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Investigating the relationship between bank performance and accounting standards: evidence from M&As in European banking

Ali İhsan Akgün
Health Management, Ankara Yildirim Beyazit Universitesi, Ankara, Turkey

Abstract

Purpose – The study aims to identify whether international financial reporting standards (IFRS) or local generally accepted accounting principles (GAAP) reporting provides investors and senior management of acquirer banks with superior information on target banks under post-merger bank performance.

Design/methodology/approach – The authors examine the claim that IFRS improves corporate transparency and increases financial reporting quality in European Bank merger and acquisitions (M&As). The authors compare the financial performance of merged banks where the target and acquirer banks employed the same reporting system (up to 305 merged banks) to the performance of a control group of banks not engaged in M&A activity (up to 1,690 European banks).

Findings – Local GAAP reporting allows a more transparent assessment of financial performance using traditional indicators, making it a superior tool for assessing potential acquisition targets.

Practical implications – Overall, the empirical findings are consistent with prior studies and indicate a significant relationship between local GAAP and post-merger performance, while IFRS does not contribute to post-merger bank performance.

Originality/value – The study is one of the very few studies to investigate the relationship between bank performance, M&A activity and accounting standards in EU-28 countries. The primary contribution the finding of poor performance of IFRS reporting merged banks compared to local GAAP banks in EU-28 countries in line with prior results of Huian (2012). In addition, several deal- and bank-specific characteristics that affect accounting standards influence M&A transactions in European banks.

Keywords Bank performance, European banks, Financial reporting, IFRS, Local GAAP

Paper type Research paper

1. Introduction

The IASB (2010) manages and advocates IFRS as a set of high-quality accounting rules that public companies globally should be apply. Carmona and Trombetta (2008) state that IFRS rules are principles-based and encourage firms to report accounting information that better reflects the underlying corporate economic activities. European Commission regulators claim that IFRS improves corporate transparency, increases financial reporting quality and enhances the comparability of financial statements, making them more capital-market oriented and comprehensive with respect to disclosure requirements [1]. Thus, accounting and financial information based on IFRS potentially reduces information asymmetry between insiders and investors and among investors, leading to positive capital market

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benefits. However, the impact of IFRS on the quality of financial reporting is an empirical question that depends on whether IFRS provide higher- or lower-quality information than local GAAP and on the efficiency of enforcement mechanisms [2]. That is, if IFRS provides higher-quality information than domestic GAAP and they are appropriately enforced, then IFRS adoption should improve the quality of financial reporting and reduce accounting risk.

Empirical evidence on the impact of IFRS adoption on accounting quality is mixed. For example, Barth *et al.* (2008) find that firms that adopt IFRS voluntarily exhibit less earnings management, more timely loss recognition and greater value relevance of accounting income. Other studies report improvements in analyst forecast accuracy (Brown *et al.*, 2009; Horton *et al.*, 2013; Byard *et al.*, 2011); improved firm liquidity and lower cost of equity capital (Daske *et al.*, 2013; Li, 2010) and positive price reactions to events (Armstrong *et al.*, 2010). However, Christensen *et al.* (2008) and Soderstrom and Sun (2007) suggest that reporting incentives are an important factor determining observed accounting quality, which suggests that any positive impact of voluntary IFRS adoption may be overestimated because of the self-selection bias in a voluntary adoption setting. Indeed, findings from studies on mandatory IFRS adoption are mixed. For example, Chen *et al.* (2010) find that the majority of accounting-quality indicators improved after IFRS adoption in the European Union. Chalmers *et al.* (2011, 2012) show that IFRS adoption increases the value relevance of accounting information but decreases useful information related to intangibles in the Australian context. In contrast, Ahmed *et al.* (2013) report a significant increase in income smoothing and accrual aggressiveness and delays in loss recognition for firms in countries adopting IFRS, suggesting that accounting quality declined after IFRS adoption. Paananen and Lin (2009) report that German firms exhibit a decline in accounting quality following mandatory IFRS adoption, and Jeanjean and Stolowy (2008) find that earnings management increased in France and remained persistent in the UK and Australia after mandatory IFRS adoption.

This study adds to the empirical evidence on the impact of IFRS adoption on the quality of financial reporting in the context of M&A activity in European banking. The financial performance of target firms is a key factor in the ultimate decision to engage in M&A activity. As such, the quality of the underlying accounting data of targeted firms is of paramount importance to the acquiring firm's investors and senior management. This study aims to shed light on whether IFRS and local GAAP provide different and superior assessments of the financial performance of target banks. To this end, we compare the financial performance of merged European banks where the target and acquirer banks applied the same accounting standards (IFRS or local GAAP) to the financial performance of European banks that were not engaged in M&A activity. Our results suggest that local GAAP reporting provides more useful information to investors and senior bank managers in this setting because it can draws sharper distinctions in the standard measures of bank financial performance. We speculate that this may, in part, reflect banks' relative lack of experience with IFRS reporting compared to local GAAP reporting. Our results should be of interest to investors, firm management, analysts and other users of financial information. They should also be of interest to standard setters and securities regulators in countries that adopted IFRS or are considering IFRS adoption.

The remainder of this paper is organized as follows. The next section reviews the related literature. Section 3 describes the hypotheses development, methodology and data used in this study. Section 4 presents the empirical results, and Section 5 concludes the paper.

2. Related literature

Some evidence suggests that the need to ensure greater comparability, higher transparency and better quality in global financial reporting motivated the development of IFRS. The first group of studies examines the change in quality resulting from the switch from local GAAP to

IFRS (Karamanou and Vafeas, 2005; Beekes and Brown, 2006). These studies show that firms are likely to adopt higher-quality accounting standards to satisfy potential investors; however, recent research questions the quality of financial statements prepared under IFRS, particularly in the presence of weak enforcement mechanisms and adverse reporting incentives (Ball *et al.*, 2003; Gallery *et al.*, 2008).

While some studies suggest that IFRS create high-quality financial reporting, the second group of studies argues that IFRS does not hold firms to higher-quality accounting standards than local GAAP. For example, Ball *et al.* (2003) find that market demand determines a country's de facto standard for financial reporting practices that do not suppress stockholder litigation rights, so differences between IFRS and US GAAP standards are overestimated. Therefore, IFRS does not guarantee high-quality financial reporting. This evidence is also consistent with Ding *et al.* (2007), who find that IFRS adopting may not improve national accounting standards unless countries also implement profound changes in corporate governance mechanisms and how financial markets function. Within this framework, we would expect a favorable impact of switching to IFRS from local GAAP on bank performance and financial reporting quality.

In another key study, Ashbaugh (2001) finds that IFRS or US GAAP reporting is positively linked to the number of accounting measurement methods and disclosure changes imposed by IFRS regulations relative to firms' local GAAP. Soderstrom and Sun (2007) posit that diverse financial reporting simply refers to the differences in corporate reporting practices that can arise between a country's own local GAAP- and IFRS-reporting practices and requirements. Van Tendeloo and Vanstraelen (2005) show that IFRS adoption is not associated with lower-earnings management. Nichols *et al.* (2005) find significantly higher earnings under IFRS than under GAAP. Haller *et al.* (2009) analyze the differences between local GAAP and IFRS by quantifying the effects of German companies' first implementation of IFRS on their reporting practices.

Bae *et al.* (2008) find that the extent to which GAAP differs between two countries is negatively related to both foreign analyst followings and forecast accuracy. Lin *et al.* (2012) examine whether accounting quality changed following a switch from US GAAP to IFRS and find that the application of US GAAP generally resulted in higher-accounting quality than the application of IFRS. Moreover, Gastón *et al.* (2010) find that IFRS has a negative effect on the relevance of financial reporting in the UK and Spain. Similarly, Watrin and Ullmann (2012) show that not only IFRS reporting potentially decreases earnings quality on average, but also that reporting incentives appear to have less effect on earnings quality in IFRS statements than in local GAAP statements.

Van der Meulen *et al.* (2007), however, find no difference in value relevance between the application of IFRS and US GAAP using a sample of German firms. Likewise, Venter *et al.* (2013) demonstrate that there is no reason to expect that the persistence of earnings components of South African firms is different from that based on US GAAP. In addition, Bartov *et al.* (2005) no significant difference in value relevance between US GAAP and IFRS after controlling for self-selection, which is consistent with the finding of no difference in information asymmetry between US GAAP and IFRS users. Ashbaugh and Pincus (2001) find that firms' financial information becomes more predictable following IFRS adoption and the consequent reduction disclosure practices.

Accounting and financial researchers have long been interested in explaining the impact of the economy on banks' financial performance. In this study, we test the impact of IFRS adoption on banks' pre- and post-merger performance. In Europe, the majority of cross-country studies to date find that bank M&A accrues significant stock market valuation and operating performance gains (Rossi and Volpin, 2004; Diaz *et al.*, 2004). Prior studies focus on whether the announcement of a bank merger creates shareholder value for the shareholders of the target and bidder. Beitel *et al.* (2004) find that less-active bidders create more value than

more-active bidders. Berger *et al.* (1999) demonstrate that bank mergers create shareholder value only for the target institution's shareholders, usually at the expense of the bidding institution.

Most prior studies compare banks' pre- and post-merger performance by evaluating either accounting or productive efficiency indicators (Altunbas and Marqués, 2008; Altunbas and Marqués Ibáñez, 2004). Our study aims to address this question by analyzing how the effects of M&A differ under local GAAP or IFRS and the factors that may account for pre- and post-merger effects that vary with the location of international bidders and targets.

Post-merger performance received extensive research attention from accounting and finance scholars, but very few studies examine the trends and bank performance of cross-border investments and M&As during the global financial crises (Beltratti and Paladino, 2013; Kahouli and Maktouf, 2015; Rao-Nicholson and Salaber, 2014, 2015; Rao-Nicholson *et al.*, 2016; Rao and Reddy, 2015; Reddy *et al.*, 2014). For example, Beltratti and Paladino (2013) find no significant abnormal returns around the announcement of acquisitions during the crisis period. Rao and Reddy (2015) suggest that the global financial crisis had a negative effect on both the number and value of cross-border acquisitions in selected sample industries during the post-crisis period. In contrast, Rao-Nicholson *et al.* (2016) show that the financial crisis had a significant impact on M&As worldwide.

Pasiouras and Kosmidou (2007) show that the performance of both national and international banks in the European Union significantly affects specific bank characteristics. Similarly, Chortareas *et al.* (2013) report that the higher the degree of an economy's financial freedom, the better the banks' performance in terms of cost advantages and overall efficiency in the European countries. Their results suggest a strong relationship between financial freedom and bank efficiency. Additionally, Chortareas *et al.* (2012) show a strong relationship between the form of banking regulation and bank efficiency, indicating that strengthening official supervisory power has a clear positive effect on bank efficiency, while restrictions on bank activities and excessive private monitoring can adversely impact bank operating efficiency.

Weill (2004) examines the consistency of cost efficiency frontier methods on a European bank sample and compares the means, correlation coefficients, two public policy issues and the correlation with standard measures of bank performance. Weill (2004) suggests a significantly negative effect on the relationship between cost efficiency scores and profitability indicators with return on equity (ROE) for Switzerland, potentially indicating weak competition in the Swiss banking industry, while the efficiency scores are positively correlated using parametric approaches for all European countries. In contrast, Christopoulos *et al.* (2020) find no significant relationship between bank size and bank efficiency.

In sum, numerous studies focus on measuring the level of success of bank M&As in terms of financial performance following two main empirical methods. The first group studies the impact of M&As by making comparing pre- and post-merger performance. The second group of studies on the impact of bank M&A adopt a more comprehensive methodology by examining the market reaction to merger announcements. As our study falls under the first group, we further discuss the findings of some of these studies. Our findings show that better performance appeared to result from improvements in the ability to implement a funding structure with net loans to deposits and a profitable other income to assets ratio.

Overall, the analyses on M&As provide mixed results: some studies found improved performance, while others reported no improvement. Most studies report deterioration in bank financial performance. In the first category, Akhavein *et al.* (1997) and Cornett *et al.* (2006), for example, demonstrate that merged banks outperform the banking industry, as operating performance improved in merged banks. Additionally, Houston *et al.* (2001) find improved the post-merger bank performance in USA. In Europe, Altunbas and Ibanez (2004), Diaz *et al.* (2004) and Altunbas and Marques (2008)'s find that bank mergers improve bank

performance with ROE. Similarly, Campa and Hernando (2006) and Knapp *et al.* (2006) show that the operating performance of merged banks significantly improves the performance of target banks. Likewise, Hagendorff and Keasey (2009) find that M&A leads to performance gains for merged European banks. In contrast, Hagendorff and Keasey (2009) report no significant change in post-merger performance of USA banks. Similarly, Abbas *et al.* (2014) report no positive improvement in the post-M&A financial performance of the banks in Pakistan. In addition, Huian (2012) finds that bank M&As in Romania do not result in improved financial performance in terms of ROE. Some studies report deterioration in performance induced by the bank M&As. Beccalli and Frantz (2008) show that European M&A operations are linked with a slight deterioration in financial performance measured by ROE.

In the second category, Beitel *et al.* (2004) show that the stock market reaction to M&A announcements by European bidding banks can be somewhat forecast. They find an important difference in the cost efficiency between the target and bidder as well as poor stock performance. Campa and Hernando (2006) find that merger announcements show positive excess returns to the target company's shareholders. Likewise, Berger *et al.* (1999) find evidence consistent with increases in market power from certain types of consolidation; bank performance improvements in profitability efficiency and little or no cost efficiency improvement on average post- M&A.

This study contributes to the literature by examining post-merger performance and accounting standards in terms of bank performance relative to banks not involved in M&A activities. Compared to the existing literature, we use a different methodology. For example, Ding *et al.* (2007) and Francis *et al.* (2016) adopt Bae *et al.*'s (2008) method which focuses on 21 important accounting rules based on their review of the previous literature and a survey of accounting standards differences. However, we focus on traditional accounting performance indicators. In addition, our study investigates the complex relationship between post-merger bank performance and the differences between local GAAP and IFRS, while Ding *et al.* (2007) examine the same differences in relation to culture.

This study extends the recent accounting and financial literature and contributes significantly in four ways: First, to the best of our knowledge, this study is the one of the few to examine the relative operating efficiency of the banking industry in high-performing economies in Europe. Second, we use an independent sample *t*-test to determine the possible financial variables that impact bank performance. In our analysis, based on Christopoulos *et al.*'s (2020) method to measure banking sector performance in European countries, we adopt alternative inputs and outputs in the various stages of the methodology. Third, we test six alternative measures of performance as follows: bank risk, asset structure, funding structure, operating efficiency, income structure and profitability over the period 2002–2012. Finally, this study also contributes to the literature by empirically investigating the impact of accounting standards on bank operating efficiency and bank performance in European countries. Using the traditional accounting ratio with bank performance measures enhances our analysis and allows direct comparability of empirical evidence with those of previous studies. Overall, although numerous studies investigate the effect of bank performance on accounting standards, the majority of these studies tend to cover large international cross-country M&A activity samples and none of them suggest alternative measures of operating efficiency.

3. Hypotheses development and methodology

Firm performance measures are especially important for reverse globalization processes that complement the asset-seeking motives of firms in developed economies (Zahra *et al.*, 2000). However, completing of M&As is itself an indicator of business performance. Current studies

based on certain variables are not common because of the difficulty in collecting data and constructing valid proxies for business performance. Furthermore, an additional difficulty is controlling other elements when singling out the effect of M&A on business performance (Cantwell and Santangelo, 2007).

Measuring performance is an important issue in bank M&A activities. Some studies examine the performance effects of bank mergers and find no significant merger-related performance improvements in terms of return on assets (Houston *et al.*, 2001) and ROE (Altunbaş and Ibanez, 2004; Akhavein *et al.*, 1997). Other M&A studies focusing on non-financial industries show that stock price behavior is the best indicator of a firm's performance because it reflects the market's valuation of the firm. This indicator is rarely reliable in the banking industry, because stocks issued by smaller banks are not actively traded in national and international markets (Rose and Hudgins, 2005). This study evaluates accounting performance around bank mergers, similar to Hagendorff and Keasey (2009) and Cornett *et al.* (2006). Much of the previous research on accounting standards and firms' performance use traditional econometrics techniques such as descriptive analysis and *t*-test. We assume that a bank's performance could be affected by the earlier year's performance as well as bank risk, asset structure, funding structure, operational efficiency, capital structure and profitability.

We test a similar question regarding corporate M&A activity: What are the fundamental roles of similarities in accounting standards on firm-level investment opportunities and, particularly, cross-border M&As? Francis *et al.* (2016) find that with similar GAAP, the volume of M&A activity is driven by target countries, while there is less similarity in GAAP during the pre-IFRS adoption period. Thus, their results also highlight the role of accounting standards in shaping cross-border M&A activities. Rossi and Volpin (2004) find that the volume of M&A activity is significantly affected in countries with better accounting standards. Knapp *et al.* (2006) suggest that the positive impacts of the post-merger results that they report are consistent with the industry practice. Starks and Wei (2013) find that the takeover premium decreases in the quality of the corporate governance applications in terms of the role of accounting standards in the acquiring country.

The idea is that bank investors and senior managers in acquirer banks use accounting information to value potential M&A targets. If acquirer and target banks are in jurisdictions that adopted IFRS and if the resulting financial information were of higher quality than that under local GAAP system reporting, then those investors and managers would be better placed to buy "good" as opposed to "bad" banks. In turn, the subsequent financial performance of the merged bank should reflect the acquisition of a good or bad bank relative to banks not engaged in M&A activity and relative to the performance of merged banks in which both parties used local GAAP. Accordingly, we test for the superiority of the IFRS system in the context of M&A activity with respect to two simple and related hypotheses:

H1. If the acquirer and target banks both adopt IFRS, then the subsequent performance of the merged bank should be, at least, equal to or better than that of the control group of banks.

H2. If the acquirer and target banks both adopt IFRS, then the subsequent financial performance of the merged bank should be superior to the case when both banks use local GAAP.

3.1 Methodology

We examine bank performance and accounting standards in the M&A activities European banks during the period 2002–2012. Overall, our empirical evidence emphasizes the important role of the relationship between bank performance and accounting standards in

determining cross-border M&A activity in European banking. Additionally, Francis *et al.* (2016) suggest that an increase in M&A activity within mandatory IFRS adoption countries is more obvious for country pairs with low similarity in local GAAP in the pre-IFRS adoption period. These results suggest that harmonizing accounting standards is beneficial, while a full assessment would also need to consider the costs of harmonization. However, Ding *et al.* (2007) and Francis *et al.* (2016) focus on 21 important accounting rules based on their review of the previous literature and a survey of accounting standards differences, while our study focuses on traditional performance indicators from accounting information.

For this investigation, we apply a method based on accounting and financial data for the European banking industry. We discuss our procedure in the subsequent text, which borrows from Huian (2012) and Abbas *et al.* (2014). We assess bank performance using accounting information derived from annual financial statements. Following the empirical literature, we use the ratio of loan loss provisions to total loans (LLPTL) to measure bank credit risk, and the ratio of total equity to total assets (ER) to proxy capital risk. Altunbas *et al.* (2007) use derive-loan-loss reserves as a part of total assets (LLPTL) from accounting information to measure banking risk. Thus, higher levels of reserves suggest a greater banking risk.

We used several ratios to determine asset structure: total assets, equity to assets, net loans to assets and liquid assets to deposits. Total assets is an important accounting measure of bank performance indicator. We use the natural log of bank's total assets according to annual financial statements collected from a bank-focused database. Bank size, through economies of scale, may impact the relationship between capital, bank risk and efficiency. Therefore, big banks, typically hold less capital than smaller banks, and they may also be more diversified and gain from other size advantages, so it is important to control for this factor (Altunbas *et al.*, 2007). Bank size (SIZE) is a critical determinant of its performance because a large size bank may enjoy economies of scale that reduce the cost of collecting and processing information. Pasiouras and Kosmidou (2007) find a negative relationship between SIZE and bank performance regardless of whether it is a national or international banks. The negative result suggests that, in both cases, larger (smaller) banks tend to earn lower (higher) profits.

The equity ratio (ETA) is the portion of total assets financed by shareholders. It reflects the bankruptcy risk of the bank (Huian, 2012). Brissimis *et al.* (2008) report that the impacts of bank credit risk on bank performance is usually negative, while increased liquid assets seem to reduce bank performance. This latter finding suggests that bank capital may have a strategic role in cases of liquidity shortages and increased bank credit risk.

Pasiouras and Kosmidou (2007) show that ETA is positively related to bank performance with ROA, regardless of whether the bank is national or international, and appears to be the most significant factor of bank performance for national banks. The bank's specific variables include the level of capitalization, proxied by the equity over total assets ratio (ETA) and credit risk as the total net loans to assets ratio (NLTA) as in Chortareas *et al.* (2013). According to Altunbas *et al.* (2007), NLTA can indicate rapid loan growth, which may increase risk and adversely impact capital and bank operating efficiency.

Finally, we use the liquid assets divided by deposits ratio (LATD) as an asset structure variable. According to Altunbas *et al.* (2007), banks that are more liquid may be more efficient and need less capital.

I use the net loans to deposits ratio as a proxy for the funding structure. Another banking-risk proxy used is the loans to deposits ratio (NLTD), as banks with a higher ratio are commonly viewed as riskier. Obviously, a limitation linked with using risk variables calculated from accounting information is that even supposing that they exactly reflect portfolio quality, bank managers are likely to have some timing discretion over these measures, and evidence shows that managers exercise such discretion to minimize regulatory costs (Altunbas *et al.*, 2007).

According to Chortareas *et al.* (2012), a liquidity variable composed of total loans over total deposits (NLTD) captures liquidity risk. This proxy has a significant and positive relationship with the cost of intermediation (NIM). The cost to income (CIR) has a statistically insignificant negative relationship with the liquidity variable.

We used two ratios to measure efficiency change linked with the merger: bank CIR and the non-interest expenses to average assets ratio (NOIETA). According to Altunbas *et al.* (2007), NOIETA can account for banks' operating cost and efficiency.

We derive the efficiency ratio (CIR) from annual financial statements and calculate it as total operating expenses divided by total operating income. Brissimis *et al.* (2008) indicate that banking-sector reform has a positive impact on bank efficiency. The CIR provides information on the efficiency of the bank management concerning expenses relative to its revenues. A higher ratio indicates less efficient bank management. We use CIR to measure the impact of efficiency in expense management on bank performance. This ratio illustrates the costs of running the bank, the main component of which is staff salaries and benefits. Pasiouras and Kosmidou (2007) show a negative relationship between bank performance and CIR. Similarly, Weill's (2004) results suggest that the relationship with cost-efficiency scores has a significantly negative impact on both measures of cost performance and a positive impact on both indicators of bank profitability.

Chortareas *et al.*'s (2012) results for ETA show a significantly negative relationship for all specifications with CIR. This finding suggests that higher capital ratios are linked with greater efficiency and is consistent with the argument that higher capitalization helps to improve agency problems between information users such as managers and shareholders. Shareholders in this case have greater incentives to monitor management performance and confirm that the bank is run efficiently.

The other accounting measure of bank performance we use is the net interest margin (NIM) to indicate income structure. Calculated as the difference between interest income and interest expenses over total assets, NIM shows the amount by which the interest received from the loan portfolio exceeds the interest paid on deposits. It is a key indicator of asset efficiency, because a high NIM indicates an effective use of earning assets and a sensible mix of interest-bearing liabilities (Brissimis *et al.*, 2008; Huian, 2012). Additionally, Chortareas *et al.*'s (2012) empirical evidence suggests that higher capital ratios are also linked with greater costs in terms of NIM. Consequently, the efficiency benefits of higher capitalization come at a cost in terms of accounting ratios.

Similarly, NIM is positively related to bank efficiency, which is in line with the results obtained by Christopoulos *et al.* (2020). The positive sign of the coefficient is consistent with our expectation since this empirical result is an indicator of the profitability of the bank relative to its total assets. The higher the ratio, the more efficient the bank is at generating earnings by using its total assets; thus, net bank revenues also increase. On the other hand, Chortareas *et al.* (2012) suggests that higher capital ratios are also linked with greater costs in terms of NIM. Consequently, the efficiency benefits of higher capitalization come at a cost in terms of accounting ratios.

In addition, the most common way to assess profitability is to use the traditional accounting performance measures of ROE (Altunbas *et al.*, 2007; Huian, 2012; Chortareas *et al.*, 2013). A firm's ROE is the ratio of net income to the book value of equity at the beginning of the financial year. This ratio relies on the properties of accrual accounting to assess performance (Beccalli and Frantz, 2008). Altunbas and Ibanez (2004) and Campa and Hernando (2006) find that bank M&A results in improved performance with ROE, while Ismail *et al.* (2009) and Beccalli and Frantz (2008) show that bank M&As harm performance. I also use operating income to assets as profitability and calculate other operating income divided by total assets.

We examine the validity of the hypotheses by testing for a statistically significant difference in the mean of several financial performance indicators of two treatment groups of European banks to those of a control group of European banks. The two treatment groups are as follows: (1) banks involved in M&As where the acquirer and target bank use IFRS and (2) banks involved in M&As where the acquirer and target bank use local GAAP. The control group comprises European banks that are not involved in M&A activities. We employ an independent samples *t*-test in which the null hypothesis is that the difference between the means of the financial performance indicators of the treatment group and the control group is not significantly different from zero. Rejection of the null hypothesis would indicate a statistically significant difference in performance from the perspective of any particular performance indicator. We also look for additional information on accounting quality by testing for differences in the means of the financial performance indicators of the two treatment groups of (merged) banks. The financial performance indicators we employ are traditional indicators of bank performance with respect to risk, asset and funding structures, operational income and profitability. We list these indicators in Table 1.

Our judgment of the superiority of IFRS reporting as a tool for investors and bank managers in an M&A context depends on whether the treatment group in which the acquirer and target bank both use IFRS consistently provides more information on financial performance than the control group of banks based on the performance measures. This would indicate clearly that IFRS reduces accounting information asymmetries. Additionally, if the information on financial performance of the IFRS-reporting-merged banks is better than that of the local GAAP-reporting-merged banks, then we would take this as a further indication of the superiority of IFRS reporting as a tool for investors and managers.

Variables	Source	Description
1. Bank risk		
Ratio of loan loss provision to total loans	Altunbas *et al.* (2007)	Provision for loan and lease losses by divided total loans
2. Assets structure		
Total assets (size)	Bloomberg	Logarithm of total assets (US$ millions)
Ratio of equity to total assets	Bloomberg	Ratio of shareholders equity to total assets*100
Net loans to total assets	Bloomberg	Total net loans to total assets *100
Ratio of liquid assets to total deposits	Bloomberg	Ratio of liquid assets to total deposits *100
3. Funding structure		
Ratio of net loans to total deposits	Altunbas *et al.* (2007)	Total net loans by divided total deposit
4. Operational efficiency		
Ratio of bank costs to income	Bankscope	Bank costs by divided net income
Ratio of non-interest income to total assets	Bankscope	Total non-interest income by divided total assets
5. Income structure		
Efficiency (net interest margin)	Bankscope	Total interest income minus total interest expenses by divided total assets
6. Profitability		
Other operating income to assets	Bloomberg	Other operating income by divided total assets
Return on equity (ROE)	Bloomberg	Ratio of net income to total equity capital *100

Table 1. Bank financial performance indicators

Source(s): Composed by author

3.2 Data

We obtain the dataset by combining data from two sources: data on European Bank M&A deals from Thomson One Banker and data on bank financial performance calculated from the bank balance sheets and profit and loss data provided by Bankscope. The data on bank M&A activity is for deals announced between 1 January 2002 and 31 December 2012 and where the acquirer and the target bank were European Union entities.

Data on financial performance cover ten reporting periods of financial information prepared according to each country's local GAAP or IFRS standards between 2005 and 2012. For our purposes, we include a "merged" bank in one of the two treatment groups only if it has been a joint entity for, at least, three years. After discarding the M&A deals for which full financial information on the participating banks was not available, our sample consists of the two treatment groups with up to 305 merged banks and a control group of up to 1,690 banks. Table 2 provides the summary statistics for the control and treatment groups.

Table 2 reports the descriptive statistics for the financial performance variables for European banks. The mean of the financial performance indicators is positive, suggesting that on average the financial performance of the observations in our sample worsens in terms of loans loss provisions to loans, total assets, liquid assets to deposits net loans to deposits, bank CIR and other operating income to assets ratio in the year after an M&A for banks using local GAAP compared to those using IFRS banks. However, the mean equity to assets, net loans to assets, non-interest income to assets, NIM and return ETAs are better using local GAAP than treatment group of acquirer and target bank using IFRS.

It is important to acknowledge the limitations of our study. First, our sample includes 305 merged banks from European countries. Generally, this would mean that further studies to measure the relationship between accounting standards, operating efficiency and bank performance in different methodological contexts is required. Second, our findings are limited to the European economy during the period 2002–2012.

4. Results

The results from the *t*-test of differences in the mean values of the financial performance indicators between the control group and the two treatment groups are reported in Table 3. Columns 1–4 report on the performance of the IFRS treatment group of merged banks (i.e. where the acquirer and target both use IFRS) *vis-à-vis* the control group. We cannot reject the null hypothesis that the means of the performance indicators are not significantly different for 6 of the 12 measures. The overall impression is that compared to the control group IFRS reporting banks are more highly leveraged, engage in less traditional banking activities, operate on narrower interest rate margins and have a less diversified income streams but are no more profitable than the control group of banks. Specifically, with respect to the performance measures, they are larger in terms of assets, have lower ratios of total assets to equity, loans, non-interest expenses and other operating income and lower net interest rate margins.

According to Table 3, the financial performance indicators are not significantly different when the acquirer and target bank use local GAAP, except for funding structure with net loans to deposits. Additionally, acquirers and target banks using IFRS are significantly in terms of bank risk, asset structure with liquid assets to deposits, funding structure, operational efficiency with cost-to-income ratio and profitability with ROE. While widely used in the literature, ROE is, however, affected by the method of accounting for the acquisition or merger, the method used to finance M&A and by other discretionary accounting choices made by managers (Beccalli and Frantz, 2008).

In particular, we identify whether European banking firms could contribute their accounting standards following the acquisition of banking firms from European countries.

Table 2.
European bank descriptive statistics, 2005–2012

	Control group: Non-merged banks			Treatment group: acquirer and target bank reports IFRS				Treatment group: acquirer and target bank reports local GAAP			
	Mean	Median	Standard deviation	Obs	Mean	Median	Standard deviation	Obs	Mean	Median	Standard deviation
Loan loss provisions to loans	2.33	1.22	5.54	86	2.60	1.96	4.91	194	1.06	1.07	0.45
Total assets	13.88	13.60	2.10	105	17.45	17.21	2.34	200	15.53	15.34	2.03
Equity to assets	12.13	7.77	15.47	105	7.08	6.48	5.59	200	11.30	9.88	7.60
Net loans to assets	59.21	63.64	24.31	105	54.80	63.98	26.70	200	64.31	68.56	16.51
Liquid assets to deposits	35.61	16.62	73.18	105	44.32	27.04	40.85	196	16.22	4.68	56.45
Net loans to deposits	87.47	78.99	68.39	105	89.81	92.84	45.00	197	85.19	86.65	25.00
Bank costs to income	65.82	65.22	31.29	104	63.64	59.58	23.59	197	62.54	62.23	13.94
Non-interest income to assets	4.06	2.75	8.22	105	2.27	1.82	1.50	197	3.13	2.91	1.74
Net interest margin	2.74	2.57	2.72	105	1.82	1.86	1.13	200	3.38	3.48	1.06
Other operating income to assets	3.01	9.81	9.81	104	1.75	1.12	2.59	197	1.60	1.10	2.29
Return on equity	9.07	6.97	12.39	105	11.83	12.47	12.11	200	11.89	10.68	12.29

Table 3. *t*-test statistics for the difference in means of financial performance indicators: treatment group vs control group of banks

Financial performance indicator	Control group Mean (std. error)	Treatment groups: Acquirer and target bank report IFRS Mean (std. error)	*t*-value (*p*-value)	H0	Acquirer and target bank report local GAAP Mean (std. error)	*t*-value (*p*-value)	H0
Loan loss provisions to loans	2.8096 (0.0334)	3.3834 (0.3121)	−1.5524 (0.1206)	Accept	1.4222 (0.0423)	5.6720 (0.0001)	Reject
Total assets	13.9654 (0.0085)	17.2867 (0.1353)	−26.7779 (0.0001)	Reject	15.4430 (0.0863)	−16.5036 (0.0001)	Reject
Equity to assets	12.315 (0.0655)	7.8460 (0.5929)	4.7318 (0.0001)	Reject	11.0264 (0.2413)	1.8938 (0.0538)	Reject
Net loans to assets	58.6379 (0.1033)	53.0914 (1.5317)	3.8000 (0.0001)	Reject	63.6156 (0.6468)	−4.7527 (0.0001)	Reject
Liquid assets to deposits	34.7539 (0.3116)	41.3620 (3.0961)	−1.5014 (0.1333)	Accept	17.4937 (3.0294)	5.4278 (0.0001)	Reject
Net loans to deposits	85.7237 (0.3021)	85.4415 (2.6327)	0.0670 (0.9466)	Accept	84.8581 (1.4426)	0.2841 (0.7763)	Accept
Bank costs to income	68.2518 (0.1540)	67.3124 (2.0662)	0.4240 (0.6716)	Accept	65.2624 (0.9427)	1.8876 (0.0591)	Reject
Non-interest expenses to assets	4.0936 (0.0336)	2.4388 (0.0965)	3.4337 (0.0006)	Reject	3.3891 (0.0803)	2.0349 (0.0419)	Reject
Net interest margin	2.6204 (0.0117)	1.7580 (0.0627)	5.1624 (0.0001)	Reject	3.3923 (0.429)	−6.4443 (0.0001)	Reject
Other operating income to assets	2.8031 (0.0386)	1.4611 (0.1230)	2.4176 (0.0156)	Reject	1.4666 (0.832)	3.3548 (0.0008)	Reject
Return on equity	6.2533 (0.0611)	5.5720 (1.1699)	0.7717 (0.4403)	Accept	8.0772 (0.6136)	−2.8733 (0.0041)	Reject

Note(s): The null hypothesis (H0) is that the difference in the mean of the financial performance indicator between the treatment group and the control group is not significantly different from zero

The second purpose of this study is to observe the post-merger bank performance overall. The findings show a relatively poor performance of merged IFRS-reporting banks compared to local GAAP banks. Similarly, Rahman *et al.* (2021) find that the overall business performance of their sample improved in the post-merger years. However, the increase in business performance was not due to the M&A itself but rather an extension from the pre-merger years. Therefore, this evidence suggests that post-merger synergies were not obvious among the sample of acquisitions. Additionally, the overall financial performance of the emerging economy firms is unlikely to increase following the acquisition of a firm from a developed economy.

According to Table 3, bank size is an important factor that drives the differences in efficiency across banks, which we find through the negative and statistically significant effect for the control group banks. This finding is consistent with those of previous studies conducted in European countries (Altunbas *et al.*, 2007; Chortareas *et al.*, 2012). The means of the financial performance indicators such as ETA, NLTA, NOIETA, NIM and ROE are smaller for local GAAP users than for the IFRS sample compared to banks not involved M&A.

Columns 1 and 5–7 of Table 3 report the performance of the local GAAP treatment group of merged banks (i.e. when both banks apply local GAAP) *vis-à-vis* the control group. The performance of this group of banks relative to others differs according to a much broader range of criteria with the null hypothesis rejected in10of the 12 financial performance ratios. Specifically, the local GAAP-reporting-merged banks appear to be better capitalized (higher equity to assets ratio), have a less risky loan portfolios (lower loan loss reserves), perform more traditional banking activities, manage their liquidity better (lower liquid assets to deposits ratio), have a better cost structure (lower ratios of bank costs to income and non-interest expenses to assets), operate on wider interest rate margins, have less diversified income streams and are more profitable (higher ROE) than the control group. Accordingly, local GAAP reporting would appear to be a more useful tool for bank investors and senior managers in an M&A context, as it facilitates a greater distinction between target banks according to traditional financial performance indicators. This conclusion is further supported by the results in Table 4, which reports the *t*-test of differences in the mean values of the financial performance indicators of the two treatment groups of banks. For 10 out of 12 indicators, we can reject the null hypothesis that the means are not significantly different. The results indicate that the local GAAP-merged banks are smaller than the IFRS-merged banks, have less risky loan portfolios, are better capitalized, engage more in

Table 4.
t-test statistics for the difference in means of financial performance indicators of the treatment groups of (merged) banks

	Acquirer and target bank report			
Financial performance indicator	IFRS Mean (std. error)	Local GAAP Mean (std. error)	Test statistic *t*-value (*p*-value)	H0
Loan loss provisions to loans	3.3834 (0.3121)	1.4222 (0.0423)	8.9958 (0.0001)	Reject
Total assets	17.0994 (0.1466)	15.5318 (0.0835)	10.0168 (0.0001)	Reject
Equity to assets	8.4255 (0.6623)	10.9643 (0.2276)	−4.3817 (0.0001)	Reject
Net loans to assets	51.8297 (1.4494)	63.6383 (0.6267)	−8.6471 (0.0001)	Reject
Liquid assets to deposits	41.3045 (2.7893)	17.0315 (2.8217)	5.6009 (0.0001)	Reject
Net loans to deposits	82.4153 (2.4569)	85.3786 (1.4991)	−1.0893 (0.2763)	Accept
Bank costs to income	68.2106 (1.8781)	64.9867 (0.8934)	1.7527 (0.0800)	Reject
Non-interest expenses to assets	2.4721 (0.0959)	3.4081 (0.0792)	−7.2794 (0.0001)	Reject
Net interest margin	1.7393 (0.0572)	3.4036 (0.0444)	−22.6218 (0.0001)	Reject
Other operating income to assets	1.4025 (0.1102)	1.5081 (0.0814)	−0.7706 (0.4412)	Accept
Return on equity	4.9617 (1.1105)	8.3896 (0.6029)	−2.9626 (0.0031)	Reject

Note(s): The null hypothesis is that the difference in the mean of the financial performance indicator is not significantly different from zero

traditional banking activities and better manage their liquidity. They may also be more cost efficient, operate with higher interest margins and are more profitable.

According to Table 4, the results for the acquirer and target banks using local GAAP are not significantly different in terms of financial performance indicators, except for funding structure with net loans to deposits and profitability with other operating income to assets. For funding structure and profitability in the merged banks, local GAAP improves post-merger performance but the use of IFRS does not contribute to post-merger performance. These results are consistent with the existing literature. For example, Huian (2012) finds that bank M&A in Romania does not result in improved performance in terms of ROE in the three-year post M&A period, while merged banks show above industry-average NIM. Similarly, Ismail *et al.*'s (2009) findings suggest that the ROE does not change significantly as a measure of profitability during the post-merger period. In addition, it seems that the merged local GAAP banks grew by exploiting operational synergies to improve their cost-efficiency after the merger. On the contrary, the main positive outcome of the merger was the improvement in cost-efficiency, which is denoted by the non-interest expenses to assets ratio for local GAAP merged banks. These results are inconsistent with those reported by Ismail *et al.* (2009).

Table 4 indicates that the means of the financial performance indicators in merged banks are smaller for local GAAP banks compared to IFRS banks for LLPTL, SIZE, LATD and CIR. In addition, according to Table 4, we find that the equity over total assets ratio (ETA) variable has a positive sign for both groups of merged banks. This is not a surprising, as it is supported by Chortareas *et al.*'s (2013) evidence suggesting that higher capitalization contributes to alleviating agency problems between information users such as managers and shareholders. Profitability and bank size also have a positive significant effect on efficiency, suggesting that larger banking institutions with higher profitability ratios will significantly benefit efficiency, which is consistent with Chortareas *et al.* (2013). Finally, the mean of the NLTA ratio has a positive and significant sign for both groups of merged banks, indicating that banks with higher proportions of loans may increase the pressure on management to effectively deal with credit risk, thereby improving the efficiency of the banking industry.

The results suggest as follows: First, when comparing the treatment group of control banks using IFRS with the treatment group of control banks using local GAAP, industry similarity has a positive impact on bank acquirers' M&A performance, as the performance indicators of profitability according to ROE and efficiency as non-interest expenses to assets both improved. Additionally, when comparing the treatment group of merged IFRS banks with the treatment group of merged local GAAP banks, industry similarity has a positive impact on bank acquirers' M&A performance in terms of profitability according to ROE and efficiency in terms of both non-interest expenses and assets. These results are consistent with Wang (2020). Second, when comparing the treatment groups of merged banks, industry similarity has a positive impact on bank acquirers' post-M&A performance, as the performance indicators of bank risk according to loan loss provisions to loans decreased.

5. Conclusion

Regulators claim that the use of IFRS improves corporate transparency, increases financial reporting quality and enhances the comparability of financial statements, all of which should reduce information asymmetries between insiders and investors and among investors. In this study, we examine this claim in the context of European bank M&As – specifically, whether IFRS or local GAAP reporting provided superior information on target banks to investors and the senior management of acquirer banks as indicated by post-merger bank performance. We compared the financial performance of merged banks in which the target and acquirer banks employed the same reporting system (IFRS or local GAAP) to that of a control group of banks not engaged in M&A activity. Our results suggest that local GAAP reporting allows a

more refined assessment of financial performance based on traditional indicators suggesting that it is a superior tool for investors and senior managers of acquirer banks in their assessment of potential targets. Moreover, the post-merger performance of local GAAP banks on many measures was superior to that of the control group of non-merged banks and to that of IFRS reporting banks. It might be that the relatively poor performance of IFRS reporting in our context reflects its relatively recent adoption and the consequent lag of familiarity with it compared to the vast knowledge accumulated after many years of local GAAP reporting. In any case, we should treat the claims by regulators that IFRS provides greater transparency and reporting quality as still to be proven.

Our results show negative and statistically significant effects compared to the control group banks, which is consistent with previous studies by Altunbas *et al.* (2007) and Chortareas *et al.* (2012). In addition, the mean ETA, NLTA, NOIETA, NIM and ROE are smaller for local GAAP-reporters than for merged banks in which both the acquirer and target bank use IFRS and banks not involved M&A. On the other hand, merged local GAAP-reporting banks are smaller than IFRS banks in terms of LLPTL, SIZE, LATD and CIR. Furthermore, our evidence suggests that ETA has a positive impact on both IFRS-reporting-merged banks and local GAAP banks, which is consistent with Chortareas *et al.* (2013). We can say that higher capitalization helps alleviate agency problems among information users across European countries. Profitability and bank size also have a positive significant effect on efficiency, which is consistent with Chortareas *et al.* (2013). Thus, larger banking institutions with higher profitability ratios show significantly higher efficiency levels for merged banks.

The empirical results indicate a significant relationship between accounting standards such as local GAAP and post-merger performance, supporting the findings of Ding *et al.* (2007) and Francis *et al.* (2016). Additionally, we can conclude that the IFRS does not contribute to post-merger bank performance. This result is consistent with those of Rossi and Volpin (2004) and Gaston *et al.* (2010).

The study is limited to a sample of banks from European-28 countries. This study of M&A activity was limited to the relatively narrow ten-year period from 2003 to 2012. These are the main limitations of the present study. Future research should investigate firm value and post-merger performance to generalize the finding beyond European-28 listed banks.

Notes

1. Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards. Downloaded March 10, 2015: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:243:0001:0004:en:PDF
2. By a higher quality standard we mean a standard that reduces managerial discretion over accounting choices.

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Corresponding author

Ali İhsan Akgün can be contacted at: ihsan.akgun@ybu.edu.tr