considered as value relevant. Accordingly, this paper tries to evaluate the relevance of the accounting values especially securitization and whether the accounting values are significant enough to influence the stock prices after the compulsory application of the IFRS.

Agostino et al. (2010) paper is used as a base model of this paper, which uses the estimated model of value relevance of IFRS using fixed effects estimator. European banking industry from 2000 to 2011 was taken into consideration for examining the effect of compulsory application of IFRS. They used the following model (Source of the model: Agostino et al. (2010) pp.11):

$$P_{it} = \alpha_0 + \alpha_1 BVPS_{it} + \alpha_2 EPS_{it} + \alpha_3 postIAS_t + \alpha_4 BVPS_{it} * postIAS_t + \alpha_5 EPS_{it} * postIAS_t + \delta T + \epsilon_{it} \quad (6)$$

Where;

P_{it} = the stock price 6 months after the end of the fiscal year;

$BVPS_{it}$ = per-share book value;

EPS_{it} = earnings per share;

$postIAS_t$ = dummy coded 1 when IFRS become mandatory and 0 otherwise;

T = trend;

ϵ_{it} = composite error.

Their results suggest that after the compulsory application of IFRS, information quality of earnings and book value improves for transparent entities, while no significant value relevance impact on the book value was found as a result of this regulation. The findings of this research helped to come up with some questions like whether securitization can be a factor in determining stock prices and how value relevant it is after the compulsory introduction of IFRS, especially after the financial meltdown of 2007. These issues will be discussed in the result section of this paper.

4.2 METHODOLOGY

Ohlson model is used as a base of many studies for examining the value relevance of financial statement information using multiple regression techniques and panel data. This paper also uses Ohlson model as a frame and takes into account the extended model given by Agostino et al (2010) by using the OLS estimator in a semi panel structure because of highly unbalanced panel structure observations. The following model is estimated for this paper:

$$P_{it} = \alpha_0 + \alpha_1 BVPS_{it} + \alpha_2 EPS_{it} + \alpha_3 postIAS_t + \alpha_4 BVPS_{it} * postIAS_t + \alpha_5 EPS_{it} * postIAS_t + \alpha_6 SEC_{it} + \alpha_7 SEC_{it} * postIAS_t + \eta_s + \eta_t + \epsilon_{it} \quad (7)$$

The independent variables of earnings per share, book value per share and securitization ratio have been analyzed by using the data from European countries and United States to consider the mandatory adoption of IFRS. This equation (7) which was developed from Agostino et al. (2010) shapes the foundation of the empirical results of this paper.

Key to understand the equation (7);

- Values based on i-th firm (with $i = 1, \dots, N$) at time $t = 1993, \dots, 2011$
- P_{it} = Stock prices 3 months after the end of the fiscal year t;
- α_0 = An intercept
- $BVPS_{it}$ = Book value per share, measured by subtracting total liabilities from total assets and then dividing the result by common shares at time t;
- EPS_{it} = Earnings per share, measured by subtracting preferred dividends from net income and then divided by common shares at time t;
- $PostIAS$ = A dummy coded 1 when IFRS applied as a compulsory regulation, particularly in the listed companies in Europe after January 1, 2005, and otherwise coded 0;
- SEC_{it} = Securitization, measured by dividing bank's tranche values with their total assets at time t;
- $BVPS_{it} * postIAS_t$ = The multiplication of BVPS with PostIAS, used to see impact of the value relevance after the compulsory adoption of IFRS;
- $EPS_{it} * postIAS_t$ = The multiplication of EPS with PostIAS, used to see impact of the value relevance after the compulsory adoption of IFRS;
- $SEC_{it} * postIAS_t$ = The multiplication of SEC with PostIAS, used to see impact of the value relevance after the compulsory adoption of IFRS;
- η_s = The set of dummy variables capturing the heterogeneity among countries; $\eta_s = 1$ if $i \in S$, 0 otherwise
- η_t = The set of dummy variables capturing the heterogeneity among time series;
- ϵ_{it} = The composite error, composed of the individual effect of v_i reveals unobserved time-invariant bank characteristics and u_i which illustrates idiosyncratic shocks to market value ($\epsilon_{it} = v_i + u_i$).

For the sake of convenience, importance has been given to scalability in this model. As a result, earnings per share, book value per share and securitization ratio have been used. For comparability, the stock prices of all the companies are converted into the same currency, the US dollar value from the local currency. In equation 7, the BVPS, EPS and SEC show the values of fiscal year, whereas the stock prices show the values 3 months after the end of the fiscal year. Different time slices are taken into consideration to reveal the relationship between the value relevance of the accounting values and the stock prices in the robustness test section.

4.3 DATA DESCRIPTION

Financial institutions whose stocks are traded in capital markets both in the 10 EU countries (Belgium, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain and United Kingdom) and United States from 1994 to 2011 are observed in this paper. Longer time periods than the previous studies are taken in forming balance sheet items, securitization values and stock price by combining Bandscope and Bondware databases according to the id numbers of the institutions.

The estimation sample is limited to 310 observations because three different sources are used. In the data collection process, 1300 observations are found in Bondware only for securitization values of which 1000 banks had codes. Afterwards, when these observations are matched with data from Bankscope – Bureau van Dijk to get the balance sheet items, the observations reduced to 829. Next, when these 829 observations are matched with different files of Bankscope – Bureau van Dijk for stock prices, the observations again decreased to 417. Finally, the ultimate observation decreased to 310, when the available data for banks are considered for every year and for every variable estimated in the model. The data collected from these sources are in nominal values and in local currencies. The number of observations decreased to 310 in order to be convenient with IFRS since only consolidated accounts of listed groups are required to use IFRS. (O'Rourke, 2006) Moreover, to make a convenient comparison between stock prices and other values used in ratio, all stock prices of local currencies are converted into the US Dollar.

In order to explain any outliers, winsorization at the level of 3% is used similar to the previous studies (Bart et al., 2006; Agostino et al., 2010) for all the variables employed in the valuation model. Table 1 demonstrates the summary statistics of both winsorized (denoted by w) and the unwinsorized variables used in the valuation of the model.

TABLE 1: SUMMARY STATISTICS OF VARIABLES

Variable	Obs.	Mean	Std. Dev.	Min	Max
EPS	310	0.06	2.05	-12.57	3.14
EPS (w)	310	0.14	1.69	-5.68	2.74
BPS	310	1.22	0.5	0.32	9.21
BPS (w)	310	1.2	0.2	1	2
SEC	310	4.28	16.61	0	217.96
SEC (w)	310	2.52	0.02	0.02	14.97
December closing price	310	1	3.47	0	51.79
December closing price (w)	310	1.59	3.26	0.01	16.62
March closing price	310	177.78	462.84	0.1	54
March closing price (w)	310	1.56	3.25	0.01	15.59
Post IAS	310	0.31	0.46	0	1

(a) (w) represents for the winsorized variables

(b) December closing price stands for the stock price that is in the end of fiscal year

(c) March closing price stands for the stock price that is 3 months after the end of fiscal year

Table 2 shows the estimation done based on nationality after stated modification using 310 observations for 42 European listed banks and 22 banks in the United States. The table reveals that most banks from US and Italy has the highest observations where as it is fewest from Ireland, Belgium, Netherlands and Portugal. It also reveals that the panel data is highly unbalanced for the observation time period of 1994 – 2011.

TABLE 2: NUMBER OF BANKS, BANK YEARS AND YEARS OBSERVED FOR EACH SAMPLE COUNTRY

Country	Country-year obs.	Percent	Bank-year obs.	Percent	Banks	Percent
Belgium	10	8.85	12	3.87	2	3.13
France	13	11.5	29	9.35	3	4.69
Germany	7	6.19	10	3.23	3	4.69
Greece	6	5.31	14	4.52	4	6.25
Ireland	8	7.08	9	2.90	2	3.13
Italy	10	8.85	38	12.26	12	18.75
Netherlands	4	3.54	4	1.29	2	3.13
Portugal	11	9.73	14	4.52	2	3.13
Spain	14	12.39	48	15.48	7	10.94
UK	15	13.27	44	14.19	5	7.81
USA	15	13.27	88	28.39	22	34.38
Total	113	100	100	100	64	100

5. RESULTS & DISCUSSION

This section discusses the main findings of the value relevance before and after the mandatory application of IFRS. Different samples and structures are used for estimating the model and for better understanding an analysis for the robustness is also performed. OLS regression using both time and country dummies are used to take into account each specific characteristic as a result of highly unbalanced panel data. (Analysis (2), (3) & (4) on Table 3) Finally, 10 EU countries are analyzed as a robustness test for the value relevance before and after the compulsory introduction of IFRS. (Table 4)

As a result, the interaction of different dummies and stock prices permit better understanding of the analysis in the examination of the whole model. The model analyzed in sub-divided time spans ensures further understanding in specific circumstances and such circumstances in the mandatory adoption of the IFRS is the scope of this paper.

5.1 RESULTS

Table 3 indicates the results of OLS:

- Analysis (1) shows the base model (Agostino et al., 2010) including the SEC and POST IAS_SEC variable.
- Analysis (2) demonstrates the estimated results of analysis (1) with country dummies.
- Analysis (3) takes time dummies into consideration &
- Analysis (4) in order not to omit any characteristics takes into account both country and time dummies.

The model developed in equation (7) is further examined by re-estimating the model by replacing the closing price of March with December as a dependent variable. As a result, Table 3 is classified according to the stock prices 3 months after the end of the fiscal year and at the end of the same fiscal year.

TABLE 3: ORDINARY LEAST SQUARE ESTIMATES IN A SEMI-PANEL STRUCTURE

	Dep. Variable: closing price of March				Dep. Variable: closing price of December			
	Analysis (1)	Analysis (2)	Analysis (3)	Analysis (4)	Analysis (1)	Analysis (2)	Analysis (3)	Analysis (4)
Earnings per Share (EPS)	0.363 <i>0.015**</i>	0.001 <i>0.985</i>	0.310 <i>0.082*</i>	-0.078 <i>0.455</i>	0.353 <i>0.018**</i>	-0.001 <i>0.988</i>	0.357 <i>0.044**</i>	-0.037 <i>0.718</i>
Book Value per Share (BVPS)	0.581 <i>0.619</i>	-1.308 <i>0.091*</i>	0.018 <i>0.989</i>	-1.537 <i>0.070*</i>	0.815 <i>0.485</i>	-0.770 <i>0.316</i>	0.575 <i>0.668</i>	-0.814 <i>0.329</i>
Securitization Ratio (SEC)	-0.149 <i>0.021**</i>	-0.104 <i>0.006***</i>	-0.162 <i>0.018**</i>	-0.115 <i>0.003***</i>	-0.136 <i>0.035**</i>	-0.093 <i>0.013**</i>	-0.161 <i>0.018**</i>	-0.116 <i>0.003***</i>
Post IAS	-1.301 <i>0.091*</i>	-0.686 <i>0.147</i>	-1.016 <i>0.245</i>	-0.322 <i>0.610</i>	-1.164 <i>0.131</i>	-0.375 <i>0.424</i>	-1.032 <i>0.236</i>	-0.070 <i>0.909</i>
Post IAS_EPS	0.680 <i>0.691</i>	3.599 <i>0.0005***</i>	0.676 <i>0.701</i>	3.353 <i>0.001***</i>	0.084 <i>0.960</i>	2.961 <i>0.003***</i>	-0.065 <i>0.970</i>	2.554 <i>0.012**</i>
Post IAS_BVPS	1.504 <i>0.0003***</i>	0.866 <i>0.0004***</i>	1.626 <i>0.0002***</i>	0.842 <i>0.0007***</i>	1.650 <i>0.0001***</i>	0.965 <i>0.0001***</i>	1.762 <i>0.0001***</i>	0.949 <i>0.0001***</i>
Post IAS_SEC	-0.120 <i>0.314</i>	0.012 <i>0.862</i>	-0.115 <i>0.346</i>	0.011 <i>0.875</i>	-0.166 <i>0.166</i>	-0.027 <i>0.700</i>	-0.161 <i>0.018**</i>	-0.019 <i>0.783</i>
No. of observations	310	310	310	310	310	310	310	310
Number of banks	64	64	64	64	64	64	64	64

- (a) Analysis 1 represents the regression run without any dummies
- (b) Analysis 2 reveals the regression run with only country dummies
- (c) Analysis 3 reveals the regression run with only time dummies
- (d) Analysis 4 represents the regression run with both country and time dummies
- (e) Dep. Variable: closing price of March denotes the stock price 3 months after the end of fiscal year
- (f) Dep. Variable: closing price of December denotes the stock price at the end of fiscal year
- (g) Probability of each variable is reported in italics below the each coefficient estimates
- (h) (*), (**), (***) denotes the statistical significance at the 10, 5 and 1% level in order
- (i) Post IAS is a dummy coded 1 when IFRS applied as a compulsory regulation, otherwise coded 0
- (j) Post IAS_EPS (Post IAS_BVPS) is the influence of the post IAS dummy by EPS (BVPS)

Analysis (4) reveals the main findings of this paper which includes the dummies and the stock prices 3 months after the end of fiscal year. Other analyses capture the individual process of including heterogeneity among countries and time series. After the inclusion of both time and country dummies (Analysis 4, Table 3) for the March prices, the estimated model of this paper shows that EPS is insignificant. However, this EPS is statistically significant & positively related with stock prices after the mandatory introduction of IFRS. Thus, it can be argued that the value relevance and the information quality of earnings value increased after the application of new standards. Moreover, if the stock prices (December) of the same fiscal year is taken into consideration, it shows exactly same results of the March findings. On the contrary, if examined individually, it demonstrates distinctive results on earnings value. The results show that, when it is statistically significant, its interaction with the regulation is insignificant, and when it is insignificant, the interaction with the regulation is statistically significant.

Analysis (4) on Table 3 shows that at a 10% significance level book values are negatively associated with stock price when March prices are taken. However, when it interacts with the mandatory adoption of IFRS, impact on stock prices is still there but this time the significance is positive at 1% level. Similarly, when the stock prices of December are considered, a positive association can be seen between stock prices and book values after the integration of IFRS. Individual analysis demonstrates interesting findings in addition to the main findings estimated in equation (7). When interaction with IFRS is significant, the book value is insignificant, but for all analyses for March prices, its interaction is significant at 5% level when book value is significant at 10% level.

In all cases of table 3, the results reveal a negative relationship between stock prices and securitization which supports the findings of more the securitization, the less the stock prices. The result supports the common view which increased after the financial crisis. Using securitization as a balance off application and avoiding capital requirements are the likely reasons of the adverse impact on the stock prices, even though securitization has many benefits involved (Affinito and Tagliaferri, 2008). Thus it can be concluded that there is an adverse impact on the stock value when the banks announce securitization. (Farruggio, Michalak and Uhde, 2010) But the result is different for the securitized banks which interact with the IFRS requirement and shows that securitization is not value relevant. The result suggests that, in determining the banks' stock prices, IFRS requirement on securitization is insignificant.

It is worthy to highlight the common relevant finding based on the stock prices of both March and December. In relation to this, in all cases securitization is negative and significant and as a result it can be argued that, stock prices in the same fiscal year and 3 months after the fiscal year securitization has a negative impact on stock prices. Moreover, the interaction with the IFRS is insignificant which can be related with its balance off treatment (Higgins, 2010) and the value relevance of the banks disclosure (Hull, 2009). In the contrary, IFRS interaction plays a significant (both at 5% and 1% level) and positive role for the earnings and book value before the introduction of the regulation. Same as Agostino et al., (2010), there is evidence of increased impact of earnings on the stocks because of the compulsory application of IFRS.

5.2 FURTHER ROBUSTNESS CHECKS

As a robustness test, values from 10 EU countries are taken to examine the IFRS interaction and its compulsory application as all the listed companies has to publish the values according to the international standards. This regulation brought mainly quality and argued by many scholars to bring more transparency, comparability and credibility. (Agostino et al., 2010; Hail, Leuz and Wysocki, 2009).

Table 4 divided the observations before and after the mandatory adoption of the IFRS, concerning the value relevance of the explanatory variables after the IFRS requirement in January 2005. Stock price 3 months after the end of fiscal year (based on March prices) is used as a basis of this division. Increased coefficient of book value and its significance after the compulsory adoption of IFRS is the first result that came up from the table. Thus better value relevant results are provided by the interaction of book value with the regulation.

TABLE 4: ORDINARY LEAST SQUARE ESTIMATES OF EU-10 COUNTRIES BEFORE AND AFTER THE MANDATORY ADOPTION OF THE IFRS

	EU-10 Countries	
	Before the mandatory adoption of IFRS	After the mandatory adoption of IFRS
Earnings per Share (EPS)	0.343 <i>0.196</i>	0.750 <i>0.0007***</i>
Book Value per Share (BVPS)	-0.149 <i>0.446</i>	0.552 <i>0.002***</i>
Securitization Ratio (SEC)	-0.257 <i>0.038**</i>	-0.271 <i>0.016**</i>
Probability (F-stats.) overall	<i>0.03**</i>	<i>0.0001***</i>
Number of observations	126	96
Number of banks	33	33

- (a) Analysis based on the regression without any dummies
 - (b) Dep. Variable based on March which is the stock price 3 months after the end of fiscal year
 - (c) Probability of each variable is reported in italics below the each coefficient estimates
 - (d) (*), (**), (***) denotes the statistical significance at the 10, 5 and 1% level in order
 - (e) The time span for the before the IFRS is from 1994 to 2005
 - (f) The time span after the crisis starts from 2005 to 2011
 - (g) EU-10 countries includes Belgium, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain and United Kingdom
- Similarly, before the mandatory regulation earnings value does not have any impact but it becomes positive and significant after the mandatory adoption of IFRS. The results show that earnings per share has become more value relevant and have higher impact on the stock prices as a result of interaction with the IFRS.

Moreover, both before and after the IFRS requirement, findings on securitization indicate a negative and significant impact on the stock prices. Increased level of significance and slightly increased coefficients of securitization was the impact of this compulsory application. This is in consistency with the literature review that IFRS provides better quality information than the local accounting systems have. (O'Keeffe, 2011)

As a result, the interactions of the variables are statistically significant with relation to the mandatory application which is in coherent with the common view presented in Table 4. In summary, there is a positive and significant impact of earnings and book value on stock prices whereas the association is negative and significant between securitization and stock prices.

6. CONCLUSION

Identifying the impact of securitization on the stock prices of both European & American banks and the influence of mandatory adoption of IFRS on the value relevance of accounting items are the main purpose of this paper. More precisely, Ohlson (1995) model and Agostino et al. (2010) extension was utilized to determine whether securitization, earnings and book value of assets are significantly associated to the stock prices three months after the end of the fiscal year. According to the equation (7) estimated in this paper, the stock price and the securitization of loans have negative association and as a result, the lower the stock prices, the more the securitization. The evidence shows no impact on the stock price, though it still has negative coefficient term as a result of interaction between securitization and mandatory regulation. On the other hand, the book value became more value relevant as the significance of book value increased with the interaction. In case of earnings per share, the results indicate positive and significant impact after the interaction with regulation which was negative and insignificant before IFRS.

In investigating the IFRS adoption further, the result demonstrates negative coefficients as well as insignificant values on the earnings and book value before the introduction of mandatory application and it appears to playing a significant and positive role after the compulsory adoption. As a result, it can be argued that the value relevance increased after the mandatory introduction of IFRS.

To sum up, the relationship between the stock price and securitization are as expected and logical with the literature and common view; the more the securitization, the less the stock prices of the bank. Considering the value relevance, the results are more significant for earnings and book value; insignificant for securitization with the co-integration of IFRS depending on different analysis. Thus, the findings support that securitization is not likely to be value relevant even after the compulsory application of IFRS.

In this context, the regulations of IFRS and the principles of disclosure should be properly understood by the financial institutions for increasing the quality of information of their financial statements. Lastly, this paper, on the basis of the available data contributes that in the presence of mandatory application of IFRS, the value relevance of earnings and book value increased. However, although securitization has insignificant impact after the interaction with the IFRS requirement, it does reduce stock prices. Further research can be done to see when stock prices are used as a model of value relevance whether results differ depending on separate specifications and hypothesis.

7. REFERENCES

- Affinito, M. and Tagliaferri, E. (2008), "Why do (or did?) banks securitize their loans? Evidence from Italy", November 2008
- Agostina, M. and Mazzuca, M. (2009), "Why Do Banks Securitize? Evidence from Italy", *Bancaria* No. 09-2009, Available at SSRN: <http://ssrn.com/abstract=1495852>
- Agostino, M., Drago, D. and Silipo, B.D. (2010), "The Value Relevance of IFRS in the European Banking Industry", *Review of Quantitative Finance and Accounting*, Vol. 36, pp. 437-457
- Ashcraft, A. B. and Schuermann, T. (2008), "Understanding the Securitization of Subprime Mortgage Credit", Federal Reserve Bank of New York, Staff Report, No. 318
- Ball, R., Robin, A. and Wu, J.S. (2003), "Incentives versus Standards: Properties of Accounting Income in Four East Asian Countries", *Journal of Accounting and Economics*, Vol. 36, pp. 235-270
- Barth, M.E., Landsman, W.R. and Lang, M. (2008), "International Accounting Standards and Accounting Quality", Working paper, University of North Carolina and Stanford University, *The Journal of Accounting Research*, Vol. 46, Issue 3, pp. 467-498.
- Barth, M.E., Landsman, W.R., Lang, M. and Williams, C. D. (2006), "Accounting Quality:
- Bartov, E., Goldberg, S. and Kim, M. (2005), "Comparative Value Relevance among German, U.S. and International Accounting Standards: A German Stock Market Perspective", *Journal of Accounting, Auditing and Finance*, Vol. 20, Issue 2
- Bernanke, B. (2007), "The Subprime Mortgage Market. Speech at the Federal Reserve Bank of Chicago 43rd Annual Conference on Bank Structure and Competition", May 17, 2007
- Borio, C. (2008), "The Financial Turmoil of 2007: a Preliminary Assessment and some Policy Considerations", BIS Working Papers, No. 251
- Calomiris, C. W. and Mason, J.R. (2004), "Credit Card Securitization and Regulatory Arbitrage" *Journal of Financial Services Research*, Springer, Vol. 26, Issue 1, pp. 5-26
- Cumming, C. (1987), "The Economics of Securitization," Federal Reserve Bank of New York, *Quarterly Review*, Vol. 12, Issue 3, pp. 11-23
- Daske, H., Hail, L., Leuz, C. and Verdi, R. S. (2007), "Mandatory IFRS Reporting Around the World: Early Evidence on the Economic Consequences", ECGI - Finance Working Paper, No. 198/2008
- Eccher, E. and Healy, P. M. (2000), "The role of international accounting standards in transitional economies: A study of the People's Republic of China", Working paper, MIT Sloan School of Management and Harvard Business School
- Farruggio, C., Michalak, T.C. and Uhde, A. (2010), "Share Price Response to Securitization Announcements in European Banking", September 15, 2010, Available at: http://www.cass.city.ac.uk/_data/assets/pdf_file/0006/41586/Uhde.pdf
- Feltham, G.A. and Ohlson, J.A. (1996), "Uncertainty Resolution and the Theory of Depreciation Measurement", *Journal of Accounting Research* 34, Autumn 1996, pp.209-234
- Franke, G. and Krahen, J.P. (2005), "Default Risk Sharing between Banks and Markets: the Contribution of Collateralized Debt Obligations", CoFE Discussion Paper 05-04, Center of Finance and Econometrics, University of Konstanz
- García, J. M., Rueda, J. A. and Vázquez, P.J. (2008), "Conservatism of earnings reported under International Accounting Standards: a comparative study", *Spanish Journal of Finance and Accounting*, No. 138, pp. 197-210
- Gorton, G. and Souleles, N. S. (2005), "Special Purpose Vehicles and Securitization", NBER Working Paper Series, Working Paper 11190, March 2005
- Hail, L., Leuz, C. and Wysocki, P. (2009), "Global Accounting Convergence and the Potential Adoption of IFRS by the United States: An Analysis of Economic and Policy Factors", Available at SSRN: <http://ssrn.com/abstract=1357331> (viewed on 14 August 2011)
- Higgins, E., Mason, J.R. and Mordel, A. (2009), "The Information Content of Asset Backed Securities Downgrades and the Motivation behind Them", Louisiana State University Working Paper, July 2009
- Higgins, E., Mason, J.R. and Mordel, A. (2010), "Asset Sales, Recourse, and Investors" Reactions to Initial Securitizations: Evidence why Off-balance Sheet Accounting Treatment does not Remove On-balance Sheet Financial Risk", Drexel University, May 2010 <http://wiredspace.wits.ac.za/handle/10539/1805> (viewed on 2 August 2011)
- Hull, J.C. (2009), "Regulation, Basel II, and Solvency II" Ch.11 in *Risk Management and Financial Institutions*, 2nd ed.
- International Accounting Standards and US GAAP", Available at: <http://sbm.temple.edu/conferences/cav/2008/documents/barthpaper.pdf> (viewed on 12 August 2011)
- Kothari, V., (2006), *Securitization: the financial instrument of the future*, Wiley Finance, 3rd ed.
- Lucchetti, A. and Ng, S. (2007), "How Rating Firms" Calls Fuelled the Subprime Mess", *The Wall Street Journal*, August 15, 2007
- McNelis, S. (2011), "Basel III an Evolving Framework for Banks", *The Hongkong and Shanghai Banking Corporation Limited*, May 24, 2011
- Mishkin, F. (2011), "An Economic Analysis of Financial Regulation", Ch.8 and "Financial Crises and the Subprime meltdown", Ch.9 in *The Economics of Money, Banking and Financial markets*, Prentice Hall, 9th ed.
- Morais A. I. and Curto, J.J.D. (2007), "IASB Standards adoption: value relevance and the influence of country-specific factors", 30th Annual Conference of the European Accounting Association, Lisbon
- Mordel, A. (2009), "Governance and Firm Value: Evidence from Initial Securitization by Bank Holding Companies", Working Paper 2009, Available at: http://idea.library.drexel.edu/bitstream/1860/3258/1/Mordel_Adi.pdf (viewed on 27 July 2011)

32. Ohlson, J. A. (1995), "Earnings, book values, and dividends in equity valuation", *Contemporary Accounting Research*, Vol. 11, Issue 2, pp. 661-687
33. O'Keeffe, I. (2011), "IFRS for Private Entities A Practical Guide", *Accountancy Ireland*, Vol. 40, No. 6
34. O'Rourke, T. (2006), "IFRS – A Fairy Tale Ending", *Accountancy Ireland*, October 2006
35. PWC, (2004), "Structuring Securitisation Transactions in Luxembourg", *PricewaterhouseCoopers*, September 2004
36. Rosenthal, J.A. and Ocampo, J. (1988), "Securitization of Credit", New York, John Wiley & Sons Inc
37. Senthilnathan, S. (2009), "The Role of the Most Recent Prior Period's Price in Value Relevance Studies", Available at: (viewed on 14 August 2011) <http://mro.massey.ac.nz/bitstream/handle/10179/930/02whole.pdf?sequence=1>
38. Studentmund, A. H. (2006), *Using Econometrics: A practical Guide*, South-Western, 5th ed.
39. Swartz, G. and Negash, M. (2006b), "Valuation of Shares Using the Ohlson (1995) Model: Evidence from the JSE Securities Exchange South Africa", *South Africa Journal of Accounting Research*, Vol. 20, Issue 1
40. Swartz, G. E. (2006a), "An Empirical Examination of the Ohlson (1995) Valuation Model in South Africa", November 16, 2006, Available at:
41. Swartz, G.E., Swartz, N.P. and Firer, S. (2006c), "An empirical examination of the value relevance of intellectual capital using the Ohlson (1995) valuation model", *Meditari Accountancy Research*, Vol. 14, No. 2, pp. 67-81