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PREDICTABILITY OF STOCK MARKET RETURNS – EVIDENCE FROM EUROZONE'S BANKING SECTORS

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Abstract

This paper analyzes the in-, and out-of sample, predictability of the stock market returns from Eurozone's banking sectors, arising from bank-specific ratios and macroeconomic variables, using panel estimation techniques. In order to do that, I set an unbalanced panel of 116 banks returns, from April, 1991, to March, 2013, to constitute equal-weighted country-sorted portfolios representative of the Austrian, Belgian, Finish, French, German, Greek, Irish, Italian, Portuguese and Spanish banking sectors. I find that both earnings per share (EPS) and the ratio of total loans to total assets have in-sample predictive power over the portfolios' monthly returns whereas, regarding the cross-section of annual returns, only EPS retain significant explanatory power. Nevertheless, the sign associated with the impact of EPS is contrarian to the results of past literature. When looking at inter-yearly horizon returns, I document in-sample predictive power arising from the ratios of provisions to net interest income, and non-interest income to net income. Regarding the out-of-sample performance of the proposed models, I find that these would only beat the portfolios' historical mean on the month following the disclosure of year-end financial statements. Still, the evidence found is not statistically significant. Finally, in a last attempt to find significant evidence of predictability of monthly and annual returns, I use Fama and French 3-Factor and Carhart models to describe the cross-section of returns. Although in-sample the factors can significantly track Eurozone's banking sectors' stock market returns, they do not beat the portfolios' historical mean when forecasting returns.

Contents

I. Introduction

This paper analyzes the in-, and out-of sample (OOS), predictability of the stock market returns from Eurozone's constituent countries' banking sectors, arising from bank-specific ratios and macroeconomic variables, using panel estimation techniques. In order to do that, I set an unbalanced panel of 116 banks returns, from April, 1991, to March, 2013, to constitute equal-weighted country-sorted portfolios representative of the Austrian, Belgian, Finish, French, German, Greek, Irish, Italian, Portuguese and Spanish banking sectors.

The interest of research on the banking industry relies on the fact that it is typically excluded from such empirically studies given that: firstly, when compared to other industries the sector presents abnormal high levels of leverage; secondly, given its systemic importance, there is a high level of industry-specific regulation[1].

In fact, the specificities of the banking sector have already drawn the attention of academics. For instance Cooper, Jackson and Patterson (2003) constitutes a groundbreaking study on the American cross-section of banks' stock returns, reporting evidence of in-sample (IS) predictability arising from earning per share, non-interest to net income ratio, and book value of equity to total assets ratio[2]. The authors also study OOS predictability, finding profitable risk-adjusted investment strategies, spanned by Boolean combinations of

[1] For more on banks' idiosyncratic characteristics see Bossone (2000).

[2] The paper documents that the predictability arises from investors' underreaction to news. For each of the significant variables in the multivariate framework, two-way sorts are built generating positive and negative shock states based on past lagged returns. They authors exclude increased risk as a source of cross-section predictability, by comparison of Sharpe ratios and Jensen's alpha of the difference between the top and lowest deciles. Microstructure effects are also excluded as an explanation, for the statistical significant differences across the deciles, by the comparison of moving averages of market capitalization.

the information that arises from tercile-sorting banks with respect to each of the explanatory variables.

Although some studies explore the topic of in-sample predictability in the context of the European banking industry, the topic of OOS predictability of the banking sector is restricted to the work of Cooper, Jackson and Paterson (2003). For instance, Vennet, de Jonghe and Baele (2004) find evidence of European banking sectors' returns' cyclicality[3], documenting predictability of book-value of equity to total assets during downturns[4]. Leledakis and Staikouras (2004) confirm these results, reporting also in-sample capacity of the ratio of loan loss-reserves to explain the European banks' returns' cross-section. More recently, Castren, Fitzpatrick and Sydow (2006) try to understand what determines European banks' annual stock returns, identifying dividend-related idiosyncratic information as the main driver[5].

[3] The study divides the sample in two periods: before and after 2000, corresponding to an expansion and a downturn period, respectively. When country-sorting, during the expansion banks show robust positive average returns, although showing cross-country differences. Still, concordant with the hypothesis, the sample of banks present much lower average returns after 2000. Moreover, bank return reversion is higher for country portfolios that experienced the higher average return before 2000. Concerning the segment- sorting, there is a depression of average stock returns across segments from the first to the second period. The fall in average returns is more expressive for investment and commercial banks, and for non-bank credit institutions, which the academics justify by these segments' higher dependency from real-activity.

[4] With respect to capital adequacy, as measured by the Tier 1 capital ratio or an absolute capital ratio (i.e., book value of equity to total assets ratio), there is a monotonic positive relation across quintiles in the economic downturn period. The effect of banking diversification, as measured by the ratio of total loans to total assets, seems to be completely inverted by the business cycle change. While during the expansion there is a negative monotonic relation across quintiles, during the economic downturn top quintiles earn higher average return. These results are ultimately confirmed by cross-section regressions against a market portfolio: better capitalized banks (top quintile), and less diversified banks (top quintile), present lower market betas.

[5] Moreover, when sorting the sample by size, the authors show that the dominance of the impact of dividend related news to systematic news is more than two times higher for small banks. The authors argue that results may arise either because small banks are typically focused in local operations, or because the disclosure of information for this segment is less frequent and so, when occurs, gains high relevancy. Interestingly enough, the study plots the impulse response function for a cash-flow shock, which reports that investors largely underreact to cash flow related news, in line with Cooper, Jackson and Patterson (2003).

Finally, shifting from past literature's methodology, Drobetz, Erdmann and Zimmermann (2007) apply fixed-effects panel estimation techniques to describe the cross-section of monthly European banks' stock returns. The authors document significant positive impact of the ratios of loans to total assets, non-interest-income to total operating income and off-balance sheet items to total assets, whereas leverage and the ratio of loan-loss provisions to net interest income affect negatively returns[6].

The focus of this paper differs from past literature in three ways. Firstly, I explore the cross-sectional differences between Eurozone's different banking sectors, as represented by banking country-specific portfolio. In this sense, the cross-section dimension is assumed to be the country of listing, as if an investor was trying to explore the variability of his country-specific banking portfolios. This differs from Vennet, de Jonghe and Baele (2004), as they only perform cross-country comparison by portfolio sorting techniques, not exploring what is on the root of the cross-country differences. Secondly, I expand the typical set of explanatory variables from only bank-specific variables, to include macroeconomic variables. As Lehmann and Manz (2006) note, the banking sector and the state of the real economy are interconnected, i.e., a stable banking system is crucial for economic growth, but the macroeconomic environment also conditions banks' financial soundness and profitability. It is therefore interesting to explore if macro-related variables have predictive power over the stock market performance of Eurozone's banking sectors. Thirdly, I go further than past European banking related studies as it is this paper's ultimate objective to explore the OOS performance of the proposed models. Again, this differs from

[6] These results differ from Leledakis and Staikouras (2004) as the study finds significant explanatory power in a larger set of variables, and from Cooper, Jackson and Paterson in the sign of some of the described relations.

Cooper, Jackson and Patterson (2003) as the assessment of the market-timing capacity is performed through the models' ability to beat the returns' historical mean, similarly to pure time series studies of OOS predictability.

The in-sample results show that, in fact, within the banking industry, there is evidence of stock return in-sample predictability arising from industry-specific ratios, consistent with past literature. Moreover, the fact that some bank-specific ratios are able to significantly describe the cross-section of stock returns up to 2 quarters post year-end financial statements' disclosure, seems to constitute evidence of investors' underreaction to financial information contained in year-end financial statements. This result contributes to sustain the argument that banks' strategic and operational decisions can be tracked by industry-specific accounting ratios giving rise, differently from non-financial stocks, to in-sample stock performance predictability. Albeit with an impact contrarian to expectation, I find that only EPS can significantly describe the cross-section of monthly and annual returns, which constitutes evidence that, as with non-financial stocks, also banking stock returns can be explained by earnings related variables[7].

Regarding the ability of these models to market time each of the individual banking portfolios, I find no significant evidence of OOS predictability when using monthly and annual returns. The same exercise is performed only for the month when year-end earnings' announcement occurs. Although not statically significant, I find significant evidence that the models' predictions beat the monthly historical average which, once again, reinforces

[7] For Instance Bauer et al. (2009) show that cash-flow-to-price ratios and earnings' revisions are able to describe the cross-section of individual American stock returns. Nonetheless the authors find significant evidence of, not only individual firm-effects, but also industry-specific effects.

the idea of stock return predictability arising from financial information contained in banks' financial statements.

Finally, I use the Fama and French 3-Factor and Carhart models in a last attempt to achieve evidence of Eurozone's banking sectors' stock return predictability, on a monthly and annual basis[8]. Using pooled OLS estimators, I find statistically significant evidence that the Fama and French factors, with and without momentum, can contemporaneously describe the returns' cross-section in-sample. These results show that financial stocks, namely banking stocks, share with non-financial stocks, common risk factors. Nonetheless, I find no evidence that the factors could have been used to time each of the individual banking portfolios' performance.

The remainder of this paper is organized as follows: Chapter II describes the set of explanatory variables used, as well as their expected relation with the cross-section of Eurozone's banking sectors; Chapter III describes the data as well as the econometric methodology used to explore the topic of stock return predictability; Chapter IV analyzes the empirical findings and, finally, Chapter V constitutes a brief summary of the results.

[8] Fama and French (1992) show that earnings-price ratio, book-to-market ratio, leverage and size have, alone, significant explanatory power over the cross-section of non-financial American stock returns. When combined, only size and book-to-market retain significant explanatory power. Fama and French (1993) then introduce the HML and SMB factors as common risk factors to describe the cross-section of American stock returns. Carhart (1997) expands then the Fama and French 3 Factror to model, to include a momentum factor.

II. Explanatory Variables

In this chapter I will describe the set of explanatory variables used, exploring their expected relation with the cross-section of the individual banking sectors' stock market return. The set of regressors includes accounting ratios and macroeconomic variables. I will first describe the bank-specific variables, and then the macroeconomic variables.

One of the advantages of dealing with banks is that the effects of their strategic and operational decisions are typically tracked in literature by a well-defined set of accounting ratios. The first used variable is the ratio of the **book value of equity to total assets** (Leverage)[9]. This ratio should proxy a bank's financial soundness. Still, empirical evidence on the relation of leverage and stock market performance is not conclusive. Although, Cantor and Johnson (1992) and Drobetz, Erdmann and Zimmerman (2007) document a positive relation between improving capital ratios and stock market performance, Cooper, Jackson and Patterson (2003) find the inverse.

The second variable is the **percentage change in the ratio of total loans to total assets** (% Change TL/TA). This variable is a proxy to capture changes in liquidity risk: a big fraction of a bank's asset side is locked in long term operations, and hence a higher figure of this ratio should reflect a less flexible balance sheet. Still, this variable should also be able to track the level of a bank's focus on traditional operations. Although the relations seem logical, O'Hara (1993) and Santomero (1983) indicate that loan related ratios are difficultly priced, because of the level of confidentiality surrounding a bank's loan portfolio. I

[9] The inclusion of an absolute capital ratio instead of a regulatory capital ratio (e.g. Tier core 1) is due to lack of data. Although much emphasis is placed on regulatory capital ratios, the recent financial crisis has shown the pitfalls of considering risk weighted capital ratios has a measure of capital strength.

construct this variable as a percentage change given Cooper, Jackson and Patterson (2003) argument that investors react most to information reported as percentage changes. The authors have access to quarterly data and report all the banking-specific variables as percentages changes of the ratio with respect to the rolling 4-quarter mean. I do not employ this method due to its restrictive impact on the availability of observations. Still, notice that the impact of all the variables defined as percentages changes of ratios was confronted with the impact of absolute ratios, and percentage point changes, confirming the higher explanatory power of the former formulation.

In order to proxy the likelihood of future losses, the **percentage change in loan loss reserves to total loans** (% Change LLR/TL) is also tested for its explanatory power over the cross-section of returns. Contrary to the previous variable, there is much literature documenting an adverse reaction of banks' stock performance to increases in this figure[10].

Although not commonly used in literature, one suggests that the **percentage change in provisions over net interest income** (% Change Prov/NetI) should capture a bank's strategic decision to cover future losses with their margins arising from lending operations. Increases in this figure should mean that a bank is channeling operational income to the constitution of loan loss provisions, exemplifying precautionary action. In this sense, I expect a positive coefficient from this variable.

In order to measure the impact of banks' hedging activities, the percentage change in **non-interest income to net income** (% Change NonII/NetI) is included as explanatory variable.

[10] Thakor (1987) and Lancaster, Hatfield and Anderson (1993) report that increases in the ratio of loan loss reserves to total loans may indicate future losses.

Drobetz, Erdmann and Zimmermann (2007) argue that the ratio is becoming an important health indicator in the context of off balance sheet operation expansion in the banking sector. Nevertheless, the theoretical sign of the underlying relation is not consensual. On one side, there is a branch of literature suggesting that a higher stream of non-interest income is an effective hedging alternative[11]. On the other, it is argued that a higher dependency on non-interest income may boost risk. DeYoung and Roland (2001) argue that a higher risk pattern may arise because: firstly, usually non-interest income activities impose fixed costs' structures resulting in higher operational leverage; secondly, it also increases financial leverage because many of these activities do not require holding regulatory capital. Cooper, Jackson and Patterson (2003) and Leledakis and Staikouras (2004) report a negative relation between this variable and the cross sections of the American and European bank returns, respectively.

The last bank specific variable is the **percentage change in the efficiency ratio** (% Change ER)[12]. Drobetz, Erdmann and Zimmermann (2007) argue that in the context of revenues growth slowdown, banks tend to focus in cost saving initiatives, and Vennet (2002) reports that efficiency explains significantly the cross-section of European banks' profitability. In this sense one expects a positive effect from this variable on stock returns.

[11] Saunders and Walter (1994) and Grammatikos, Saunders and Swary (1986) document positive effects on US banks' stock performance from currency operations, whereas Gallo, Apilado and Kolari (1996) report positive relation between mutual funds under management, as a percentage of total asset, and banking stock returns.

[12] The efficiency ratio, also labeled cost to income ratio, is defined as the ratio between operational expenses and the sum of non-interest income and net interest income

Apart from the described bank-specific variables, **earnings per share** (EPS)[13] and the **book-to-market ratio** (BTM) are also included as regressors. For instance, Cooper, Jackson and Paterson (2003) and Leledakis and Staikouras (2004) report that earnings per share, and the book-to-market ratio, impact positively the cross-section of banks' returns[14].

Finally, three macroeconomic variables are included in the set of explanatory variables. The first variable is the rolling **1-year return of the 10-year German government bond** (Rf_Germany_1Y). This variable should proxy the 1 year return on a European risk-free. I do not use the one 1-year German government bond yield given that there is data available only from 1997 onwards. Still, I found a correlation between the two of about 84 percent, suggesting that estimation results should not be significantly affected by the use of a 10-year rate[15].

The second variable (Risk_Prem_North) is designed to capture the impact of the pan-Eurozone sovereign movements on the banking sector, through movements in return default spread. It corresponds to the return difference between an equal weighted portfolio of 10-year government bonds of the GIPSI countries (Greece, Ireland, Portugal, Spain and Italy), and an equal weighted portfolio of the 10-year government bonds of the Central-Northern

[13] Earnings correspond to earnings before extraordinary items in order to isolate one-off operations.
[14] The study of impact of book-to-market differs in the two publications. Cooper, Jackson and Paterson (2003) study the impact of regression returns on the high-minus-low Fama and French factor, whereas Leledakis and Staikouras (2004) regress bank returns on their respective book-to-market ratios. Nevertheless both studies constitute evidence of the value anomaly in the banking sector.
[15] Moreover, the explanatory power of this variable was compared with short-term rates, namely the 3-month interbank lending rate finding and a variable that assigned to each individual portfolio its country specific 10-year government bond, finding better results with the German 10-year government bond. Finally, one has considered, instead of the 1-year rolling return, the simple yield-to-maturity, finding worst results with the latter. The study of the predicting power of a risk-free rate is also vast in finance. For instance, see Campbell and Yogo (2006).

European countries in the sample (Austria, Belgium, Finland, France and Germany)[16]. The recent financial crisis has delivered much evidence on the adverse reaction of stock markets to swings in European peripheral countries sovereign markets[17]. As such, I expect a negative impact from this variable on the banking portfolios' returns.

The last variable is the term spread (Term_Own)[18]. This variable associates to each individual portfolio its country's spread between the 10-year government bond and a short-term rate, as defined by the OECD[19]. The forecasting power of the term structure has been already studied not only in economics, regarding real activity growth, but also in finance, regarding stock market returns. To the extent that one believes that the banking sector stock market performance is linked to the evolution of real-activity, I expected a positive contemporaneous impact on returns from this variable, since term spreads are typically low around business peaks, and high around business troughs[20].

Having now understood the set of explanatory variables, I will next explain how the panel of Eurozone's individual banking sectors is built, as well as the proposed methodology.

[16] I also tested the explanatory of power of the 1-year rolling average of this variable, achieving worst results achieving with that formulation.
[17] For the impact of the Euro crisis on the European banking industry, within the framework of contagion arising from sovereign debt markets, see Bruyckere et al. (2013).
[18] As for the Risk Premium variable, I also tested the explanatory power of the 1-year rolling average, achieving poorer results.
[19] After 1999, except for Greece, the short-rate corresponds to the 3-month EURIBOR, whereas previously it is proxied by each country's 3-month interbank lending rate.
[20] See for instance Fama and French (1990).

III. Data and Methodology

In this chapter I will first explain how the panel is constructed and second, describe the models' structure and econometric procedure used in their estimation.

A. Data

This work studies the in-, and out-of-sample, predictability using an unbalanced panel of stock returns from the Austrian, Belgian, Finish, French, German, Greek, Irish, Italian, Portuguese and Spanish banking sectors, represented by equal-weighted country-sorted portfolios[21]. For the portfolios formation any institution classified by Bloomberg as a bank, with a primary listing in any stock exchange of the countries above, between April, 1990, and March, 2013, is used. This requirement, combined with data availability, gives a sample of 116 banks for the composition of 10 country portfolios[22].

As previously mentioned, I compare the predictive power of combinations of bank-specific ratios, market fundamentals, and macro variables. All the accounting and market data are extracted from Bloomberg database, and the macroeconomic variables from OECD database[23].

Due to lack of quarterly financial statements, I use annual consolidated financial information, from 1990 up to 2011, making the assumption that full disclosure of the

[21] The more recent Eurozone's joining members (Slovenia, in 2007; Cyprus and Malta, in 2008; Slovakia, in 2009; Estonia; in 2011; and Latvia already in 2014) were not included in the database. Luxembourg and the Netherlands were excluded for data availability.

[22] Data availability was a very significant constraint during this study. As such, some of the portfolios, due to a limited number of composing banks can hardly be labeled as portfolios. This is extreme for the cases of Ireland (1 bank), Belgium and Finland (2 banks). The remaining countries' portfolios are composed as follows: Austria (4 banks), France (26 banks), Germany (5 banks), Greece (8 banks), Italy (39 banks), Portugal (7 banks) and Spain (22 banks).

[23] The use of OECD database for the macroeconomic is justified by the lack of long series on the used countries' government bond yields. OECD database is available at http://stats.oecd.org/.

annual financial statements occurs between the end of March and the beginning of April[24]. Moreover, all the bank-specific ratios and market fundamental variables are constructed as weighted- averages, with exception of the logarithm of market capitalization[25].

Given the assumption made concerning the disclosure of financial statements, I construct an unbalanced panel of monthly returns from April, 1991, to March, 2013, and an unbalanced panel of non-overlapping annual returns (April-March), from March, 1992, to March, 2013. Apart from the two aforementioned panels, I construct 4 additional panels consisting of non-overlapping returns' series with horizons of 1 month, and 1,2, and 3 quarters. These are assessed creating non-overlapping series of returns, for the month of April (1-Month horizon), from April to June (1-Quarter horizon), from April to September (2-Quarters horizon) and from April to December (3 Quarters-Horizon). The ranges (in parenthesis) of the different panels are as follows: 1-Month horizon (April, 1991, to April, 2012); 1-Quarter horizon (June, 1991, to June, 2012); 2-Quarters horizon (September, 1991, to September 2012); and 3-Quarters horizon (December, 1991, to December, 2012). In the case one finds that year-end financial information does not affect significantly monthly and annual returns, these panels allow the investigation of the existence of shorter time periods up to which it might. As such, one ended up with a sample of 2040 monthly-portfolio observations, and 170 non-overlapping annual; 1-month; and 1, 2 and 3-quarters

[24] Similar assumptions are done by Cooper, Jackson and Paterson (2003) and Drobetz, Erdmann and Zimmermann (2007).

[25] For some of the financial institutions composing of the portfolios, Bloomberg was failing to report values for market capitalization, because of missing data on the number of outstanding shares, although reporting information on prices. In order to avoid loss of data, I assumed that the first reported value on the number of outstanding shares was the same as for the previous periods, allowing the estimation of the missing values for market capitalization. Instead of the logarithm of market capitalization, I also repeated every exercise using the logarithm of the total value of assets as a control, achieving similar results.

portfolio observations. All returns, are measured in euros, and are adjusted for stock splits and dividends[26].

Having now understood the construction of the different used panels, it is worthwhile to look at the data. For this, Appendices A and B present a descriptive summary, as well as a correlation matrix, respectively.

Regarding the descriptive summary in Table 1, I conclude that the cross-section of banking portfolios is far from homogeneous. I observe extreme values, especially regarding the variables that are constructed using income statement captions, namely EPS, % Change in Prov/NII and % Change NonII/NetI[27]. This should occur because of two facts. Firstly, the period post-2007/2008 is included in the sample representing a moment ought to give rise to extreme accounting figures in the banking sector. Secondly, as already mentioned, some of the portfolios are very idiosyncratic portfolios due to the small number of composing banks. As expected, Leverage and % Change TL/TA exhibit much higher stability.

When looking at Panel B of Table 2, I draw some conclusions about the relation between the regressors. For instance the portfolios constituted by bigger banks seems to be the ones

[26] As the sample combines pre- and post-euro period, all information previous to 1999 was converted to euros at the respective fixed parity defined by each country. Alternatively to this method one could have decided to convert all information to US dollars, and introduce exchange rates as a contemporaneous control. The problem with this methodology is that it would introduce noise for the OOS estimates, since one would have to predict foreign exchange rate movements. All individual stocks' returns were adjusted by monthly dividends, and I used log returns to enjoy the nice properties of additivity. Still, special attention was taken to the fact that the log return of a portfolio is defined as $R_p = \ln(1 + \sum_i^N w_i R_i)$, where R_i denotes the simple return of each portfolio's composing stocks.

[27] Given that I observe very extreme values for some variables, I have performed a robustness check for every estimated model by comparing the estimated coefficients using the entire panels, *vis-à-vis* excluding from the panels each country portfolio at a time. I repeated this procedure for every return horizon. I found that no variable either gains or loses significance, nor have I observed any coefficient changing signal. I therefore conclude that this study's empirical results are not driven by any particular country-portfolio. This procedure can also be seen as a robustness check to any possible outlier, i.e., data mistake in the used databases.

financially sounder, measured by the negative correlation between the market capitalization and Leverage, % Change LLR/TL and % Change Prov/NII. Also not surprisingly, % Change Prov/NII and % Change LLR/TL are positively correlated. Interestingly enough, I also conclude that the portfolios composed of banks which are pushing harder towards operational efficiency, are exactly the ones predicting higher relative losses in their portfolio loans, as measured by the positive correlations between % Change ER and the two variables % Change Prov/NII and % Change LLR/TL.

Finally, regarding the impacts of diversification, I find evidence consistent with Drobetz, Erdmann and Zimmermann (2007): EPS is negatively correlated with % Change TL/TA and positively correlated with % Change NonII/NetI, suggesting that a deviation from traditional lending activities has been successfully impacting the flexibility of banks' balance sheets and their earnings' boosting capacity.

B. Methodology

In this subchapter I will explore the proposed model's structure and estimation procedure.

Although the cross-section comparison of returns is typically performed using Fama and MacBeth (1973) cross-sectional regressions[28], I use panel estimators in all models, similarly to Drobetz, Erdmann and Zimmermann (2007). The reason to use panel estimators, instead of cross-sectional regressions, relies on the results of Petersen (2007) showing that the standard errors of Fama and MacBeth (1973) methodology are downward biased in the presence of individual-effects. In order to assess the correct panel estimator I

[28] Cooper, Jackson and Patterson (2003), Vennet, de Jonghe and Baele (2004), and Leledakis and Staikouras (2004), perform their analysis using cross-sectional time-series regressions methodology.

run, for every model: first, the Breusche-Pagan Lagrange Multiplier test, in order to compared pooled OLS estimator with a random effects model; and second, the Wooldridge (2002) individual-effect robust expansion of the Hausman test, in order to compare the fit from a fixed-effects versus a random-effects estimator. The tests show that the fixed-effects model is the correct formulation for every estimated model. Moreover in order to check for the significance of the estimated coefficients, I use Driscoll and Kraay (1998) standard errors, as they are robust to both time and cross-sectional correlation.

Regarding the in-sample predictability I run not only a full sample estimation from April, 1991, to March, 2013, but has also split the entire sample in three periods: before the disclosure of 1998 financial statements; after the disclosure of 1999 financial statements but before the disclosure of 2007 financial statements; and lastly after the disclosure of 2007 financial statements. In the past twenty years, the countries that constitute the European Monetary Union have assisted to at least two hypothetically paradigm changing events: on one hand, obviously, the adoption of a commonly shared currency, losing the ability to conduct independent monetary policy, and booming the volume of inter-countries' transactions; and on the other, the recent financial crisis, namely the Euro crisis, which has been bringing to light the cracks of the Eurozone's banking industry[29]. By estimating the proposed models in the sub-samples, I examine if these events have changed the relations between the predictors and the cross-section of returns[30]. For every estimated model I

[29] There is a vast branch of literature devoted to inter-banking contagion, and a more recent trend devoted to sovereign-banking spillovers. For more on European banking interdependence, and the effect of the Euro introduction on it, see Gropp, lo Duca and Vesala (2006), Cocozza and Piselli (2011) and OECD (2012).

[30] One has modeled the sub-sample periods with disclosure periods for simplicity and coordination across the different frequency returns panels. The Euro introduction occurs in 1999, and so one allows in every panel, returns that are modeled has dependent from 1997 year-end financial statements, i.e., up to March, 1999.

condition the return in time t+1 on information up to time t, as in the context of predictive regressions[31].

Also the OOS models' market timing capacity is tested for each of the portfolios. In order to do so, I recursively estimate the fixed-effects panel model to generate, for each country-portfolio, one period-ahead forecasts, meaning that I test the ability of fixed-effects panel model to predict the individual time-series. I can interpret the process as if an investor was trying to forecast his 10 banking related portfolios' stock market returns taking advantage of both the time-series and cross-sectional dimension of the data.

The forecasts generation is performed in two different OOS periods. The first OOS period starts after the disclosure of 1995 year-end financial statements, i.e. returns for periods after March, 1995, and goes until the end of the sample. The second OOS period is intended to check if a period of more noisy data, i.e., after the disclosure of 2007 year-end financial statements, reduced the models' market timing capacity. As such, it begins at the same time as the first one, but goes only up to March, 2008.

In order to assess the estimated fixed-effects models' market timing ability of each portfolio, I use the OOS $\overline{R^2}$ as proposed by Goyal and Welch (2008):

$$\overline{R^2} = R^2 - (1 - R^2) \times \left(\frac{T-k}{T-1}\right), \qquad (1)$$

Regarding the recent financial crisis, the first turmoil in financial Markets occurred in August, 2007 with large swing in the overnight interbank lending rates, but the failure of Lehman Brother in September, 2008, is appointed as the big catalyzer of uncertainty in stock market performance. In the sense, one has modeled the financial crisis period with returns that are assumed to be dependent on year-end financial statements after 2007, i.e., returns from April, 2008, onwards.

[31] Notice that for the monthly returns this means that the accounting dependent regressors are maintain fixed from April to March of every year.

Where the OOS R^2 is defined as:

$$R^2 = 1 - \frac{MSE_P}{MSE_M} \quad (2)$$

MSP_P stands for the mean square error of the one step-ahead foreacasts of the estimated models, and MSP_M corresponds to the mean square error of the historical mean. I use the adjustment to the OOS R^2 suggested by Goyal and Welch (2008) as the number of regressors from the different models varies significantly, and the OOS periods for the yearly, and inter yearly, predictions are considerably small. Given this data constraint I also report the root mean square of the predictions, since there are periods for which the number of regressors is higher than the OOS observations, not allowing degrees of freedom to perform Goyal and Welch (2008) adjustment. Finally, the significance of the OOS performance is checked with the MSE-F statistic suggested by McCracken (2007):

$$MSE - F = (T - h + 1) \times \left(\frac{MSE_M - MSE_P}{MSE_p}\right), \quad (3)$$

Where h is set to 1 when non-overlapping returns are used, as it is this paper's case. McCracken (2007) suggests that, in the presence of non-nested models, standard distributions can be used to assess the statistic's significance. As one is forecasting time series with panel techniques, the individual historical mean is not nested within the estimated models, as opposed to the case of time series predictive regressions. Hence, the $MSE - F$ statistic is compared to a normal F-distribution.

IV. Empirical Results

I will now present the empirical results. Firstly, I will discuss the in-sample estimation results, and secondly, the OOS market timing ability of the estimated models.

A. In-Sample Results

The full-sample estimations, using the monthly and non-overlapping annual returns' panels, are shown in the Appendices C and D. I find that year-end financial statements seem to have low ability to explain monthly or annual stock market returns.

When using monthly returns only % Change TL/TA and EPS seem to have a significant impact. Regarding % Change TL/TA, it yields a positive sign, consistent with the results of Drobetz, Erdmann and Zimmermann (2007) and Leledakis and Staikouras (2004). Concerning EPS, I find a negative coefficient, which is inconsistent with the predicted sign. Moreover, when using the annual returns panel, only EPS maintains significance, similarly yielding a negative sign. The fact that EPS retains statistical significance, at least up to one year after disclosure of year-end financial statements, is consistent with Castren, Fitzpatrick and Sydow (2006) evidence of investors' underreaction to earnings-related information in the European banking industry. Regarding the fact that I find a negative sign for the coefficient associated with EPS, this might occur if higher figures of EPS are associated to larger deviations from expectations. Typically, before earnings announcements, earnings estimates start to be priced, and, after announcement, subsequent related movements occur if the market consensus is innacurate. In this sense, I interpret the findings as if, on average, the banking portfolios, with higher EPS figures, are also the ones where earnings' forecasts

are less accurate, an information that investors tend to correct for at least one year[32]. In order to support this argument I would need data on earnings forecast, which one has not found.

Although not statistically significant, I still observe the relation between the remaining variables and their relation with cross-section of Eurozone's individual banking sectors' stock market returns. Concerning Leverage, it seems that investors penalize less sound balance sheets, consistent with Drobetz, Erdmann and Zimmermann (2007). Looking at the impact of % Change LLR/TL, it seems that increases in this figure are associated with worst annual returns. Even though the sign of the relation changes when looking at monthly returns, the magnitude of the estimator is almost zero. The proposed variable % Change Prov/NII yields the expected positive sign in both panels. Regarding the impact of revenue diversification, the results suggest that increases in % Change NonII/NetI are associated with lower average monthly and annual returns, consistent with Leledakis and Staikouras (2004). Ending with the set of bank-specific variables, increases in the operational efficiency, as measured by % Change ER, are associated with higher average monthly and annual returns, as expected.

Looking at the macroeconomic variables, I find that increases in the risk-free rate, are associated with higher returns, whereas increases in the term spread are associated with lower returns. The findings are similar for monthly and annual regressions. Although the

[32] The result seems not to be driven by post-crisis noise though. When running the sub-sample estimations for monthly and annual frequency, one has found that the negative sign holds across all sub-periods, with statistical significance after the Euro introduction and before the financial crisis. Regarding the annual returns panel, the negative sign holds in the first two periods, whereas post financial crisis it becomes positive. Nonetheless, the impact is not statistically significant in any of the sub-samples.

impact is not statistically different from zero, these relations present the opposite sign from what theory predicts. I argue that these results are related to noise arising from the period after 2007. I will return to this when analyzing the sub-sample period returns.

Concerning Risk_Prem_North, I find that it negatively impacts the market performance of Eurozone's individual banking sectors, as expected. Still the coefficient is not statistically significant when using either monthly or annual returns. The fact that the coefficient of Risk_Prem_North goes in line with the expectation, when the two previous do not, may due to the fact the regressor is built as the difference in return between two sovereign portfolios, therefore presenting a smoother behavior.. These relations will be discussed below.

In order to model returns I use the ratio of book-to-market, and find that increases in the ratio are associated with worst stock market performance. This is contrarian to what the vastly documented value anomaly predicts: Socks that present higher book-to-market tend to outperform stocks with lower book-to-market. Nevertheless, the impact is not statistically different from zero. As for the logarithm of the market capitalization, used as control in every model, one finds evidence concordant with past literature, suggesting that bigger banks tend to present lower stock returns. Still, one fails to find statistically significance in the effect in most of the models.

The difficulty in finding significant impact from regressors, modeled with annual financial statements, to describe monthly and annual returns was already expected. This result changes dramatically when considering the impact of regressors on 1-Month horizon returns (See Appendix E). Besides % Change Tl/TA, also % Change Prov/NII, % Change

NonII/NetI and % Change ER have a statistically significant impact over the portfolios' returns during the month following the disclosure of year-end financial statements. The sign of the impact is the same as the one achieved when running the models over the monthly, and annual panels, and the significance is maintained when combining the variables with other regressors.

Interestingly enough, EPS loses the significance when describing the cross-section of banking sectors' returns during the month of April. In order to see if this is because earnings information is already priced-in before announcement one has ran the same models but considering that the year-end financial statements are available between the end of February and beginning of March. When doing so, I observe a positive and significant impact of EPS on March's Returns. Combining this piece of info with the results found using the monthly and annual returns' panels, it seems that: first, Eurozone's banking sectors' earnings are anticipated during the month of March, with investors rewarding positively higher earnings forecasts; secondly, the movements in prices, during the month of results' announcements, are not related to earnings' announcements; thirdly, after earnings' announcements, investors start correcting the premium they paid for earnings.

Moreover, when considering only April's returns I find that BTM affects positively, and significantly, the returns of the individual banking sectors, consistent with the results of Drobetz, Erdmann and Zimmermann (2007) and Leledakis and Staikouras (2004). Concerning the effect of size, it is now statistically significant, maintaining the sign observed in the monthly and annual returns' panel.

As to the macroeconomic variables, these keep the sign observed in the previous regressions, but Term_Own and Risk_Prem_North are now statistically significant, both individually and when combined with other regressors. Notice that there is no apparent reason why these variables should significantly affect the banking monthly returns only during the month of April, but not over the entire monthly returns' sample. I believe these findings suggest that the underlying relation is highly volatile, and is only significant in a sub-period between 1991 and 2013. This can be shown when later looking at the sub-sample estimation results.

Having found a much higher number of significant regressors when describing April's returns, than when describing the subsequent annual return, means there exists a period, between 1 month and 1 year, for which the proposed regressors can significantly describe Eurozone's cross-section of banking sectors' returns. By looking at quarterly returns, one can study the time length for which the proposed regressors retain statistically significant impacts. The estimation results for 1, 2 and 3 quarters horizon returns can be found in Appendices F to H.

Regarding the bank-specific variables, I conclude that: first, % Change ER loses explanatory power 1 quarter after the disclosure of year-end financial statements; second, % Change NonII/NetI is able to sustain significance up to 1 quarter after disclosure of year-end financial statements, but not after that; and third, % Change Prov/NII is able to keep explanatory power up to 2 quarters after the disclosure of financial statements. Moreover, % Change TL/TA keeps the statistical significance across all the quarters, although, as already noticed, is not able to significantly explain annual returns.

Interesting enough, I observe that the Risk_Prem_North coefficient is negative and significant in the cross-section of Eurozone's individual banking sectors up to 1 quarter, suggesting that investor underreact to movements in the sovereign debt markets.

Finally, as already explained, I investigate the stability of the relations over time, running the models in three different sub-samples. I report the sub-sample estimations only using April's returns panel, since it is the one with higher significance (See Appendix I)[33].

The sub-sample regressions suggest that the bank-specific regressors' relation with the cross section of Eurozone's banking sectors' returns is not constant over time. For almost all variables the sign of the coefficient associated with the regressor changes over periods. Still, when that occurs, the impact of the variable loses statistical significance[34]. This seems to correspond to the period after the Euro introduction and before the financial crisis (99-06 FS), where all the statistically significant variables either change sign, or lose significance. On the other hand, the period after 2007 (-07 FS) seems to be when all the relations between the proposed regressors gain significance, and their signs go in line with the expectations. Notice that these results are consistent with Vennet, de Jonghe and Baele (2004), if one interprets the period after the Euro introduction (99-06 FS) as a stability period, and after the financial crisis as a downturn period.

Finally, regarding the macroeconomic variables Rf_Germany_1Y and Term_Own I find a dramatic change in behavior after 2007, consistent with the argument provided to justify the

[33] As once can see, by the length of Appendix D, the sub-sample estimation with the other panels is also omitted for simplicity. Nevertheless, the same conclusions could be drawn.

[34] For instance, when looking at the coefficients from % Change TL/TA, % Change Prov/NII, and % Change NonII/NetI, I observe that the sub-periods where their coefficients' sign change from the expectation, also corresponds to periods where the variable is not significant.

full in-sample estimation results achieved with those variables. Before 2007, I find the expected sign on the relation between the risk-free, and the term spread, with stock market performance.

B. Out-of-Sample Results

In this sub-chapter I will describe the results on the models' ability to market time each of Eurozone's individual banking sectors. As mentioned in the methodology chapter, the OOS performance of each model is assessed in two periods: first, from April 1996 onwards; and second, from April 1996 up to March, 2008. I present the results for the monthly, non-overlapping annual and 1-month horizon panels[35].

Regarding the first OOS period, the results are shown in Appendices J and K. Not surprisingly, given the in-sample results, none of the proposed models beat the simple historical mean when estimating monthly and annual returns. Moreover, given the magnitude of the achieved out- of- sample $\overline{R^2}$, I conclude that the models' predictions are extremely noisy.

When looking at Panel C, I notice that these models fail less when predicting the 1-month horizon return, given the lower RMSE of the models' predictions. This result is consistent with the higher significance of these models' regressors, observed in-sample, when using these returns' panel. Still, except for the portfolio representative of the Irish banking sector, none of the models' predictions beats the historical average. Regarding the Irish outlier, I believe the result occurs because the portfolio is the most idiosyncratic. As previously

[35] Regarding the OOS $\overline{R^2}$ for the 1-month horizon panel, one compares the models' forecasts with the monthly average of returns.

mentioned, this portfolio is basically one unique stock, and so one it is not surprising that the individual mean corresponds to a very noisy predictor, easily beaten by a model that averages out the sensibility of different European banking portfolios to various regressors. As one will see in the moment, this result is driven by data after April, 2008, a period where the historical mean of an individual stock is most likely to behave very poorly as a monthly predictor, especially regarding financial groups.

When looking at the second OOS period (See Appendices L and M), I conclude that, in fact, the market timing capacity of these models is depressed by the period after the recent financial crash. The models' predictions RMSE is lower across all panels, when comparing to the figures of the previous OOS period.

Although I am able to generate predictions with lower RMSE, before the disclosure of 2007 year-end financial statements, the models' predictions are still not able to beat each portfolio's historical mean, when forecasting monthly and annual returns. One exception is the French portfolio' annual returns, where the forecasts generated using the % Change TL/TA, % Change LLR/TL, % Change Prov/NII, % Change NonII/NetI, % Change ER and EPS would have beat the historical mean. Still, the achieved figures are not statically significant. Nevertheless, it is important to remember that one is dealing with very short OOS periods where, naturally, statistical significance is difficult to achieve.

Although regarding Panels A and B I do not observe a generalized ability, from these models, to beat the historical mean in predicting returns, in Panel C I observe large improvements in the OOS $\overline{R^2}$. Regarding the German, Greek, Irish, Portuguese and Spanish

portfolios I find positive values for the OOS $\overline{R^2}$. Notice however, that the market timing accuracy during the aforementioned period varies considerably across the different Eurozone's banking sectors. Again, even though in same cases the OOS $\overline{R^2}$ achieves very impressive numbers, I conclude that these are not statistically significant.

Finally, concerning the Irish portfolio, when comparing the models' market timing in the two OOS periods, I observe, in the latter, a lower RMSE for the models' predictions, but also a worst OOS $\overline{R^2}$. Combining this piece of info, I conclude that the highly significant OOS $\overline{R^2}$, observed in the first period, arises from the fact that the accuracy loss in the models' predictions, after April, 2008, grows much less than proportionally to the accuracy loss of prediction returns with the historical average.

So far, the evidence indicates that if the stock market performance of the individual Eurozone's banking sectors can in fact be timed, this occurs looking at the cross-sectional differences in banking specific-ratios, and not at the cross-section of different reactions to macroeconomic variables. Moreover, such market timing capacity occurs only for the month in which the earnings results are disclosed to the market.

Having failed to find significant evidence of in-, and out-of-sample, predictability of monthly, and annual, returns of the Eurozone's individual banking sectors, I repeat the exercise using the Fama and French 3-factor (FF) and Carhart models.

C. Fama and French 3-factor and Carhart Models

I fail to find significant evidence that the proposed bank-specific ratios and macroeconomic variables could describe the cross-section of Eurozone's banking sectors' monthly and

annual stock market returns. In a last attempt to achieve that goal I use the FF and Carhart models[36]. As before, I explore first the models' explanatory power in-sample, and finally try to explore the models' ability to market time each of the individual banking, again making use of the panel estimations.

Appendix N shows the results from the in-sample estimations. I use monthly and annual contemporaneous factors to describe the monthly and non-overlapping annual excess returns' panels, respectively[37]. Moreover, instead of running fixed-effects models as before, I use pooled OLS estimators, as identified by the Bresuch-Pagan Lagrange Multiplier test.

Regarding the full-sample estimation, I find that both models have high, and similar, explanatory power over the cross-section of Eurozone's banking sectors' returns. Still, the Carhart model, with the inclusion of the momentum factor (WML), seems to slightly better fit the data. When using the models to explain monthly returns (Panel A of table 17), all regressors are highly significant except the Small-minus-Big factor (SMB). That result changes regarding annual returns (Panel B of table 17), where the SMB changes sign and becomes statistically significant when running the Carhart model.

In order to explore the consistency in the models' explanatory power over time, I divide the sample in the same three previously used periods. The results in table 18 indicate that the relation between the factors and Eurozone's banking sectors' returns has not been constant

[36]One uses Fama and French's European Factors, extracted from Kenneth French's website: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html#International.

[37] Regarding the annual factors, Kenneth French's dataset includes annual factors, where the annual returns are measured from January to December of each year. As the used panel starts in April, one makes uses of the monthly factors to compute each factor's 12-month compounded return, from April to March. Concerning the excess returns, these were computed using the risk-free available in Kenneth French's database. For the annual excess return one had to compute a 12-month compounded return for the risk-free as well.

over time. Moreover, the models' explanatory power has been growing with time. I argue that this indicates a higher synchronism between the individual banking sectors. Notice that, the pooled OLS estimation is imposing the same betas for all the individual portfolios in a context where we are not allowing for individual effects. In this sense, better figures for the in-sample $\overline{R^2}$ indicate that the individual portfolios' reaction to these common factors has been becoming more similar.

Having found that both the Fama and French 3-Factor and Carhat's models can describe the cross-section of Eurozone's banking sectors monthly and annual excess returns, I try, as before, to see if the models could be used to market time the individual banking portfolios, in the two previously considered OOS periods. Notice that, to do so, I had to adjust the models' structures, conditioning the portfolios' excess returns in time t+1 on the factors' returns at time t. Moreover, as the models forecast excess returns for time t+1, I add up the risk-free rate available at time t, in order to have an estimate of the effective return at time t+1. Finally, in order to check if the factors forecasting ability is reduced by the possibility that the portfolios' individual betas are very heterogeneous, I model, individually, each portfolio's monthly and annual excess return for forecasting purposes, i.e., using time series techniques[38]. In order to start recursively estimating the individual time-series models I only require 3 years of data.

[38] Notice that in the context of time-series predictive regressions, MacCraken (2007) proposed MSE-F statistic, used to determine the statistical significance of Goyal and Welch (2008) OOS $\overline{R^2}$, cannot anymore be assessed using standard distributions, as the portfolio's historical mean is nested within the used models. In this case, MacCraken(2007) proposes the use of bootsrapped critical values. Still, one has not worried with the determination of the bootstrapped critical values, has no positive OOS $\overline{R^2}$ were found.

Appendices O and P show the results. As before, I fail to find any evidence of OOS predictability. I find no positive OOS $\overline{R^2}$ in any of the two periods, indicating that, for market-timing purposes, the historical mean has outperformed the models' forecasts. Still, as before, when I truncate the OOS period to March, 2008, the RMSE of the models' predictions improve.

Lastly, I also conclude that the used factors' lack of accuracy to forecast the portfolio's monthly and annual returns is not driven by the fact one is not modelling individually the portfolio's returns with Fama and French 3-Factor and Carhart models. In fact, the estimates from the individual time-series present worse RMSE, which is due to the fact the models are estimated with much less data. This can been seen by the fact that the discrepancies in the predictions' RMSE are bigger for the banking portfolios that present less available data, namely the Austrian, Belgian, Finnish, Greek and Irish portfolios.

This last analysis ends the set of achieved results when describing Eurozone's banking sectors' monthly and annual returns with Fama and French factors.

V. Conclusions

I study the in-, and out-of-sample, stock market return predictability in Eurozone's banking sectors using a panel of 116 banks to constitute equal-weighted country-sorted portfolios representative of the Austrian, Belgian, Finish, French, German, Greek, Irish, Italian, Portuguese and Spanish banking sectors. I employ fixed-effects models to explore the ability of bank-specific ratios, and macroeconomic variables, to describe the banking

sectors' monthly and non-overlapping annual (April-March) returns' from April, 1991, to March, 2013.

Regarding the monthly returns panel, I find that both EPS and the ratio of total loans to total assets have in-sample predictive power whereas, concerning the cross-section of annual returns, only EPS has significant explanatory power. Nevertheless, the sign associated with the impact of EPS is contrarian to the results of past literature. I argue that the result may occur if the banking sectors presenting higher earnings, are also those where earnings' estimates are less accurate.

Failing to find an expressive number of significant regressors to describe the cross-section of monthly and annual returns, I explore the in-sample predictability of the set of variables over the month following the disclosure of year-end financial statements, and also past 1, 2 and 3 quarters. When performing this exercise I find that the ratios of non-interest income to net income, and provisions to net interest income have predictive power over Eurozone's banking sectors' returns up to 1 and 2 quarters, respectively, after disclosure of year-end figures.

The in-sample results show that, in fact, within the banking industry, there is evidence of in-sample stock return predictability arising from industry-specific ratios, consistent with past literature. Moreover, the fact that some bank-specific ratios are able to significantly describe the cross-section of stock returns up to 2 quarters post year-end financial statements' disclosure, seems to constitute evidence of investors' underreaction to financial information contained in year-end financial statements. This result contributes to sustain the

argument that banks' strategic and operational decisions can be tracked by industry-specific accounting ratios giving rise, differently from non-financial stocks, to in-sample stock performance predictability.

Regarding the ability of these models to market time each of the individual banking portfolios, I find no significant evidence of OOS predictability when using monthly and annual returns. The same exercise is performed only for the month when year-end earnings' announcement occurs. Although not statically significant, I find significant evidence that the models' predictions beat the monthly historical average which, once again, reinforces the idea of stock return predictability arising from financial information contained in banks' financial statements.

Finally, I use the Fama and French 3-Factor and Carhart models in a last attempt to achieve evidence of Eurozone's banking sectors' stock return predictability, on a monthly and annual basis. Using pooled OLS estimators, I find statistically significant evidence that the Fama and French factors, with and without momentum, can contemporaneously describe the returns' cross-section in-sample. These results show that financial stocks, namely banking stocks, share with non-financial stocks, common risk factors. Given that I also find, consistent with past literature, that bank-specific variables have some explanatory power over the cross-section of Eurozone's banking sectors' stock returns, most likely the most powerful way to describe banking returns is with a combination between Fama and French and banking-specific factors, these latter focusing on the ratios that proved to have predictive power. Nonetheless, I find no evidence that the Fama and French factors could have been used to time each of the individual banking portfolios' performance.

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Appendix A

Table 1- Descriptive Statistics[a]

Exp. Variables	Mean	Min	Max	Sd
Panel A: Monthly Frequency				
BTM	1.1374	-12.5160	28.3326	1.9360
Rf_Germany_1Y	0.0433	0.0144	0.0879	0.0139
Risk_Prem_North	0.0169	0.0002	0.0924	0.0238
Term_Own	0.0172	-0.0809	0.2819	0.0267
lnMKT_CAP	8.5327	5.0454	11.2519	1.0757
Panel B: Annual Frequency				
Leverage	0.0573	-0.0151	0.1253	0.0226
% Change TL/TA	0.0148	-0.4247	0.3618	0.0769
% Change LLR/TL	0.0994	-0.9022	3.8975	0.4302
% Change Prov/NII	0.4985	-1.0717	14.2244	1.5294
% Change NonII/NetI	0.8555	-4.1873	62.6857	5.1512
% Change ER	0.0272	-0.5866	1.7349	0.2245
EPS	-2.2806	-606.5244	27.0195	47.4409
BTM	1.1500	-2.1121	15.9954	1.6985
Rf_Germany_1Y	0.0447	0.0228	0.0879	0.0137
Risk_Prem_North	0.0156	0.0005	0.0717	0.0210
Term_Own	0.0163	-0.0396	0.1820	0.0235
lnMKT_CAP	8.5029	5.0984	10.9719	1.1072

[a] This table provides the Mean, Min, Max and Standard Deviation for all the explanatory variables. Panel A and B correspond to the monthly and annual unbalanced panels from April, 1991, to March, 2013, respectively. The descriptive statistics for the bank-specific are omitted in Panel A because are based in annual data. Leverage corresponds to the ratio of the book value of equity to total assets; % Change TL/TA corresponds to the percentage change of the ratio of total loans to total assets; % Change LLR/TL corresponds to the percentage change of the ratio of loan loss reserves to total loans; % Change Prov/NII corresponds to the percentage change of the ratio of provisions to net interest income; % Change NonII/NetI corresponds to the percentage change of the ratio of non-interest income to net income; % Change ER corresponds to the percentage change of the efficiency ratio; EPS corresponds to the earnings per share ratio; BTM corresponds to the book-to-market ratio; Rf_Germany_1Y corresponds to the rolling 1-year return on the 10-year German government bond; Risk_Prem_North, corresponds to the return difference between the an equal weighted portfolio of 10-year government bonds of Portugal, Ireland, Greece, Spain and Italy, and an equal weighted portfolio of 10-year government bonds of Austria, Belgium, Finland, France and Germany; and Term_Own corresponds to individual-specific difference between the 10-year government bond yield and the 3-month interbank lending rate.

Appendix B

Table 2- Correlation Matrix[a]

Exp. Variable	Leverage	% TL/TA	% LLR/TL	% Prov/NII	% NonII/NetI	% ER	EPS	BTM	Rf_Ger	Risk_Prem	Term_Own	lnMKT_CAP
Panel A: Montlhy Frequency												
BTM	0.1300	-0.1310	0.1480	0.2490	-0.2010	-0.0164	0.0494	1				
Rf_Germany_1Y	0.0860	0.0154	-0.1820	-0.0703	-0.1180	0.0624	0.0532	-0.0973	1			
Risk_Prem_North	-0.0255	-0.0437	0.2560	-0.0273	0.1890	0.0540	0.0283	0.2080	-0.2010	1		
Term_Own	-0.1610	-0.0156	0.2950	0.1250	0.0004	0.0547	-0.0486	0.2280	-0.4090	0.4420	1	
lnMKT_CAP	-0.1450	-0.0339	-0.1050	-0.1300	-0.0150	-0.0025	0.0459	-0.2270	-0.3300	-0.2010	-0.1810	1
Panel B: Annual Frequency												
Leverage	1											
% Change TL/TA	0.0185	1										
% Change LLR/TL	-0.0680	-0.1230	1									
% Change Prov/NII	-0.0391	0.0780	0.4140	1								
% Change NonII/NetI	-0.1670	-0.0969	-0.0059	-0.0368	1							
% Change ER	-0.0907	0.2190	0.0422	0.1510	-0.219	1						
EPS	0.0614	-0.1000	-0.1030	-0.0795	0.0195	0.0175	1					
BTM	0.0485	-0.0714	0.3930	0.5520	-0.1110	0.0920	0.0403	1				
Rf_Germany_1Y	0.0652	0.0365	-0.1600	-0.0504	-0.0937	0.0644	0.0354	-0.0998	1			
Risk_Premium_North	-0.0348	-0.0500	0.1760	-0.0230	0.2040	0.0937	0.0288	0.1410	0.0222	1		
TERM_OWN	-0.1920	0.00750	0.3330	0.1040	-0.00404	0.0762	-0.0677	0.2130	-0.4300	0.3870	1	
lnMKT_CAP	-0.0906	-0.0791	-0.189	-0.2000	-0.00778	-0.1330	0.0689	-0.2730	-0.3570	-0.2380	-0.1560	1

[a] This table provides the correlation matrix between all explanatory variables. Panel A and B correspond to the monthly and annual unbalanced panels from April, 1991, to March, 2013, respectively. The descriptive statistics for the bank-specific are omitted in Panel A because are based in annual data. Horizontal variable names are shortened for better fitting. Leverage corresponds to the ratio of the book value of equity to total assets; % Change TL/TA (%TL/TA) corresponds to the percentage change of the ratio of total loans to total assets; % Change LLR/TL (%LLR/TL) corresponds to the percentage change of the ratio of loan loss reserves to total loans; % Change Prov/NII (% Prov/NII) corresponds to the percentage change of the ratio of provisions to net interest income; % Change NonII/NetI (%NonII/NetI) corresponds to the percentage change of the ratio of non-interest income to net income; % Change ER (% ER) corresponds to the percentage change of the efficiency ratio; EPS corresponds to the earnings per share ratio; BTM corresponds to the book-to-market ratio; Rf_Germany_1Y corresponds to the rolling 1-year return on the 10-year German government bond; Risk_Prem_North, corresponds to the return difference between the an equal weighted portfolio of 10-year government bonds of Portugal, Ireland, Greece, Spain and Italy, and an equal weighted portfolio of 10-year government bonds of Austria, Belgium, Finland, France and Germany; and Term_Own corresponds to individual-specific difference between the 10-year government bond yield and the 3-month interbank lending rate.

Appendix C

Table 3- In-Sample Results, Monthly Returns[a]

Exp. Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Leverage	-0.3127																		-0.3337
	(-1.22)																		(-1.37)
% Change TL/TA		0.0899										0.0818			0.0776	0.0641		0.0673	0.0638
		(2.38)*										(2.45)*			(2.36)*	(1.87)		(1.86)	(1.59)
% Change LLR/TL			0.0002																0.0026
			(0.01)																(0.34)
% Change Prov/NII				0.0035								0.0030			0.0039	0.0038		0.0040	0.0037
				(0.62)								(0.54)			(0.71)	(0.68)		(0.75)	(0.66)
% Change NonII/NetI					-0.0008							-0.0006			-0.0002	-0.0009		-0.0005	-0.0005
					(-1.26)							(-0.91)			(-0.32)	(-1.49)		(-0.62)	(-0.72)
% Change ER						0.0140													0.0004
						(0.76)													(0.02)
EPS							-0.0001						-0.0001			-0.0001	-0.0001	-0.0001	-0.0001
							(-3.08)*						(-3.18)*			(-2.45)*	(-2.90)*	(-2.32)*	(-1.86)
BTM								-0.0029					-0.0028			-0.0038	-0.0011	-0.0019	-0.0013
								(-0.71)					(-0.69)			(-0.97)	(-0.28)	(-0.45)	(-0.31)
Rf_Germany_1Y									0.7354					0.4414	0.5260		0.4072	0.4213	0.3883
									(1.37)					(0.83)	(0.93)		(0.84)	(0.74)	(0.66)
Risk_Prem_North										-0.2985				-0.1323	-0.0770		-0.1274	-0.0645	-0.0625
										(-0.95)				(-0.49)	(-0.30)		(-0.47)	(-0.25)	(-0.24)
Term_Own											-0.3211			-0.1490	-0.1520		-0.1420	-0.1604	-0.2298
											(-1.12)			(-0.60)	(-0.59)		(-0.58)	(-0.63)	(-0.92)
lnMKT_CAP	-0.0026	-0.0041	-0.0039	-0.0028	-0.0046	-0.0038	-0.0039	-0.0063	0.0016	-0.0062	-0.0060	-0.0035	-0.0062	-0.0026	-0.0005	-0.0066	-0.0036	-0.0029	-0.0017
	(-0.46)	(-0.71)	(-0.71)	(-0.51)	(-0.78)	(-0.67)	(-0.68)	(-1.35)	(0.18)	(-1.09)	(-1.13)	(-0.62)	(-1.33)	(-0.27)	(-0.05)	(-1.37)	(-0.44)	(-0.30)	(-0.19)
Constant	0.0412	0.0346	0.0348	0.0229	0.0411	0.0333	0.0342	0.0586	-0.0442	0.0591	0.0575	0.0287	0.0572	0.0086	-0.0163	0.0598	0.0201	0.0107	0.0220
	(0.78)	(0.66)	(0.69)	(0.46)	(0.76)	(0.64)	(0.65)	(1.39)	(-0.44)	(1.12)	(1.20)	(0.56)	(1.36)	(0.08)	(-0.15)	(1.35)	(0.21)	(0.10)	(0.19)
Observations	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040
Adjusted R-squared	0.46	0.64**	0.28	0.50	0.40	0.36	0.46**	0.49	0.91**	0.67	0.84	0.79	0.61**	0.99	1.44**	1.14**	1.11**	1.54***	1.59**
RMSE	0.1098	0.1097	0.1099	0.1098	0.1099	0.1099	0.1098	0.1098	0.1096	0.1097	0.1096	0.1096	0.1097	0.1095	0.1093	0.1095	0.1095	0.1092	0.1092

[a] In sample results using monthly returns from April, 1991, to March 2013. In parenthesis, t-statistics computed with Driscoll and Kraay (1998) standard errors. Significance of the adjusted R-squared computed on the basis of the F-statistic. RMSE denotes the root mean square error. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. % Change TL/TA corresponds to the percentage change of the ratio of total loans to total assets; % Change LLR/TL corresponds to the percentage change of the ratio of loan loss reserves to total loans; % Change Prov/NII (% Prov/NII) corresponds to the percentage change of the ratio of provisions to net interest income; % Change NonII/NetI corresponds to the percentage change of the ratio of non-interest income to net income; % Change ER corresponds to the percentage change of the efficiency ratio; EPS corresponds to the earnings per share ratio; BTM corresponds to the book-to-market ratio; Rf_Germany_1Y corresponds to the rolling 1-year return on the 10-year German government bond; Risk_Prem_North, corresponds to the return difference between the an equal weighted portfolio of 10-year government bonds of Portugal, Ireland, Greece, Spain and Italy, and an equal weighted portfolio of 10-year government bonds of Austria, Belgium, Finland, France and Germany; and Term_Own corresponds to individual-specific difference between the 10-year government bond yield and the 3-month interbank lending rate.

Appendix D

Table 4- In-Sample Results, Annual Returns[a]

Exp. Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Leverage	-1.7971																		-1.9609
	(-0.66)																		(-0.81)
% Change TL/TA		0.9347										0.8696			0.8415	0.6218		0.6019	0.6633
		(1.47)										(1.47)			(1.41)	(1.57)		(1.36)	(1.17)
% Change LLR/TL			-0.0516																0.0435
			(-0.43)																(0.71)
% Change Prov/NII				0.0214								0.0170			0.0260	0.0664		0.0609	0.0598
				(0.59)								(0.53)			(0.70)	(1.45)		(1.38)	(1.39)
% Change NonII/NetI					-0.0082							-0.0061			-0.0029	-0.0096		-0.0087	-0.0109
					(-1.80)							(-1.10)			(-0.46)	(-1.79)		(-1.42)	(-1.61)
% Change ER						0.0407													-0.1044
						(0.31)													(-0.59)
EPS							-0.0011						-0.0011			-0.0009	-0.0011	-0.0009	-0.0008
							(-2.84)*						(-2.93)*			(-2.89)*	(-2.79)*	(-2.91)*	(-2.39)*
BTM								-0.0567					-0.0558			-0.0959	-0.0407	-0.0838	-0.0874
								(-1.34)					(-1.31)			(-2.43)*	(-1.25)	(-2.95)*	(-2.96)*
Rf_Germany_1Y									7.8233					5.0988	5.7265		2.3267	0.1438	-0.4635
									(1.23)					(1.25)	(1.00)		(0.63)	(0.03)	(-0.11)
Risk_Prem_North										-3.1880				-1.8305	-1.2081		-1.9351	-0.9193	-0.7599
										(-1.37)				(-0.70)	(-0.46)		(-0.79)	(-0.38)	(-0.31)
Term_Own											-3.8277			-1.6446	-1.6353		-2.0205	-2.6373	-3.2692
											(-1.05)			(-0.46)	(-0.43)		(-0.55)	(-0.65)	(-0.83)
lnMKT_CAP	-0.1418	-0.1483	-0.1574	-0.1422	-0.1588	-0.1503	-0.1499	-0.1994	-0.0923	-0.1771	-0.1711	-0.1451	-0.1962	-0.1354	-0.1116	-0.2024	-0.1905	-0.2131	-0.2147
	(-1.74)	(-1.72)	(-1.98)	(-1.75)	(-1.86)	(-1.72)	(-1.76)	(-2.75)*	(-0.76)	(-2.21)	(-2.25)	(-1.73)	(-2.72)*	(-1.50)	(-1.16)	(-2.84)*	(-2.54)*	(-2.95)*	(-2.65)*
Constant	1.3276	1.2663	1.3623	1.2170	1.3765	1.2960	1.2913	1.7794	0.4540	1.5746	1.5360	1.2368	1.7486	0.9973	0.7343	1.8145	1.6417	1.9439	2.1095
	(1.79)	(1.75)	(2.04)	(1.72)	(1.91)	(1.76)	(1.79)	(2.97)*	(0.36)	(2.37)*	(2.57)*	(1.70)	(2.92)*	(1.17)	(0.69)	(3.00)*	(2.24)	(2.45)*	(2.44)*
Observations	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
Adjusted R-squared	4.30	5.81*	4.23*	4.41	4.66*	4.09	5.04**	6.43*	6.94**	5.53*	6.83**	5.21	6.75**	6.79*	7.18*	9.49*	7.60**	9.48***	8.19***
RMSE	0.5264	0.5222	0.5266	0.5261	0.5254	0.5270	0.5244	0.5205	0.5191	0.5230	0.5194	0.5239	0.5196	0.5195	0.5184	0.5119	0.5173	0.5120	0.5156

[a] In sample results using non-overlapping annual(April-March) returns from March, 1992, to March 2013. In parenthesis, t-statistics computed with Driscoll and Kraay (1998) standard errors. Significance of the adjusted R-squared computed on the basis of the F-statistic. RMSE denotes the root mean square error. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. % Change TL/TA corresponds to the percentage change of the ratio of total loans to total assets; % Change LLR/TL corresponds to the percentage change of the ratio of loan loss reserves to total loans; % Change Prov/NII (% Prov/NII) corresponds to the percentage change of the ratio of provisions to net interest income; % Change NonII/NetI corresponds to the percentage change of the ratio of non-interest income to net income; % Change ER corresponds to the percentage change of the efficiency ratio; EPS corresponds to the earnings per share ratio; BTM corresponds to the book-to-market ratio; Rf_Germany_1Y corresponds to the rolling 1-year return on the 10-year German government bond; Risk_Prem_North, corresponds to the return difference between the an equal weighted portfolio of 10-year government bonds of Portugal, Ireland, Greece, Spain and Italy, and an equal weighted portfolio of 10-year government bonds of Austria, Belgium, Finland, France and Germany; and Term_Own corresponds to individual-specific difference between the 10-year government bond yield and the 3-month interbank lending rate.

Appendix E

Table 5- In-Sample Results, 1-Month Horizon Returns[a]

Exp. Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Leverage	-0.0141																		-0.8329
	(-0.03)																		(-1.56)
% Change TL/TA		0.3111										0.2429			0.2073	0.2662		0.2464	0.2212
		(3.03)*										(3.85)**			(2.75)*	(3.63)**		(2.91)*	(3.22)*
% Change LLR/TL			0.0034																0.0014
			(0.20)																(0.14)
% Change Prov/NII				0.0231								0.0202			0.0181	0.0158		0.0120	0.0114
				(3.72)**								(4.48)**			(4.84)***	(3.39)**		(2.60)*	(2.56)*
% Change NonII/NetI					-0.0072							-0.0061			-0.0059	-0.0058		-0.0049	-0.0048
					(-7.97)***							(-7.74)***			(-5.58)***	(-8.02)***		(-4.36)**	(-4.03)**
% Change ER						0.0725													0.0264
						(3.07)*													(2.38)*
EPS							0.0001						0.0000			0.0001	0.0000	0.0001	0.0001
							(0.60)						(0.42)			(1.23)	(0.37)	(1.04)	(1.58)
BTM								0.0199					0.0199			0.0087	0.0258	0.0143	0.0158
								(3.21)*					(3.22)*			(1.56)	(9.46)***	(2.77)*	(3.05)*
Rf_Germany_1Y									1.0314					-1.0181	-1.1755		0.8268	-0.2194	-0.2133
									(0.52)					(-0.77)	(-1.64)		(0.80)	(-0.26)	(-0.27)
Risk_Prem_North										-2.1224				-1.7529	-1.1744		-1.6292	-1.2198	-1.2162
										(-4.84)***				(-3.96)**	(-3.55)**		(-5.17)***	(-4.08)**	(-4.16)**
Term_Own											-1.3991			-1.1218	-1.4123		-0.9028	-1.2437	-1.3874
											(-2.77)*			(-2.43)*	(-3.26)**		(-1.69)	(-2.60)*	(-2.96)*
lnMKT_CAP	-0.0380	-0.0367	-0.0377	-0.0269	-0.0436	-0.0341	-0.0382	-0.0216	-0.0301	-0.0544	-0.0448	-0.0319	-0.0217	-0.0648	-0.0579	-0.0267	-0.0273	-0.0405	-0.0336
	(-3.28)**	(-3.25)*	(-3.37)**	(-3.33)**	(-3.99)**	(-2.79)*	(-3.19)*	(-2.75)*	(-1.26)	(-4.38)**	(-3.43)**	(-4.27)**	(-2.77)*	(-2.94)*	(-5.87)***	(-3.01)*	(-1.76)	(-3.05)*	(-2.35)*
Constant	0.3650	0.3485	0.3618	0.2587	0.4182	0.3296	0.3660	0.2020	0.2513	0.5372	0.4454	0.3043	0.2030	0.6839	0.6208	0.2522	0.2473	0.4131	0.4025
	(3.18)*	(3.30)**	(3.44)**	(3.47)**	(4.05)**	(2.80)*	(3.21)*	(2.82)*	(0.84)	(4.50)**	(3.57)**	(4.78)**	(2.83)*	(2.60)*	(5.15)***	(3.32)**	(1.31)	(2.57)*	(2.55)*
Observations	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
Adjusted R-squared	5.43**	10.34**	5.45**	15.70***	17.14***	7.78***	5.48*	12.85***	6.70***	21.91***	14.82***	27.35***	12.32***	24.36***	41.73***	27.67***	33.14***	43.18***	43.68***
RMSE	0.1039	0.1011	0.1038	0.0981	0.0972	0.1026	0.1038	0.0997	0.1032	0.0944	0.0986	0.0910	0.1000	0.0929	0.0815	0.0908	0.0873	0.0805	0.0801

[a] In sample results using April's returns from 1991 to 2012. In parenthesis, t-statistics computed with Driscoll and Kraay (1998) standard errors. Significance of the adjusted R-squared computed on the basis of the F-statistic. RMSE denotes the root mean square error. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. % Change TL/TA corresponds to the percentage change of the ratio of total loans to total assets; % Change LLR/TL corresponds to the percentage change of the ratio of loan loss reserves to total loans; % Change Prov/NII (% Prov/NII) corresponds to the percentage change of the ratio of provisions to net interest income; % Change NonII/NetI corresponds to the percentage change of the ratio of non-interest income to net income; % Change ER corresponds to the percentage change of the efficiency ratio; EPS corresponds to the earnings per share ratio; BTM corresponds to the book-to-market ratio; Rf_Germany_1Y corresponds to the rolling 1-year return on the 10-year German government bond; Risk_Prem_North, corresponds to the return difference between the an equal weighted portfolio of 10-year government bonds of Portugal, Ireland, Greece, Spain and Italy, and an equal weighted portfolio of 10-year government bonds of Austria, Belgium, Finland, France and Germany; and Term_Own corresponds to individual-specific difference between the 10-year government bond yield and the 3-month interbank lending rate.

Appendix F

Table 6- In-Sample Returns, 1-Quarter Horizon Returns[a]

Exp. Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Leverage	-0.5076																		-1.3617
	(-0.73)																		(-1.51)
% Change TL/TA		0.5068										0.4054			0.3790	0.3761		0.3802	0.3823
		(3.59)**										(3.65)**			(3.00)*	(2.85)*		(2.63)*	(2.52)*
% Change LLR/TL			-0.0016																-0.0189
			(-0.03)																(-0.96)
% Change Prov/NII				0.0430								0.0391			0.0405	0.0455		0.0399	0.0430
				(2.70)*								(2.92)*			(2.90)*	(2.73)*		(2.63)*	(2.53)*
% Change NonII/NetI					-0.0099							-0.0080			-0.0061	-0.0085		-0.0061	-0.0075
					(-4.87)***							(-3.69)**			(-2.57)*	(-4.16)**		(-2.54)*	(-3.07)*
% Change ER						0.0232													-0.0719
						(0.47)													(-1.12)
EPS							-0.0002						-0.0002			-0.0000	-0.0002	-0.0001	-0.0000
							(-1.31)						(-1.44)			(-0.31)	(-1.24)	(-0.46)	(-0.13)
BTM								0.0165					0.0167			-0.0121	0.0299	0.0012	0.0015
								(0.66)					(0.66)			(-0.55)	(1.53)	(0.07)	(0.10)
Rf_Germany_1Y									2.6318					1.1372	1.6984		3.3029	1.7850	1.4040
									(0.83)					(0.49)	(1.01)		(2.18)	(1.13)	(0.89)
Risk_Prem_North										-2.8304				-2.4930	-1.6487		-2.3294	-1.6480	-1.4649
										(-5.29)***				(-3.70)**	(-2.54)*		(-3.53)**	(-2.42)*	(-2.09)
Term_Own											-1.6340			-0.4452	-0.6441		-0.1986	-0.6325	-0.8605
											(-1.78)			(-0.62)	(-0.89)		(-0.25)	(-0.72)	(-0.98)
lnMKT_CAP	-0.0603	-0.0610	-0.0635	-0.0425	-0.0710	-0.0621	-0.0629	-0.0496	-0.0431	-0.0851	-0.0712	-0.0488	-0.0491	-0.0759	-0.0496	-0.0561	-0.0316	-0.0479	-0.0476
	(-2.17)	(-2.23)	(-2.59)*	(-2.16)	(-2.68)*	(-2.12)	(-2.22)	(-3.33)**	(-0.89)	(-2.75)*	(-2.54)*	(-2.65)*	(-3.27)**	(-1.52)	(-1.65)	(-3.29)**	(-1.13)	(-1.78)	(-1.70)
Constant	0.5676	0.5374	0.5657	0.3661	0.6380	0.5530	0.5605	0.4289	0.2744	0.7940	0.6583	0.4222	0.4236	0.6670	0.3871	0.4961	0.1519	0.3677	0.4639
	(2.15)	(2.17)	(2.55)*	(1.90)	(2.64)*	(2.06)	(2.16)	(3.11)*	(0.49)	(2.86)*	(2.62)*	(2.40)*	(3.04)*	(1.23)	(1.14)	(3.13)*	(0.49)	(1.16)	(1.48)
Observations	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
Adjusted R-squared	3.48	7.68***	3.32*	15.28**	10.83***	3.40	3.52**	5.03**	6.09***	13.12***	7.61***	22.76***	4.66***	13.22***	29.44***	22.42***	16.60***	28.54***	28.91***
RMSE	0.1814	0.1774	0.1815	0.1699	0.1743	0.1815	0.1814	0.1799	0.1789	0.1721	0.1775	0.1623	0.1803	0.1720	0.1551	0.1626	0.1686	0.1561	0.1557

[a] In sample results non overlapping quarterly returns (April-June) from June, 1991, to June ,2012. In parenthesis, t-statistics computed with Driscoll and Kraay (1998) standard errors. Significance of the adjusted R-squared computed on the basis of the F-statistic. RMSE denotes the root mean square error. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. % Change TL/TA corresponds to the percentage change of the ratio of total loans to total assets; % Change LLR/TL corresponds to the percentage change of the ratio of loan loss reserves to total loans; % Change Prov/NII (% Prov/NII) corresponds to the percentage change of the ratio of provisions to net interest income; % Change NonII/NetI corresponds to the percentage change of the ratio of non-interest income to net income; % Change ER corresponds to the percentage change of the efficiency ratio; EPS corresponds to the earnings per share ratio; BTM corresponds to the book-to-market ratio; Rf_Germany_1Y corresponds to the rolling 1-year return on the 10-year German government bond; Risk_Prem_North, corresponds to the return difference between the an equal weighted portfolio of 10-year government bonds of Portugal, Ireland, Greece, Spain and Italy, and an equal weighted portfolio of 10-year government bonds of Austria, Belgium, Finland, France and Germany; and Term_Own corresponds to individual-specific difference between the 10-year government bond yield and the 3-month interbank lending rate

Appendix G

Table 7- In-Sample Results, 2-Quarters Horizon Returns[a]

Exp. Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Leverage	-2.2536																		-3.3581
	(-2.88)*																		(-2.09)
% Change TL/TA		0.7923										0.6875			0.6570	0.5335		0.4994	0.5194
		(1.81)										(2.56)*			(2.38)*	(1.96)		(1.64)	(1.52)
% Change LLR/TL			-0.0103																-0.0609
			(-0.10)																(-1.32)
% Change Prov/NII				0.0864								0.0835			0.0873	0.1164		0.1123	0.1222
				(2.71)*								(2.94)*			(2.76)*	(2.66)*		(2.77)*	(2.83)*
% Change NonII/NetI					-0.0068							-0.0031			-0.0008	-0.0054		-0.0049	-0.0091
					(-1.81)							(-0.74)			(-0.14)	(-1.49)		(-1.06)	(-2.46)*
% Change ER						-0.0559													-0.2279
						(-0.37)													(-1.80)
EPS							-0.0006						-0.0006			-0.0003	-0.0006	-0.0003	-0.0002
							(-2.11)						(-2.27)*			(-1.14)	(-1.97)	(-1.09)	(-0.64)
BTM								0.0024					0.0029			-0.0630	0.0111	-0.0586	-0.0587
								(0.04)					(0.05)			(-1.20)	(0.20)	(-1.23)	(-1.58)
Rf_Germany_1Y									2.9779					0.0996	2.9019		0.9678	-1.0326	-2.1405
									(0.49)					(0.02)	(0.61)		(0.35)	(-0.31)	(-0.68)
Risk_Prem_North										-3.2595				-2.5654	-1.5371		-2.4617	-1.3572	-0.8202
										(-1.68)				(-1.44)	(-1.04)		(-1.53)	(-0.91)	(-0.56)
Term_Own											-2.4380			-1.5437	-1.1850		-1.4667	-1.8734	-2.4110
											(-1.07)			(-1.07)	(-0.84)		(-0.93)	(-1.00)	(-1.28)
lnMKT_CAP	-0.0685	-0.0784	-0.0829	-0.0402	-0.0873	-0.0850	-0.0807	-0.0800	-0.0591	-0.1071	-0.0938	-0.0409	-0.0783	-0.1085	-0.0327	-0.0789	-0.0901	-0.1046	-0.1083
	(-1.13)	(-1.35)	(-1.64)	(-0.81)	(-1.46)	(-1.59)	(-1.36)	(-3.07)*	(-0.59)	(-1.71)	(-1.73)	(-0.79)	(-2.98)*	(-1.11)	(-0.42)	(-2.44)*	(-2.59)*	(-2.42)*	(-2.68)*
Constant	0.7227	0.6659	0.7171	0.3100	0.7586	0.7350	0.6953	0.6882	0.3798	0.9724	0.8480	0.3095	0.6718	0.9939	0.1500	0.6924	0.7819	1.0055	1.2908
	(1.31)	(1.28)	(1.59)	(0.67)	(1.40)	(1.52)	(1.29)	(3.00)*	(0.33)	(1.72)	(1.81)	(0.64)	(2.88)*	(0.93)	(0.17)	(2.36)*	(2.01)	(1.90)	(2.78)*
Observations	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
Adjusted R-squared	0.39*	2.49	-0.51**	13.08**	0.49	-0.39	0.09**	-0.51*	0.48**	3.15	2.17	14.61***	-0.53**	2.88	17.23**	18.58***	2.39**	19.5***	21.87***
RMSE	0.3469	0.3432	0.3485	0.3241	0.3467	0.3483	0.3474	0.3485	0.3468	0.3421	0.3438	0.3212	0.3485	0.3425	0.3162	0.3136	0.3434	0.3119	0.3072

[a] In sample results non overlapping quarterly returns (April-September), from September, 1991, to September, 2012. In parenthesis, t-statistics computed with Driscoll and Kraay (1998) standard errors. Significance of the adjusted R-squared computed on the basis of the F-statistic. RMSE denotes the root mean square error. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. % Change TL/TA corresponds to the percentage change of the ratio of total loans to total assets; % Change LLR/TL corresponds to the percentage change of the ratio of loan loss reserves to total loans; % Change Prov/NII (% Prov/NII) corresponds to the percentage change of the ratio of provisions to net interest income; % Change NonII/NetI corresponds to the percentage change of the ratio of non-interest income to net income; % Change ER corresponds to the percentage change of the efficiency ratio; EPS corresponds to the earnings per share ratio; BTM corresponds to the book-to-market ratio; Rf_Germany_1Y corresponds to the rolling 1-year return on the 10-year German government bond; Risk_Prem_North, corresponds to the return difference between the an equal weighted portfolio of 10-year government bonds of Portugal, Ireland, Greece, Spain and Italy, and an equal weighted portfolio of 10-year government bonds of Austria, Belgium, Finland, France and Germany; and Term_Own corresponds to individual-specific difference between the 10-year government bond yield and the 3-month interbank lending rate

Appendix H

Table 8- In-Sample Results, 3-Quarters Horizon[a]

Exp. Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Leverage	-2.7569																		-2.9644
	(-2.52)*																		(-2.01)
% Change TL/TA		0.9617										0.8956			0.8659	0.6596		0.6356	0.6206
		(1.81)										(1.93)			(1.83)	(2.07)		(1.70)	(1.36)
% Change LLR/TL			-0.0674																-0.0082
			(-0.73)																(-0.17)
% Change Prov/NII				0.0332								0.0292			0.0365	0.0767		0.0706	0.0730
				(1.06)								(1.10)			(1.17)	(1.82)		(1.83)	(1.91)
% Change NonII/NetI					-0.0073							-0.0048			-0.0009	-0.0081		-0.0066	-0.0084
					(-1.52)							(-0.84)			(-0.15)	(-1.58)		(-1.23)	(-1.64)
% Change ER						0.0703													-0.0686
						(0.67)													(-0.50)
EPS							-0.0010						-0.0010			-0.0008	-0.0010	-0.0008	-0.0007
							(-2.58)*						(-2.74)*			(-2.80)*	(-2.47)*	(-2.54)*	(-2.34)*
BTM								-0.0480					-0.0472			-0.0921	-0.0353	-0.0815	-0.0801
								(-1.08)					(-1.06)			(-2.19)	(-0.98)	(-2.42)*	(-2.74)*
Rf_Germany_1Y									6.7338					4.3397	5.5626		1.9381	0.1259	-0.4181
									(1.15)					(1.31)	(1.16)		(0.69)	(0.03)	(-0.11)
Risk_Prem_North										-3.7184				-2.6896	-2.0812		-2.7765	-1.8061	-1.5678
										(-1.54)				(-1.16)	(-0.92)		(-1.27)	(-0.85)	(-0.72)
Term_Own											-3.3524			-1.1134	-0.9337		-1.4411	-1.9049	-2.4782
											(-1.06)			(-0.42)	(-0.34)		(-0.51)	(-0.60)	(-0.77)
lnMKT_CAP	-0.0907	-0.1028	-0.1135	-0.0911	-0.1127	-0.1033	-0.1047	-0.1468	-0.0553	-0.1358	-0.1234	-0.0927	-0.1439	-0.0998	-0.0641	-0.1478	-0.1475	-0.1630	-0.1544
	(-1.45)	(-1.66)	(-2.01)	(-1.59)	(-1.82)	(-1.67)	(-1.71)	(-3.27)**	(-0.57)	(-2.29)*	(-2.29)*	(-1.54)	(-3.25)**	(-1.39)	(-0.86)	(-3.39)**	(-3.21)*	(-3.29)**	(-2.77)*
Constant	0.9256	0.8566	0.9682	0.7545	0.9614	0.8732	0.8849	1.3004	0.1657	1.2093	1.1003	0.7609	1.2719	0.7118	0.3102	1.3162	1.2695	1.4890	1.6177
	(1.68)	(1.63)	(2.02)	(1.46)	(1.80)	(1.64)	(1.67)	(3.64)**	(0.16)	(2.42)*	(2.59)*	(1.41)	(3.58)**	(1.00)	(0.36)	(3.63)**	(2.71)*	(2.42)*	(2.69)*
Observations	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
Adjusted R-squared	2.84**	4.71*	2.43*	3.23	2.70	2.13	3.23**	4.50*	5.13**	4.92	5.12**	4.86*	5.03*	5.97*	8.05	10.90*	7.09*	11.51**	10.72***
RMSE	0.4383	0.4340	0.4392	0.4374	0.4386	0.4399	0.4374	0.4345	0.4331	0.4336	0.4331	0.4337	0.4333	0.4312	0.4264	0.4197	0.4286	0.4183	0.4201

[a] In sample results using non-overlapping quarterly returns (April-December) returns from December, 1991, to December 2012. In parenthesis, t-statistics computed with Driscoll and Kraay (1998) standard errors. Significance of the adjusted R-squared computed on the basis of the F-statistic. RMSE denotes the root mean square error. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. % Change TL/TA corresponds to the percentage change of the ratio of total loans to total assets; % Change LLR/TL corresponds to the percentage change of the ratio of loan loss reserves to total loans; % Change Prov/NII (% Prov/NII) corresponds to the percentage change of the ratio of provisions to net interest income; % Change NonII/NetI corresponds to the percentage change of the ratio of non-interest income to net income; % Change ER corresponds to the percentage change of the efficiency ratio; EPS corresponds to the earnings per share ratio; BTM corresponds to the book-to-market ratio; Rf_Germany_1Y corresponds to the rolling 1-year return on the 10-year German government bond; Risk_Prem_North, corresponds to the return difference between the an equal weighted portfolio of 10-year government bonds of Portugal, Ireland, Greece, Spain and Italy, and an equal weighted portfolio of 10-year government bonds of Austria, Belgium, Finland, France and Germany; and Term_Own corresponds to individual-specific difference between the 10-year government bond yield and the 3-month interbank lending rate.

Appendix I

Table 9- Sub-Sample Results, 1-Month Horizon Results[a]

	(1)			(2)			(3)			(4)			(5)		
Exp. Variables	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -
Leverage	0.6878	-0.7040	1.6093												
	(1.16)	(-0.84)	(1.84)												
% Change TL/TA				-0.2517	0.2209	0.6256									
				(-2.27)	(2.70)*	(3.82)**									
% Change LLR/TL							0.0245	0.0111	-0.0197						
							(1.61)	(0.48)	(-2.12)						
% Change Prov/NII										0.0155	-0.0023	0.0340			
										(1.29)	(-0.16)	(5.01)***			
% Change NonII/NetI													-0.0025	-0.0127	-0.0079
													(-4.21)**	(-1.72)	(-5.46)***
% Change ER															
EPS															
BTM															
Rf_Germany_1Y															
Risk_Prem_North															
Term_Own															
lnMKT_CAP	-0.0249	-0.0318	-0.0965	-0.0201	-0.0287	-0.0742	-0.0257	-0.0359	-0.0769	-0.0263	-0.0362	-0.0316	-0.0284	-0.0360	-0.0845
	(-2.91)*	(-1.44)	(-2.35)*	(-3.47)*	(-1.26)	(-2.67)*	(-3.39)*	(-1.73)	(-2.06)	(-3.73)**	(-1.65)	(-1.12)	(-3.85)**	(-1.78)	(-2.74)*
Constant	0.2157	0.3557	0.7758	0.2214	0.2846	0.6597	0.2612	0.3501	0.7027	0.2622	0.3535	0.2729	0.2854	0.3542	0.7774
	(2.60)*	(1.84)	(2.16)	(4.70)**	(1.40)	(2.38)*	(4.20)**	(1.90)	(1.88)	(4.66)**	(1.85)	(1.03)	(4.74)**	(1.96)	(2.50)*
Observations	35	85	50	35	85	50	35	85	50	35	85	50	35	85	50
Adjusted R-squared	85.12	4.29	-1.60	86.08*	9.19**	11.54	85.10	2.99	-2.21	85.89	2.94	22.94**	85.26**	7.40	19.62**
RMSE	0.0412	0.0640	0.1551	0.0398	0.0623	0.1448	0.0412	0.0644	0.1556	0.0401	0.0644	0.1351	0.0410	0.0630	0.1380

[a] In sample estimation using every April's returns in three sub-samples: First, before disclosure of 1998 year-end financial statements (FS), allows returns from to 1991 1998, to March, Second, after disclosure of 1998 year-end FS, and before disclosure of 2007 year-end FS, allows returns from 1999 to 2006, Third after disclosure of 2007 year-end FS, allows returns from 2008, to 2012. In parenthesis, t-statistics computed with Driscoll and Kraay (1998) standard errors. Significance of the adjusted R^2computed on the basis of the F-statistic. RMSE stands for root mean square error. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. Due to lack of degrees of freedom, the models' overall statistical significance cannot be assessed in any sub-sample for the structure (18) and (19), and for the last sub-sample regarding structures (16) and (17). % Change TL/TA corresponds to the percentage change of the ratio of total loans to total assets; % Change LLR/TL corresponds to the percentage change of the ratio of loan loss reserves to total loans; % Change Prov/NII (% Prov/NII) corresponds to the percentage change of the ratio of provisions to net interest income; % Change NonII/NetI corresponds to the percentage change of the ratio of non-interest income to net income; % Change ER corresponds to the percentage change of the efficiency ratio; EPS corresponds to the earnings per share ratio; BTM corresponds to the book-to-market ratio; Rf_Germany_1Y corresponds to the rolling 1-year return on the 10-year German government bond; Risk_Prem_North, corresponds to the return difference between the an equal weighted portfolio of 10-year government bonds of Portugal, Ireland, Greece, Spain and Italy, and an equal weighted portfolio of 10-year government bonds of Austria, Belgium, Finland, France and Germany; and Term_Own corresponds to individual-specific difference between the 10-year government bond yield and the 3-month interbank lending rate.

Appendix I (continuation)

Table 10- Sub-Sample Results, 1-Month Horizon Results[a] (continuation)

	(6)			(7)			(8)			(9)			(10)		
Exp. Variables	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -
Leverage															
% Change TL/TA															
% Change LLR/TL															
% Change Prov/NII															
% Change NonII/NetI															
% Change ER	0.0322	-0.0338	0.0859												
	(1.31)	(-0.76)	(3.16)*												
EPS				0.0069	-0.0000	0.0045									
				(1.34)	(-0.20)	(1.85)									
BTM							0.0098	0.0616	0.0308						
							(2.56)*	(1.46)	(4.19)**						
Rf_Germany_1Y										-1.4390	-0.0214	14.7236			
										(-4.00)**	(-0.01)	(8.59)***			
Risk_Prem_North													-0.8602	-4.3231	-3.6210
													(-1.21)	(-0.47)	(-8.21)***
Term_Own															
lnMKT_CAP	-0.0258	-0.0364	-0.0651	-0.0284	-0.0363	-0.0919	-0.0234	-0.0227	-0.0154	-0.0417	-0.0365	-0.0906	-0.0435	-0.0362	-0.0858
	(-3.84)**	(-1.72)	(-1.72)	(-3.37)*	(-1.71)	(-2.31)*	(-3.31)*	(-1.94)	(-0.40)	(-4.07)**	(-1.28)	(-2.47)*	(-2.41)	(-1.79)	(-2.49)*
Constant	0.2607	0.3549	0.5911	0.2764	0.3539	0.8226	0.2336	0.1917	0.1077	0.4816	0.3566	0.3365	0.4274	0.3592	0.8773
	(4.73)**	(1.89)	(1.57)	(4.31)**	(1.88)	(2.11)	(4.27)**	(2.05)	(0.28)	(4.64)**	(1.08)	(1.05)	(2.64)*	(1.94)	(2.79)*
Observations	35	85	50	35	85	50	35	85	50	35	85	50	35	85	50
Adjusted R-squared	85.11	3.25	2.05	85.48	2.88	3.14	85.23	14.14	8.38**	85.90	2.86	53.25*	85.64	3.29	45.08*
RMSE	0.0412	0.0643	0.1523	0.0407	0.0645	0.1515	0.0410	0.0606	0.1473	0.0401	0.0645	0.1052	0.0404	0.0643	0.1141

[a] In sample estimation using every April's returns in three sub-samples: First, before disclosure of 1998 year-end financial statements (FS), allows returns from to 1991 1998, to March, Second, after disclosure of 1998 year-end FS, and before disclosure of 2007 year-end FS, allows returns from 1999 to 2006, Third after disclosure of 2007 year-end FS, allows returns from 2008, to 2012. In parenthesis, t-statistics computed with Driscoll and Kraay (1998) standard errors. Significance of the adjusted R^2computed on the basis of the F-statistic. RMSE stands for root mean square error. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. Due to lack of degrees of freedom, the models' overall statistical significance cannot be assessed in any sub-sample for the structure (18) and (19), and for the last sub-sample regarding structures (16) and (17). % Change TL/TA corresponds to the percentage change of the ratio of total loans to total assets; % Change LLR/TL corresponds to the percentage change of the ratio of loan loss reserves to total loans; % Change Prov/NII (% Prov/NII) corresponds to the percentage change of the ratio of provisions to net interest income; % Change NonII/NetI corresponds to the percentage change of the ratio of non-interest income to net income; % Change ER corresponds to the percentage change of the efficiency ratio; EPS corresponds to the earnings per share ratio; BTM corresponds to the book-to-market ratio; Rf_Germany_1Y corresponds to the rolling 1-year return on the 10-year German government bond; Risk_Prem_North, corresponds to the return difference between the an equal weighted portfolio of 10-year government bonds of Portugal, Ireland, Greece, Spain and Italy, and an equal weighted portfolio of 10-year government bonds of Austria, Belgium, Finland, France and Germany; and Term_Own corresponds to individual-specific difference between the 10-year government bond yield and the 3-month interbank lending rate.

Appendix I (continuation)

Table 11- Sub-Sample Results, 1-Month Horizon Results[a] (continuation)

	(11)			(12)			(13)			(14)			(15)		
Exp. Variables	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -
Leverage															
% Change TL/TA				-0.3491	0.2427	0.3306							-0.2877	0.2505	0.3092
				(-3.24)*	(4.73)**	(5.43)***							(-2.52)*	(4.78)***	(3.18)*
% Change LLR/TL															
% Change Prov/NII				0.0256	0.0035	0.0236							0.0253	0.0031	0.0139
				(4.05)**	(0.29)	(5.77)***							(5.86)**	(0.29)	(4.55)**
% Change NonII/NetI				-0.0067	-0.0135	-0.0051							-0.0066	-0.0144	-0.0050
				(-4.09)**	(-1.94)	(-4.56)**							(-3.54)*	(-2.15)	(-5.84)***
% Change ER															
EPS							0.0061	-0.0000	0.0011						
							(0.84)	(-0.18)	(0.24)						
BTM							0.0021	0.0616	0.0273						
							(0.32)	(1.45)	(1.41)						
Rf_Germany_1Y										-1.2794	0.2095	13.8774	-0.8740	0.5613	7.4444
										(-2.43)	(0.11)	(1.92)	(-1.37)	(0.42)	(1.67)
Risk_Prem_North										-0.3286	-4.9327	0.1908	0.0555	-7.6157	0.0137
										(-0.37)	(-0.46)	(0.12)	(0.08)	(-1.01)	(0.01)
Term_Own	0.1634	0.0911	-3.1505							-0.1451	-0.0914	-0.5905	-0.1278	0.0850	-1.6845
	(0.59)	(0.09)	(-5.21)***							(-0.46)	(-0.08)	(-1.23)	(-0.80)	(0.13)	(-7.40)***
lnMKT_CAP	-0.0271	-0.0359	-0.1283	-0.0166	-0.0278	-0.0523	-0.0274	-0.0227	-0.0266	-0.0468	-0.0354	-0.0993	-0.0265	-0.0234	-0.1023
	(-3.46)*	(-1.62)	(-2.72)*	(-2.75)*	(-1.30)	(-2.31)*	(-2.43)	(-1.92)	(-0.34)	(-2.42)	(-1.27)	(-2.28)*	(-1.87)	(-0.91)	(-4.21)**
Constant	0.2718	0.3494	1.2371	0.1923	0.2789	0.4648	0.2668	0.1913	0.2096	0.5218	0.3455	0.4516	0.3251	0.2273	0.7154
	(4.23)**	(1.74)	(2.72)*	(3.99)**	(1.46)	(2.15)	(2.99)*	(2.04)	(0.28)	(3.18)*	(1.09)	(0.94)	(2.64)*	(0.81)	(3.03)*
Observations	35	85	50	35	85	50	35	85	50	35	85	50	35	85	50
Adjusted R-squared	84.96	2.88	31.23**	88.25	12.14**	33.70***	84.91	12.96	6.14*	84.85	0.61	51.34	86.81***	9.67***	71.72
RMSE	0.0414	0.0645	0.1276	0.0366	0.0613	0.1253	0.0415	0.0610	0.1491	0.0415	0.0652	0.1074	0.0388	0.0622	0.0784

[a] In sample estimation using every April's returns in three sub-samples: First, before disclosure of 1998 year-end financial statements (FS), allows returns from to 1991 1998, to March, Second, after disclosure of 1998 year-end FS, and before disclosure of 2007 year-end FS, allows returns from 1999 to 2006, Third after disclosure of 2007 year-end FS, allows returns from 2008, to 2012. In parenthesis, t-statistics computed with Driscoll and Kraay (1998) standard errors. Significance of the adjusted R^2computed on the basis of the F-statistic. RMSE stands for root mean square error. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. Due to lack of degrees of freedom, the models' overall statistical significance cannot be assessed in any sub-sample for the structure (18) and (19), and for the last sub-sample regarding structures (16) and (17). % Change TL/TA corresponds to the percentage change of the ratio of total loans to total assets; % Change LLR/TL corresponds to the percentage change of the ratio of loan loss reserves to total loans; % Change Prov/NII (% Prov/NII) corresponds to the percentage change of the ratio of provisions to net interest income; % Change NonII/NetI corresponds to the percentage change of the ratio of non-interest income to net income; % Change ER corresponds to the percentage change of the efficiency ratio; EPS corresponds to the earnings per share ratio; BTM corresponds to the book-to-market ratio; Rf_Germany_1Y corresponds to the rolling 1-year return on the 10-year German government bond; Risk_Prem_North, corresponds to the return difference between the an equal weighted portfolio of 10-year government bonds of Portugal, Ireland, Greece, Spain and Italy, and an equal weighted portfolio of 10-year government bonds of Austria, Belgium, Finland, France and Germany; and Term_Own corresponds to individual-specific difference between the 10-year government bond yield and the 3-month interbank lending rate.

Appendix I (continuation)

Table 12- Sub-Sample Results, 1-Month Horizon Results[a] (continuation)

	(16)			(17)			(18)			(19)		
Exp. Variables	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -
Leverage										2.2570	-0.3803	0.1426
										(1.67)	(-0.63)	(0.42)
% Change TL/TA	-0.3768	0.2906	0.3504				-0.3310	0.2961	0.2764	-0.5921	0.3242	0.3261
	(-3.57)*	(6.28)***	(6.59)***				(-4.31)**	(5.58)***	(2.66)*	(-5.72)**	(5.07)***	(3.17)*
% Change LLR/TL										-0.0592	0.0401	0.0098
										(-1.89)	(1.11)	(1.49)
% Change Prov/NII	0.0281	0.0024	0.0291				0.0288	-0.0000	0.0166	0.0318	0.0050	0.0155
	(5.94)**	(0.26)	(7.65)***				(8.36)***	(-0.00)	(6.25)***	(3.72)**	(1.04)	(7.77)***
% Change NonII/NetI	-0.0055	-0.0160	-0.0062				-0.0062	-0.0172	-0.0055	-0.0084	-0.0161	-0.0059
	(-4.40)**	(-2.54)*	(-6.27)***				(-3.84)**	(-2.74)*	(-5.39)***	(-8.38)***	(-2.74)*	(-3.74)**
% Change ER										0.0453	-0.0705	-0.0160
										(1.30)	(-2.36)*	(-0.58)
EPS	0.0110	0.0000	0.0078	0.0088	-0.0000	-0.0042	0.0137	0.0000	-0.0002	0.0071	0.0001	-0.0000
	(2.63)*	(0.58)	(3.93)**	(1.08)	(-0.52)	(-1.38)	(4.48)**	(0.76)	(-0.10)	(4.47)**	(1.58)	(-0.01)
BTM	-0.0073	0.0737	-0.0239	-0.0060	0.0640	0.0308	-0.0139	0.0773	-0.0078	-0.0325	0.0789	-0.0102
	(-2.81)*	(1.98)	(-2.73)*	(-0.55)	(1.46)	(2.12)	(-1.98)	(2.08)	(-1.08)	(-2.18)	(2.08)	(-0.86)
Rf_Germany_1Y				-1.8190	1.0025	17.2407	-1.5477	1.6682	5.6019	-0.7852	1.5285	6.1122
				(-1.58)	(0.74)	(2.44)*	(-1.95)	(3.08)*	(1.32)	(-0.90)	(2.36)*	(1.59)
Risk_Prem_North				0.0941	-5.1775	1.0943	0.6550	-9.0221	-0.2674	0.3999	-8.5148	-0.0579
				(0.12)	(-0.56)	(0.73)	(1.18)	(-1.46)	(-0.26)	(0.58)	(-1.45)	(-0.06)
Term_Own				-0.3153	-0.3207	-0.6057	-0.1864	-0.1520	-2.0470	-0.1224	0.1783	-2.1731
				(-0.73)	(-0.29)	(-2.57)*	(-0.91)	(-0.31)	(-10.14)***	(-0.30)	(0.32)	(-11.13)**
lnMKT_CAP	-0.0196	-0.0098	-0.1251	-0.0485	-0.0177	-0.0248	-0.0281	0.0007	-0.1187	-0.0179	0.0062	-0.1297
	(-2.72)*	(-0.97)	(-3.50)**	(-2.48)*	(-1.24)	(-0.36)	(-3.15)*	(0.07)	(-3.02)*	(-2.19)	(0.79)	(-2.45)*
Constant	0.2105	0.0703	1.1282	0.5567	0.1146	-0.3809	0.3643	-0.0797	0.9496	0.1406	-0.1074	1.0211
	(3.68)*	(0.88)	(3.32)**	(2.86)*	(0.72)	(-0.56)	(4.06)**	(-0.94)	(2.85)*	(1.64)	(-1.13)	(2.38)*
Observations	35	85	50	35	85	50	35	85	50	35	85	50
Adjusted R-squared	88.13***	26.24***	40.73	84.04*	10.12	55.89	86.77	25.31	70.31	85.59	24.58	67.36
RMSE	0.0368	0.0562	0.1152	0.0426	0.0620	0.0993	0.0369	0.0561	0.0778	0.0354	0.0551	0.0775

[a] In sample estimation using every April's returns in three sub-samples: First, before disclosure of 1998 year-end financial statements (FS), allows returns from to 1991 1998, to March, Second, after disclosure of 1998 year-end FS, and before disclosure of 2007 year-end FS, allows returns from 1999 to 2006, Third after disclosure of 2007 year-end FS, allows returns from 2008, to 2012. In parenthesis, t-statistics computed with Driscoll and Kraay (1998) standard errors. Significance of the adjusted R^2computed on the basis of the F-statistic. RMSE stands for root mean square error. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. Due to lack of degrees of freedom, the models' overall statistical significance cannot be assessed in any sub-sample for the structure (18) and (19), and for the last sub-sample regarding structures (16) and (17). % Change TL/TA corresponds to the percentage change of the ratio of total loans to total assets; % Change LLR/TL corresponds to the percentage change of the ratio of loan loss reserves to total loans; % Change Prov/NII (% Prov/NII) corresponds to the percentage change of the ratio of provisions to net interest income; % Change NonII/NetI corresponds to the percentage change of the ratio of non-interest income to net income; % Change ER corresponds to the percentage change of the efficiency ratio; EPS corresponds to the earnings per share ratio; BTM corresponds to the book-to-market ratio; Rf_Germany_1Y corresponds to the rolling 1-year return on the 10-year German government bond; Risk_Prem_North, corresponds to the return difference between the an equal weighted portfolio of 10-year government bonds of Portugal, Ireland, Greece, Spain and Italy, and an equal weighted portfolio of 10-year government bonds of Austria, Belgium, Finland, France and Germany; and Term_Own corresponds to individual-specific difference between the 10-year government bond yield and the 3-month interbank lending rate.

Appendix J

Table 13-OOS Results [a] - OOS $\overline{R^2}$

Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Panel A: Montlhy Returns																			
AS	-70.72	-71.79	-72.94	-72.73	-73.31	-73.37	-72.91	-76.53	-73.55	-73.88	-72.38	-69.93	-75.81	-72.91	-71.58	-73.29	-73.74	-72.71	-69.75
BE	-82.97	-79.81	-81.14	-80.12	-84.14	-83.30	-81.27	-91.30	-79.91	-78.39	-80.81	-119.01	-90.36	-77.70	-84.77	-92.10	-83.96	-91.31	-93.31
FI	-88.81	-99.43	-94.73	-101.31	-96.04	-95.19	-93.97	-93.34	-99.80	-108.58	-93.92	-102.63	-91.96	-104.24	-112.28	-100.60	-101.83	-111.51	-103.99
FR	-109.97	-84.56	-83.55	-81.14	-84.67	-85.29	-86.05	-95.21	-86.70	-89.63	-84.02	-80.98	-96.11	-93.54	-91.11	-92.70	-101.31	-99.71	-105.96
GE	-82.23	-84.52	-83.27	-83.88	-82.78	-84.75	-84.08	-89.06	-85.80	-85.75	-83.66	-83.46	-89.59	-90.23	-89.69	-88.69	-94.96	-91.73	-91.10
GR	-88.44	-90.62	-91.59	-90.10	-90.29	-90.33	-95.36	-94.18	-89.29	-90.11	-94.25	-89.42	-99.02	-90.87	-87.71	-96.90	-96.42	-95.50	-91.15
IR	-95.47	-95.06	-98.05	-100.96	-95.91	-96.18	-95.78	-161.02	-97.95	-98.15	-97.15	-97.87	-160.06	-101.30	-102.65	-165.08	-166.51	-169.70	-168.58
IT	-85.72	-89.11	-89.91	-92.91	-89.66	-88.79	-90.15	-89.93	-90.00	-92.62	-91.71	-92.99	-89.33	-93.32	-94.75	-88.14	-91.77	-93.68	-93.12
PT	-92.12	-92.93	-95.81	-93.58	-94.32	-93.57	-93.81	-91.51	-93.33	-91.45	-91.06	-90.58	-91.26	-92.22	-91.18	-90.20	-90.28	-88.76	-89.14
SP	-112.56	-96.17	-100.69	-99.78	-102.37	-101.46	-100.08	-97.67	-96.23	-99.28	-99.61	-100.09	-97.48	-100.91	-98.73	-96.56	-99.72	-98.33	-104.04
Panel B: Annual Returns																			
AS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BE	-38.80	-29.28	-31.75	-47.74	-64.43	-53.99	-30.12	-39.30	-24.73	-32.70	-33.99	-	-	-	-	-	-	-	-
FI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FR	-134.01	-16.09	-16.02	-8.47	-13.84	-21.80	-23.15	-50.06	-10.37	-43.63	-13.95	-1.58	-46.92	-55.69	-35.41	-40.65	-68.92	-	-
GE	-32.35	-35.52	-31.59	-40.68	-35.00	-44.47	-44.85	-41.96	-38.61	-37.19	-36.77	-14.87	-44.45	-36.86	-17.61	-50.60	-49.63	-	-
GR	-1.72	-22.70	-17.99	-14.32	-12.94	-14.10	-140.02	-21.87	-10.68	-16.05	-32.68	-3.62	-129.08	-22.49	-	-	-	-	-
IR	-61.73	-59.41	-62.13	-69.24	-61.87	-70.48	-61.64	-81.28	-78.25	-65.53	-75.52	-49.09	-73.43	-81.33	-52.53	-93.90	-88.27	-	-
IT	-70.54	-96.86	-85.21	-113.48	-101.71	-97.37	-108.66	-123.16	-106.22	-115.10	-113.77	-84.97	-111.04	-111.24	-78.23	-103.11	-130.27	-	-
PT	-54.95	-59.05	-87.72	-67.69	-64.49	-66.19	-71.02	-77.37	-70.81	-76.57	-101.88	-35.86	-70.05	-100.55	-75.65	-59.51	-102.91	-	-
SP	-69.09	-35.37	-66.47	-57.86	-65.76	-65.52	-67.50	-78.80	-49.86	-60.12	-60.04	-30.58	-70.83	-55.17	-37.84	-67.08	-73.53	-	-
Panel C: 1-Month Horizon Returns																			
AS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BE	-34.61	-7.55	-35.69	-29.12	37.19	-22.20	-32.28	-7.73	-49.53	-1.89	-33.08	-	-	-	-	-	-	-	-
FI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FR	-252.63	-51.68	-64.88	-56.01	-59.32	-62.60	-57.24	-55.91	-63.68	-28.30	-60.43	-33.29	-53.84	-48.62	-22.02	-2.01	-3.64	-	-
GE	-26.83	-43.83	-32.53	-38.27	-23.28	-34.16	-29.53	-27.79	-47.78	-10.06	-32.38	-145.98	-23.40	-44.05	-11.26	-2.70	-2.83	-	-
GR	-211.46	-238.58	-220.97	-223.90	-197.57	-204.70	-517.14	-203.46	-234.85	-176.88	-198.94	-271.01	-452.99	-152.22	-	-	-	-	-
IR	31.17***	21.97***	22.08***	9.89***	33.43***	31.53***	31.19***	62.69***	26.82***	47.08***	29.22***	31.86***	64.5***	42.07***	49.03	72.82**	67.93**	-	-
IT	-99.65	-112.92	-116.70	-113.35	-97.02	-107.82	-111.54	-123.07	-138.66	-91.57	-107.13	-154.19	-112.24	-121.71	-73.04	-50.40	-63.67	-	-
PT	-75.18	-52.38	-76.94	-72.22	-87.04	-68.92	-67.71	-88.62	-116.06	-28.04	-31.36	-18.54	-80.46	-30.38	-10.89	-50.84	-0.17	-	-
SP	-75.93	-27.35	-43.47	-49.42	-27.25	-36.76	-32.63	-56.65	-42.14	-28.48	-39.00	-38.86	-49.86	-38.38	-31.37	-24.82	-24.75	-	-

[a] (1) to (19) correspond to the model used to forecast returns (See Appendix C for the models' composition). Panel A and B report Goyal and Welch (2008) OOS-$\overline{R^2}$ of the proposed models' forecasts for monthly and non-overlapping annual (April-March) returns, respectively, for the Austrian (AS), Belgian (BE), Finnish (FI), French (FR), German (GE), Greek (GR), Irish (IR), Italian (IT), Portuguese (PT) and Spanish (SP) banking sector portfolios. Panel C reports OOS-$\overline{R^2}$ of the proposed models' forecasts for every years' month of April. Forecasts are generated recursively estimating the models from March, 1996, concerning Panel A and B, and from April, 1995, for Panel C, so that the first forecasts are computed with year-end financial statements of 1995. As one is using an unbalanced panel, the OOS period varies across the portfolios. Concerning Panel A, the OOS period starting points are (in parenthesis): FR, GE, IT, PT and SP (April, 1996); IR (May, 1996); GR (May, 1998); BE (May, 2000) AS and FI (May, 2001).Concerning Panel B, the OOS starting points are (in parenthesis): FR, GE, IT, PT and SP(March, 1997), IR (March, 1998); GR (March, 2000); BE (March, 2002); AS and FI (March, 2003). Finally, the OOS starting points, concerning Panel C, are (in parenthesis): FR, GE, IT, PT and SP (April, 1996); IR (April, 1997); GR (April, 1999); BE (April, 2001); AS and FI (April, 2002). Notice that regarding the portfolios for which there is only data after the recursive estimation starts, one loses one observation in order to have an estimate of the historical mean. When the OOS period has not enough observations to compute Goyal and Welch (2008) adjustment, the statistic is omitted. Significance is measured with the MSE-F statistic as proposed by McCracken (2007). ***, **, and * denote significance at 1%, 5% and 10%, respectively.

Appendix K

Table 14- OOS Results[a] - RMSE

Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Panel A: Montlhy Returns																			
AS	0.0945	0.0948	0.0951	0.0950	0.0952	0.0952	0.0951	0.0961	0.0953	0.0954	0.0949	0.0946	0.0961	0.0954	0.0956	0.0959	0.0960	0.0963	0.0958
BE	0.1351	0.1339	0.1344	0.1340	0.1355	0.1352	0.1345	0.1381	0.1340	0.1334	0.1343	0.1483	0.1380	0.1336	0.1369	0.1394	0.1364	0.1398	0.1410
FI	0.0767	0.0789	0.0779	0.0792	0.0782	0.0780	0.0778	0.0776	0.0789	0.0806	0.0778	0.0798	0.0775	0.0801	0.0821	0.0797	0.0799	0.0823	0.0811
FR	0.0580	0.0544	0.0543	0.0539	0.0544	0.0545	0.0546	0.0559	0.0547	0.0551	0.0543	0.0540	0.0561	0.0558	0.0557	0.0559	0.0571	0.0571	0.0581
GE	0.1129	0.1136	0.1132	0.1134	0.1131	0.1137	0.1135	0.1150	0.1140	0.1140	0.1134	0.1136	0.1153	0.1157	0.1159	0.1155	0.1174	0.1169	0.1170
GR	0.1666	0.1675	0.1679	0.1673	0.1674	0.1674	0.1696	0.1691	0.1669	0.1673	0.1691	0.1675	0.1714	0.1681	0.1675	0.1713	0.1710	0.1714	0.1700
IR	0.1986	0.1984	0.1999	0.2014	0.1988	0.1990	0.1988	0.2295	0.1999	0.2000	0.1995	0.2003	0.2294	0.2021	0.2035	0.2325	0.2331	0.2354	0.2355
IT	0.0648	0.0654	0.0655	0.0661	0.0655	0.0653	0.0656	0.0655	0.0656	0.0660	0.0658	0.0662	0.0655	0.0663	0.0668	0.0656	0.0662	0.0668	0.0669
PT	0.0838	0.0840	0.0846	0.0841	0.0843	0.0841	0.0842	0.0837	0.0841	0.0836	0.0836	0.0837	0.0837	0.0840	0.0841	0.0838	0.0838	0.0838	0.0841
SP	0.0724	0.0696	0.0704	0.0702	0.0707	0.0705	0.0703	0.0699	0.0696	0.0701	0.0702	0.0705	0.0699	0.0706	0.0705	0.0700	0.0706	0.0706	0.0718
Panel B: Annual Returns																			
AS	0.3951	0.4091	0.4185	0.4211	0.4161	0.4198	0.4083	0.4270	0.4056	0.4441	0.4111	0.4202	0.4199	0.4439	0.4647	0.4433	0.4573	0.4824	0.4398
BE	0.7354	0.7098	0.7165	0.7588	0.8005	0.7746	0.7121	0.7368	0.6972	0.7191	0.7226	0.8848	0.7352	0.7323	0.9280	0.9668	0.7686	0.9476	1.0737
FI	0.4051	0.4490	0.4113	0.5079	0.4390	0.4364	0.4240	0.4600	0.4409	0.4769	0.4189	0.5328	0.4541	0.4559	0.5595	0.5859	0.4662	0.5966	0.5402
FR	0.3885	0.2736	0.2735	0.2645	0.2710	0.2803	0.2818	0.3111	0.2668	0.3043	0.2711	0.2684	0.3151	0.3323	0.3362	0.3330	0.3649	0.3603	0.6728
GE	0.5578	0.5644	0.5562	0.5751	0.5633	0.5828	0.5835	0.5777	0.5708	0.5679	0.5670	0.5450	0.5965	0.5949	0.5982	0.6578	0.6557	0.6871	0.6917
GR	0.7703	0.8460	0.8296	0.8166	0.8116	0.8158	1.1832	0.8431	0.8035	0.8228	0.8797	0.8311	1.1939	0.9036	0.8959	1.3094	1.3329	1.3450	1.1811
IR	1.0566	1.0490	1.0579	1.0809	1.0571	1.0848	1.0563	1.1186	1.1093	1.0689	1.1008	1.0640	1.1199	1.1734	1.1673	1.2790	1.2603	1.3133	1.2093
IT	0.3872	0.4160	0.4035	0.4332	0.4211	0.4165	0.4283	0.4429	0.4258	0.4348	0.4335	0.4229	0.4408	0.4520	0.4503	0.4671	0.4974	0.5071	0.4712
PT	0.5012	0.5078	0.5517	0.5214	0.5164	0.5191	0.5266	0.5363	0.5263	0.5350	0.5721	0.4922	0.5374	0.5981	0.6071	0.5622	0.6341	0.6407	0.6771
SP	0.4678	0.4186	0.4642	0.4520	0.4632	0.4629	0.4656	0.4811	0.4404	0.4553	0.4552	0.4312	0.4813	0.4700	0.4805	0.5141	0.5240	0.5468	0.5666
Panel C: 1-Month Horizon Returns																			
AS	0.0835	0.0723	0.0777	0.0761	0.0787	0.0773	0.0769	0.0741	0.0780	0.0736	0.0770	0.0686	0.0746	0.0813	0.0802	0.0677	0.0701	0.0702	0.0827
BE	0.1703	0.1522	0.1710	0.1668	0.1163	0.1623	0.1688	0.1524	0.1795	0.1482	0.1693	0.4995	0.1518	0.1843	0.1368	0.1260	0.1455	0.1317	0.1323
FI	0.0955	0.0879	0.1509	0.1131	0.0986	0.0949	0.0939	0.0869	0.1029	0.1179	0.0960	0.1078	0.0868	0.1155	0.1364	0.1018	0.1054	0.1327	0.1282
FR	0.0940	0.0616	0.0643	0.0625	0.0632	0.0638	0.0628	0.0625	0.0640	0.0567	0.0634	0.0606	0.0635	0.0640	0.0629	0.0559	0.0563	0.0573	0.1010
GE	0.1155	0.1230	0.1181	0.1206	0.1139	0.1188	0.1167	0.1160	0.1247	0.1076	0.1180	0.1687	0.1166	0.1291	0.1231	0.1149	0.1150	0.1109	0.1173
GR	0.2242	0.2337	0.2276	0.2286	0.2191	0.2217	0.3156	0.2213	0.2324	0.2114	0.2196	0.2616	0.3085	0.2157	0.2410	0.3255	0.2726	0.3251	0.3492
IR	0.1028	0.1094	0.1094	0.1176	0.1011	0.1025	0.1028	0.0757	0.1060	0.0901	0.1042	0.1073	0.0756	0.0989	0.1006	0.0714	0.0776	0.0676	0.0758
IT	0.0800	0.0826	0.0834	0.0827	0.0795	0.0816	0.0824	0.0846	0.0875	0.0784	0.0815	0.0947	0.0844	0.0884	0.0848	0.0768	0.0801	0.0775	0.0804
PT	0.1149	0.1071	0.1154	0.1139	0.1187	0.1128	0.1124	0.1192	0.1276	0.0982	0.0995	0.0991	0.1193	0.1039	0.1040	0.1178	0.0960	0.0960	0.0985
SP	0.0747	0.0636	0.0675	0.0689	0.0636	0.0659	0.0649	0.0705	0.0672	0.0639	0.0664	0.0696	0.0706	0.0695	0.0735	0.0696	0.0696	0.0706	0.0806

[a] (1) to (19) correspond to the model used to forecast returns (See Appendix C for the models' composition). Panel A and B report the Root Mean Square Error (RMSE) of the proposed models' forecasts for monthly and non-overlapping annual (April-March) returns, respectively, for the Austrian (AS), Belgian (BE), Finnish (FI), French (FR), German (GE), Greek (GR), Irish (IR), Italian (IT), Portuguese (PT) and Spanish (SP) banking sector portfolios. Panel C reports the RMSE of the proposed models' forecasts for every years' month of April. Forecasts are generated recursively estimating the models from March, 1996, concerning Panel A and B, and from April, 1995, for C, so that the first forecasts are computed with year-end financial statements of 1995. As one is using an unbalanced panel, the OOS period varies across the portfolios. Concerning Panel A, the OOS periods starting points are (in parenthesis): FR, GE, IT, PT and SP (April, 1996); IR (May, 1996); GR (May, 1998); BE (May, 2000) AS and FI (May, 2001).Concerning Panel B, the OOS starting points are (in parenthesis): FR, GE, IT, PT and SP(March, 1997), IR (March, 1998); GR (March, 2000); BE (March, 2002); AS and FI (March, 2003). Finally, the OOS starting points, concerning panel C, are (in parenthesis): FR, GE, IT, PT and SP (April, 1996); IR (April, 1997); GR (April, 1999); BE (April, 2001); AS and FI (April, 2002). Notice that regarding the portfolios for which there is only data after the recursive estimation starts, one loses one observation in order to have an estimate of the historical mean.

Appendix L

Table 15- OOS Results before 2007[a] - OOS $\overline{R^2}$

Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Panel A: Montlhy Returns																			
AS	-87.87	-86.83	-89.49	-88.57	-89.15	-89.59	-88.19	-89.09	-87.10	-89.54	-92.58	-85.03	-87.55	-84.75	-82.86	-84.45	-82.34	-81.72	-78.67
BE	-94.76	-88.41	-90.78	-91.00	-88.52	-88.52	-87.73	-89.95	-85.07	-89.31	-92.97	-90.99	-87.44	-82.66	-84.40	-90.27	-77.99	-82.27	-85.04
FI	-99.47	-104.72	-99.31	-117.33	-105.36	-99.67	-100.47	-107.67	-114.64	-103.88	-105.39	-116.57	-104.23	-100.75	-114.62	-122.89	-107.20	-131.61	-114.37
FR	-201.74	-89.35	-86.35	-80.81	-88.47	-89.78	-93.91	-88.22	-84.58	-89.95	-101.56	-86.21	-93.09	-97.10	-87.88	-84.17	-100.41	-91.97	-120.37
GE	-90.57	-94.21	-92.43	-94.49	-90.82	-95.34	-95.28	-93.61	-92.83	-95.05	-95.41	-82.20	-95.04	-95.92	-94.33	-92.27	-97.18	-90.52	-86.91
GR	-77.47	-94.30	-93.23	-88.91	-91.40	-91.08	-108.03	-91.72	-89.88	-92.15	-88.34	-87.85	-108.77	-80.98	-79.00	-103.35	-95.37	-97.23	-82.73
IR	-93.00	-93.80	-90.30	-92.15	-92.38	-90.77	-92.29	-92.55	-93.49	-92.77	-92.30	-92.63	-92.09	-96.01	-96.04	-92.36	-95.19	-94.78	-92.39
IT	-92.70	-94.16	-94.05	-95.43	-94.59	-94.10	-95.31	-94.95	-92.44	-96.47	-96.54	-90.54	-93.96	-83.23	-79.04	-88.37	-81.38	-77.78	-77.89
PT	-87.94	-87.48	-92.11	-89.10	-88.08	-87.41	-88.25	-87.86	-83.84	-87.82	-88.57	-81.70	-87.72	-79.13	-80.88	-88.50	-77.14	-77.80	-82.95
SP	-100.84	-88.76	-98.33	-96.68	-105.81	-100.37	-98.45	-100.90	-94.93	-97.87	-97.82	-98.16	-100.74	-89.70	-87.28	-103.30	-92.02	-91.81	-85.26
Panel B: Annual Returns																			
AS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FR	-361.68	4.20	1.46	22.46	6.92	2.18	-16.84	-31.71	-0.07	-34.86	-23.08	-	-	-	-	-	-	-	-
GE	-3.70	-8.12	-4.89	-17.44	-9.45	-17.97	-25.14	-18.16	-12.41	-16.01	-11.01	-	-	-	-	-	-	-	-
GR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IR	-18.35	-29.94	-6.33	-23.85	-23.18	-15.05	-26.48	-35.85	-24.18	-22.93	-23.36	-	-	-	-	-	-	-	-
IT	-82.84	-108.26	-91.26	-115.80	-111.70	-109.63	-120.01	-139.31	-117.79	-128.42	-119.72	-	-	-	-	-	-	-	-
PT	-60.33	-64.14	-109.92	-78.79	-71.43	-75.39	-83.31	-95.47	-65.71	-76.24	-74.54	-	-	-	-	-	-	-	-
SP	-95.57	-74.33	-125.96	-112.17	-124.36	-124.57	-127.04	-152.31	-107.73	-118.22	-109.93	-	-	-	-	-	-	-	-
Panel C: 1-Month Horizon Returns																			
AS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FR	-1259.35	-135.82	-155.33	-121.69	-125.58	-152.54	-121.36	-153.47	-58.66	-107.40	-129.77	-	-	-	-	-	-	-	-
GE	2.01	-6.00	1.54	-12.66	2.41	-6.54	-1.47	-2.75	-0.94	2.98	-3.41	-	-	-	-	-	-	-	-
GR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IR	-5.38	-10.19	-0.24	-2.93	7.19	4.36	6.00	1.34	-36.70	7.02	2.97	-	-	-	-	-	-	-	-
IT	-185.26	-237.54	-207.24	-194.72	-184.16	-201.26	-207.13	-211.60	-183.51	-243.13	-201.04	-	-	-	-	-	-	-	-
PT	-1.01	38.29	14.96	15.55	17.59	19.11	17.86	12.57	-1.16	10.46	19.26	-	-	-	-	-	-	-	-
SP	-36.09	1.49	-10.98	-15.59	1.56	-5.79	-2.60	-21.19	-9.96	0.61	-7.53	-	-	-	-	-	-	-	-

[a] (1) to (19) correspond to the model used to forecast returns (See Appendix C for the models' composition). Panel A and B report Goyal and Welch (2008) OOS-$\overline{R^2}$ of the proposed models' forecasts for monthly and non-overlapping annual (April-March) returns, respectively, for the Austrian (AS), Belgian (BE), Finnish (FI), French (FR), German (GE), Greek (GR), Irish (IR), Italian (IT), Portuguese (PT) and Spanish (SP) banking sector portfolios. Panel C reports OOS-$\overline{R^2}$ of the proposed models' forecasts for every years' month of April. Forecasts are generated recursively estimating the models from March, 1996, concerning Panel A and B, and from April, 1995, for Panel C, so that the first forecasts are computed with year-end financial statements of 1995. As one is using an unbalanced panel, the OOS period varies across the portfolios. Concerning Panel A, the OOS period starting points are (in parenthesis): FR, GE, IT, PT and SP (April, 1996); IR (May, 1996); GR (May, 1998); BE (May, 2000) AS and FI (May, 2001).Concerning Panel B, the OOS starting points are (in parenthesis): FR, GE, IT, PT and SP(March, 1997), IR (March, 1998); GR (March, 2000); BE (March, 2002); AS and FI (March, 2003). Finally, the OOS starting points, concerning Panel C, are (in parenthesis): FR, GE, IT, PT and SP (April, 1996); IR (April, 1997); GR (April, 1999); BE (April, 2001); AS and FI (April, 2002). Notice that regarding the portfolios for which there is only data after the recursive estimation starts, one loses one observation in order to have an estimate of the historical mean. Panel A and B last forecast is March ,2008, and April, 2007, for Panel C, corresponding to forecasts computed with 2006 year-end financial statements. When the OOS period has not enough observations to compute Goyal and Welch (2008) adjustment, the statistic is omitted. Significance is measured with the MSE-F statistic as proposed by McCracken (2007). ***, and *** denote significance at 1%, 5% and 10%, respectively.

Appendix M

Table 16- OOS Results before 2007[a] - RMSE

Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Panel A: Montlhy Returns																			
AS	0.0594	0.0592	0.0596	0.0595	0.0596	0.0597	0.0594	0.0596	0.0593	0.0596	0.0601	0.0593	0.0595	0.0593	0.0596	0.0596	0.0593	0.0598	0.0597
BE	0.0668	0.0657	0.0661	0.0661	0.0657	0.0657	0.0656	0.0660	0.0651	0.0658	0.0665	0.0665	0.0657	0.0650	0.0659	0.0668	0.0646	0.0659	0.0668
FI	0.0573	0.0580	0.0573	0.0598	0.0581	0.0573	0.0574	0.0584	0.0594	0.0579	0.0581	0.0601	0.0581	0.0578	0.0604	0.0613	0.0591	0.0632	0.0612
FR	0.0431	0.0342	0.0339	0.0334	0.0341	0.0342	0.0346	0.0341	0.0337	0.0342	0.0352	0.0340	0.0346	0.0350	0.0343	0.0339	0.0354	0.0348	0.0375
GE	0.0996	0.1005	0.1001	0.1006	0.0997	0.1008	0.1008	0.1004	0.1002	0.1008	0.1009	0.0977	0.1009	0.1014	0.1015	0.1008	0.1021	0.1009	0.1003
GR	0.1172	0.1226	0.1223	0.1209	0.1217	0.1216	0.1269	0.1218	0.1212	0.1219	0.1207	0.1211	0.1274	0.1189	0.1190	0.1266	0.1240	0.1255	0.1213
IR	0.0774	0.0775	0.0768	0.0772	0.0772	0.0769	0.0772	0.0773	0.0774	0.0773	0.0772	0.0776	0.0773	0.0782	0.0787	0.0778	0.0784	0.0787	0.0785
IT	0.0582	0.0584	0.0584	0.0586	0.0585	0.0584	0.0586	0.0585	0.0582	0.0588	0.0588	0.0581	0.0585	0.0570	0.0566	0.0580	0.0569	0.0566	0.0569
PT	0.0623	0.0623	0.0630	0.0625	0.0624	0.0622	0.0624	0.0623	0.0616	0.0623	0.0624	0.0615	0.0624	0.0611	0.0617	0.0629	0.0610	0.0614	0.0625
SP	0.0480	0.0466	0.0477	0.0475	0.0486	0.0480	0.0477	0.0480	0.0473	0.0477	0.0477	0.0479	0.0481	0.0469	0.0468	0.0487	0.0473	0.0475	0.0469
Panel B: Annual Returns																			
AS	0.3143	0.3079	0.3177	0.3073	0.3061	0.3078	0.2893	0.3081	0.3206	0.3132	0.3110	0.3233	0.2887	0.2977	0.3319	0.3211	0.2756	0.3234	0.3162
BE	0.3707	0.3330	0.3429	0.3559	0.3308	0.3240	0.3264	0.3383	0.3271	0.3487	0.3400	0.3922	0.3333	0.3288	0.4023	0.4146	0.3306	0.4071	0.4374
FI	0.3630	0.3859	0.3542	0.4824	0.3888	0.3607	0.3601	0.3815	0.4140	0.3525	0.3916	0.5054	0.3695	0.3611	0.5029	0.5377	0.3456	0.5470	0.4207
FR	0.3903	0.1778	0.1803	0.1599	0.1752	0.1796	0.1963	0.2085	0.1817	0.2109	0.2015	0.1694	0.2173	0.2452	0.2323	0.2307	0.2696	0.2447	0.7313
GE	0.5066	0.5173	0.5095	0.5391	0.5205	0.5403	0.5565	0.5408	0.5274	0.5358	0.5242	0.4617	0.5700	0.5259	0.5334	0.6495	0.6058	0.6590	0.6320
GR	0.4483	0.7293	0.6724	0.6410	0.6519	0.6552	1.2647	0.6572	0.6592	0.6786	0.6535	0.6752	1.2545	0.6541	0.6479	1.4044	1.3734	1.3532	0.9706
IR	0.3816	0.3998	0.3617	0.3903	0.3893	0.3762	0.3944	0.4088	0.3909	0.3889	0.3896	0.4052	0.4100	0.4295	0.4517	0.4504	0.4744	0.5056	0.4825
IT	0.4326	0.4617	0.4425	0.4700	0.4655	0.4632	0.4746	0.4950	0.4722	0.4836	0.4743	0.4510	0.4921	0.4660	0.4506	0.5127	0.5181	0.5205	0.4944
PT	0.4602	0.4656	0.5265	0.4859	0.4758	0.4813	0.4920	0.5081	0.4678	0.4824	0.4801	0.4392	0.5096	0.4620	0.4768	0.5576	0.5055	0.5290	0.5886
SP	0.4633	0.4374	0.4980	0.4826	0.4962	0.4964	0.4992	0.5262	0.4775	0.4894	0.4800	0.4547	0.5261	0.4837	0.4947	0.5742	0.5518	0.5821	0.5635
Panel C: 1-Month Horizon Returns																			
AS	0.0518	0.0407	0.0430	0.0406	0.0404	0.0410	0.0426	0.0418	0.0368	0.0416	0.0409	0.0367	0.0436	0.0414	0.0415	0.0394	0.0408	0.0378	0.0654
BE	0.0814	0.0738	0.0824	0.0938	0.0819	0.0818	0.0821	0.0820	0.0786	0.0748	0.0807	0.0939	0.0802	0.0747	0.0832	0.0879	0.0699	0.0771	0.0783
FI	0.0921	0.0856	0.0962	0.1189	0.0964	0.0895	0.0888	0.0856	0.1040	0.1166	0.0897	0.1206	0.0854	0.1202	0.1579	0.1184	0.1125	0.1602	0.1535
FR	0.0903	0.0376	0.0391	0.0365	0.0368	0.0389	0.0364	0.0390	0.0308	0.0353	0.0371	0.0368	0.0414	0.0295	0.0291	0.0319	0.0360	0.0344	0.1060
GE	0.1128	0.1173	0.1130	0.1209	0.1125	0.1176	0.1147	0.1155	0.1144	0.1122	0.1158	0.1109	0.1164	0.1119	0.1101	0.1142	0.1096	0.0985	0.1108
GR	0.2232	0.2481	0.2283	0.2357	0.2236	0.2244	0.3580	0.2246	0.2252	0.2219	0.2234	0.2750	0.3492	0.2205	0.2677	0.3778	0.3003	0.3817	0.4142
IR	0.0459	0.0469	0.0447	0.0453	0.0430	0.0437	0.0433	0.0444	0.0522	0.0431	0.0440	0.0515	0.0442	0.0503	0.0556	0.0530	0.0504	0.0577	0.0667
IT	0.0667	0.0726	0.0693	0.0678	0.0666	0.0686	0.0693	0.0698	0.0665	0.0732	0.0686	0.0799	0.0695	0.0696	0.0694	0.0661	0.0680	0.0654	0.0749
PT	0.0629	0.0492	0.0577	0.0575	0.0568	0.0563	0.0567	0.0585	0.0629	0.0592	0.0562	0.0507	0.0589	0.0633	0.0557	0.0498	0.0661	0.0532	0.0604
SP	0.0889	0.0757	0.0803	0.0820	0.0756	0.0784	0.0772	0.0839	0.0799	0.0760	0.0791	0.0829	0.0840	0.0827	0.0874	0.0828	0.0828	0.0840	0.0959

[a] (1) to (19) correspond to the model used to forecast returns (See Appendix C for the models' composition). Panel A and B report the Root Mean Square Error (RMSE) of the proposed models' forecasts for monthly and non-overlapping annual (April-March) returns, respectively, for the Austrian (AS), Belgian (BE), Finnish (FI), French (FR), German (GE), Greek (GR), Irish (IR), Italian (IT), Portuguese (PT) and Spanish (SP) banking sector portfolios. Panel C reports the RMSE of the proposed models' forecasts for every years' month of April. Forecasts are generated recursively estimating the models from March, 1996, concerning Panel A and B, and from April, 1995, for Panel C, so that the first forecasts are computed with year-end financial statements of 1995.. As one is using an unbalanced panel, the OOS period varies across the portfolios. Concerning Panel A, the OOS periods starting points are (in parenthesis): FR, GE, IT, PT and SP (April, 1996); IR (May, 1996); GR (May, 1998); BE (May, 2000) AS and FI (May, 2001).Concerning Panel B, the OOS starting points are (in parenthesis): FR, GE, IT, PT and SP(March, 1997), IR (March, 1998); GR (March, 2000); BE (March, 2002); AS and FI (March, 2003). Finally, the OOS starting points, concerning panel C, are (in parenthesis): FR, GE, IT, PT and SP (April, 1996); IR (April, 1997); GR (April, 1999); BE (April, 2001); AS and FI (April, 2002). Notice that regarding the portfolios for which there is only data after the recursive estimation starts, one loses one observation in order to have an estimate of the historical mean. Panel A and B last forecast is March ,2008, and April, 2007, for Panel C, corresponding to forecasts computed with 2006 year-end financial statements.

Appendix N

Table 17- In-Sample Results – FF 3-factor and Carhart's Models[a]

Exp. Variables	(1)	(2)
Panel A: Montlhy Frequency		
[Mkt-rf]	0.9560	0.8724
	(12.71)***	(11.73)***
SMB	0.1352	0.1633
	(0.92)	(1.08)
HML	0.9852	0.8853
	(5.48)***	(4.87)***
WML		-0.2939
		(-3.70)**
Constant	-0.0104	-0.0068
	(-3.01)*	(-1.94)
Observations	2040	2040
Adjusted R-squared	30.97***	32.14***
RMSE	0.0913	0.0905
Panel B: Annual Frequency		
[Mkt-rf]	1.4558	1.7236
	(9.45)***	(18.71)***
SMB	-0.9212	-1.3409
	(-1.80)	(-3.39)**
HML	0.8144	0.9911
	(3.67)**	(6.06)***
WML		0.5516
		(6.15)***
Constant	-0.1778	-0.2791
	(-2.58)*	(-4.33)**
Observations	170	170
Adjusted R-squared	49.56***	52.11***
RMSE	0.3784	0.3687

[a] In-Sample estimation results of Fama and French 3-Factor and Carhart's models, using pooled OLS regressions, over the entire unbalanced monthly returns panel (Panel A), from April, 1991, to March, 2013, and non-overlapping annual returns panel (Panel B) from April, 1992, to March (2013). In parenthesis, t-statistics computed with Driscoll and Kraay (1998) standard errors. Significance of the adjusted R-squared computed on the basis of the F-statistic. RMSE denotes the root mean square error. ***, ** and * denote significance at 1%, 5%, and 10%, respectively.

Table 18- Sub-Sample Results - FF 3-factor and Carhart's Models[b]

	(1)			(2)		
Exp. Variables	-98 FS	99-06 FS	07 FS -	-98 FS	99-06 FS	07 FS -
Panel A: Montlhy Frequency						
[Mkt-rf]	0.6060	0.7820	0.7822	0.6233	0.7119	0.6563
	(3.46)*	(11.39)***	(6.25)***	(3.80)**	(10.68)***	(7.25)***
SMB	-0.4317	0.2168	0.3765	-0.4484	0.3104	0.1394
	(-2.67)*	(1.81)	(0.98)	(-2.71)*	(2.90)*	(0.38)
HML	1.3373	0.3792	1.9497	1.3141	0.3235	1.3841
	(5.19)**	(4.22)**	(8.30)***	(4.52)**	(3.02)*	(5.79)***
WML				-0.0720	-0.1868	-0.6455
				(-0.36)	(-3.83)**	(-4.62)**
Constant	0.0099	-0.0033	-0.0211	0.0105	-0.0004	-0.0200
	(2.16)	(-1.05)	(-2.86)*	(1.90)	(-0.13)	(-2.91)*
Observations	420	1020	600	420	1020	600
Adjusted R-squared	26.63***	25.38***	35.22***	26.50***	26.68***	37.52***
RMSE	0.0646	0.0563	0.1365	0.0646	0.0558	0.1341
Panel B: Annual Frequency						
[Mkt-rf]	0.3002	0.8920	1.6856	0.6316	0.9386	1.7664
	(0.90)	(9.93)***	(81.07)***	(1.23)	(3.05)*	(2.10e+14)***
SMB	-1.5478	0.5884	-3.0657	-1.5975	0.5203	-3.3155
	(-4.94)**	(1.08)	(-15.30)***	(-6.12)***	(1.19)	(-6.18e+13)***
HML	2.0031	0.4924	1.1806	1.7293	0.5273	1.2161
	(7.47)***	(4.68)**	(10.08)***	(3.30)*	(1.77)	(6.12e+13)***
WML				-0.4439	0.0453	0.1352
				(-0.88)	(0.15)	(1.11e+13)***
Constant	0.0718	-0.1022	-0.3569	0.0977	-0.1164	-0.3680
	(2.25)	(-2.83)*	(-29.23)***	(2.22)	(-1.11)	(-3.76e+14)***
Observations	35	85	50	35	85	50
Adjusted R-squared	28.85***	46.73***	52.75***	27.05***	46.08***	51.75***
RMSE	0.3097	0.2239	0.5129	0.3136	0.2253	0.5183

[b] In-Sample estimation of Fama and French 3-Factor and Carhart's models, using pooled OLS regressions, over three sub-samples: First, before disclosure of 1998 year-end financial statements (FS), allows monthly returns from April, 1991, to March, 1999, and annual returns from March, 1992, to March, 1999; Second, after disclosure of 1998 year-end FS, and before disclosure of 2007 year-end FS, allows monthly returns from April, 1999, and March, 2008, and annual returns from March, 2000, to March, 2008; Third after disclosure of 2007 year-end FS, allows monthly returns from April 2008, to March 2013, and annual returns from March, 2009, to March, 2013. .In parenthesis, t-statistics computed with Driscoll and Kraay (1998) standard errors. Significance of the adjusted R-squared computed on the basis of the F-statistic. RMSE denotes the root mean square error. ***, ** and * denote significance at 1%, 5%, and 10%, respectively.

Appendix O

Table 19- OOS Results - Fama and French 3 Factor and Carhart Models[a] - OOS $\overline{R^2}$ and RMSE

Pooled OLS	OOS $\overline{R^2}$				RMSE			
	95 FS -		95-2006 FS		95-2011 FS		95-2006 FS	
Country	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Panel A: Montlhy Returns								
AS	-85.72	-86.18	-79.19	-70.03	0.0923	0.0926	0.0565	0.0552
BE	-89.79	-87.68	-79.52	-62.71	0.1312	0.1307	0.0627	0.0599
FI	-116.70	-117.59	-95.85	-98.11	0.0787	0.0790	0.0553	0.0558
FR	-88.81	-91.86	-116.42	-127.89	0.0535	0.0540	0.0360	0.0370
GE	-102.28	-99.22	-100.26	-95.22	0.1139	0.1132	0.1006	0.0996
GR	-71.70	-70.85	-35.80	-33.12	0.1556	0.1554	0.1007	0.0999
IR	-97.96	-97.65	-100.17	-109.15	0.1962	0.1963	0.0777	0.0795
IT	-107.90	-109.55	-100.99	-103.47	0.0674	0.0677	0.0586	0.0591
PT	-90.98	-91.80	-93.13	-94.55	0.0830	0.0833	0.0623	0.0626
SP	-101.96	-104.39	-97.66	-105.72	0.0719	0.0725	0.0470	0.0480
Panel B: Annual Returns								
AS	-134.89	-175.79	-136.88	-204.34	0.5177	0.5772	0.3430	0.4157
BE	-175.03	-203.10	-251.45	-480.60	0.8019	0.8637	0.3967	0.5374
FI	-151.37	-207.61	-92.10	-186.48	0.4594	0.5229	0.2660	0.3472
FR	-468.49	-695.77	-1114.85	-1736.86	0.5185	0.6240	0.4904	0.6187
GE	-223.61	-301.32	-274.30	-384.71	0.7469	0.8460	0.7455	0.8704
GR	-72.38	-85.69	-29.90	-59.63	0.8187	0.8680	0.6098	0.7015
IR	-115.89	-124.24	-214.18	-331.08	1.0454	1.0837	0.4816	0.5787
IT	-348.95	-524.74	-430.80	-662.84	0.5380	0.6455	0.5710	0.7023
PT	-254.94	-348.44	-404.92	-579.14	0.6496	0.7427	0.6325	0.7526
SP	-226.89	-320.64	-406.16	-575.49	0.5570	0.6427	0.5773	0.6843

[a] (1) and (2) correspond to the model used to forecast returns (See Appendix N for the models' composition. Panel A and B report Goyal and Welch (2008) OOS-$\overline{R^2}$ and the RMSE for monthly and non-overlapping annual (April-March) forecasted returns, respectively, for the Austrian (AS), Belgian (BE), Finnish (FI), French (FR), German (GE), Greek (GR), Irish (IR), Italian (IT), Portuguese (PT) and Spanish (SP) banking sector portfolios, over two OOS periods. First, 95 FS – means that forecasts are generated for a period after the disclosure of 1995 year-end financial statements, i.e., forecasts are generated recursively estimating the models from March, 1996. Forecasts are generated using pooled OLS estimations. As one is using an unbalanced panel, the OOS period varies across the portfolios. Concerning Panel A, the OOS period starting points are (in parenthesis): FR, GE, IT, PT and SP (April, 1996); IR (May, 1996); GR (May, 1998); BE (May, 2000) AS and FI (May, 2001).Concerning Panel B, the OOS starting points are (in parenthesis): FR, GE, IT, PT and SP(March, 1997), IR (March, 1998); GR (March, 2000); BE (March, 2002); AS and FI (March, 2003). Second, 95-2006 FS means that that the former OOS window is truncated to the moment to the moment of 2007 year-end FS disclosure, i.e., the last -forecast occurs in March, 2008. When the OOS period has not enough observations to compute Goyal and Welch (2008) adjustment, the statistic is omitted. Significance is measured with the MSE-F statistic as proposed by McCracken (2007). ***, ** and * denote significance at 1%, 5% and 10%, respectively.

Appendix P

Table 20- OOS Results - Fama and French 3 Factor and Carhart Models[a] - OOS $\overline{R^2}$ and RMSE

Time-Series	OOS $\overline{R^2}$				RMSE			
	93 FS -		93-2006 FS		93-2011 FS		93-2006 FS	
Country	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Panel A: Montlhy Returns								
AS	-92.32	-93.78	-107.73	-96.20	0.1013	0.1019	0.0539	0.0526
BE	-89.37	-90.97	-82.01	-86.57	0.1432	0.1441	0.0550	0.0559
FI	-117.48	-122.02	-95.41	-94.47	0.0876	0.0887	0.0646	0.0648
FR	-88.02	-89.16	-104.19	-109.32	0.0520	0.0522	0.0339	0.0343
GE	-99.64	-101.82	-100.33	-103.19	0.1166	0.1174	0.1037	0.1047
GR	-93.90	-95.01	-104.69	-106.21	0.1640	0.1648	0.0938	0.0945
IR	-100.10	-99.63	-105.99	-118.49	0.2144	0.2144	0.0783	0.0808
IT	-100.25	-101.42	-102.18	-103.51	0.0640	0.0643	0.0568	0.0570
PT	-88.65	-91.72	-89.13	-96.51	0.0849	0.0857	0.0641	0.0655
SP	-105.03	-105.85	-114.08	-116.30	0.0704	0.0707	0.0487	0.0490
Panel B: Annual Returns								
AS	-920.65	-492.12	-7307.96	-	1.1240	0.8884	1.5258	0.7189
BE	-230.13	-285.37	-1191.78	-794.40	0.9593	1.0705	0.8059	0.7346
FI	-473.78	-228.34	-1657.76	-	0.7512	0.5897	0.8902	0.5532
FR	-201.54	-305.57	-408.32	-718.77	0.3686	0.4341	0.3040	0.3945
GE	-365.70	-1001.77	-525.09	-1518.30	0.9565	1.5004	1.0636	1.7675
GR	-235.01	-408.54	-460.88	-908.54	1.0759	1.3600	0.9800	1.3852
IR	-234.20	-331.77	-1342.99	-2068.71	1.4347	1.6658	1.1294	1.4369
IT	-392.35	-896.66	-523.26	-1269.52	0.5363	0.7745	0.5736	0.8686
PT	-661.20	-4436.48	-1286.04	-9176.78	0.9777	2.4305	1.0874	2.8948
SP	-378.02	-488.09	-534.68	-718.99	0.6550	0.7381	0.6813	0.7922

[a] (1) and (2) correspond to the model used to forecast returns (See Appendix N for the models' composition). Panel A and B report the root mean square error (RMSE) for monthly and non-overlapping annual (April-March) forecasted returns , respectively, for the Austrian (AS), Belgian (BE), Finnish (FI), French (FR), German (GE), Greek (GR), Irish (IR), Italian (IT), Portuguese (PT) and Spanish (SP) banking sector portfolios, over two OOS periods. First, 93 FS – means that forecasts are generated for a period after the disclosure of 1993 year-end financial statements, i.e., forecasts are generated recursively estimating the models from March, 199. This serves merely as a guide, and is only true for one portfolio. To start the recursive estimation process, using individual time-series, one requires only three years of data. As one is using an unbalanced panel, the OOS period varies across the portfolios. Concerning Panel A, the OOS period starting points are (in parenthesis): IT(April, 1994); FR and SP (April, 1995); PT (April, 1997); GE (April, 1998) IR (April, 1999), GR (April, 2001), BE(April, 2003), and AS and FI (April, 2004). Concerning Panel B, the OOS period starting points are (in parenthesis): IT(March, 1995); FR and SP (March, 1996); PT (April, 1998); GE (March, 1999) IR (March, 2000), GR (March, 2002), BE(March, 2004), and AS and FI (March, 2005).Second, 94-2006 FS means that that the former OOS window is truncated to the moment to the moment of 2007 year-end FS disclosure, i.e., the last -forecast occurs in March, 2008. When the OOS period has not enough observations to compute Goyal and Welch (2008) adjustment, the statistic is omitted. Significance is measured with the MSE-F statistic as proposed by McCracken (2007). ***, ** and * denote significance at 1%, 5% and 10%, respectively.