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Do firms' earnings reported under IFRS 3R reveal more about future earnings and cash flows? Evidence from the European Union

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DO FIRMS' EARNINGS REPORTED UNDER IFRS 3R REVEAL MORE ABOUT FUTURE EARNINGS AND CASH FLOWS? EVIDENCE FROM THE EUROPEAN UNION

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LINGNAN UNIVERSITY

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DO FIRMS' EARNINGS REPORTED UNDER IFRS 3R REVEAL MORE ABOUT FUTURE EARNINGS AND CASH FLOWS? EVIDENCE FROM THE EUROPEAN UNION

by
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ABSTRACT

Do Firms' Earnings Reported Under IFRS 3R Reveal More About Future Earnings and Cash Flows?
Evidence from The European Union

by

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Master of Philosophy

Motivated by recent studies documenting inconsistent results regarding the benefits of adopting International Financial Reporting Standards (IFRS), the objective of this thesis is to examine the information value of firms' earning reported focusing on IFRS 3 (Business Combination). IFRS 3 aims at providing systematic guidelines for acquirers of a business combination transaction to properly report identifiable assets and liabilities, to fairly measure goodwill and to disclose relevant information for investors' evaluation. IFRS 3 was revised and became effective in July 2009. Opponents of the revised IFRS 3 (IFRS 3R) criticized the guidelines to have broadened the disconnection between current earnings and future cash flows and they argued against the widened implementation of fair value measurement by IFRS 3. This thesis covers European Union's mandatory adoption of IFRS in 2005 along with the revision of IFRS 3 in 2009. The examination period is split into two time periods: Period 1 is from the mandatory adoption of IFRS to the eve of policy change, and Period 2 is from the policy change to the end of 2013. Sample in this study comprises of 374 firms involved in merger and acquisition (M&A) transactions in both time periods which results in 13,464 firm-quarterly observations drawn from 20 out of 28 European Union member countries.

This study finds the association between current earnings and future earnings as well as future cash flows has been weakened since the adoption of IFRS 3R which implies the information value of current earnings has receded. In addition, quarterly earnings reported under IFRS 3 appear to be more volatile after controlling for factors influencing earnings volatility such as size, economic shocks and managers' income smoothing behavior. Moreover, this study suggests that earnings volatility has a negative effect on earnings persistence over the whole testing period. In addition, such effect has amplified since the introduction of IFRS 3R. Following Mishkin's (1983) method of testing market efficiency, this study supports that capital market impounds attenuated degree of earnings volatility effect on earnings

predictability since the application of IFRS 3R. These results should draw the attention of both standard setters and public users as the convergence to IFRS from domestic GAAP has been a globally debating topic. Thus, standard setters should balance the benefits such as improved relevance, reliability and comparability of financial reports and costs such as the information loss of earnings when making IFRS adoption decisions. Meanwhile, public users should use the financial statements with caution, especially when M&A transaction involves.

DECLARATION

I declare that this is an original work based primarily on my own research, and I warrant that all citations of previous research, published or unpublished, have been duly acknowledged.

(WANG LINYUAN)

DATE

CERTIFICATE OF APPROVAL OF THESIS

DO FIRMS' EARNINGS REPORTED UNDER IFRS 3R REVEAL MORE ABOUT FUTURE EARNINGS AND CASH FLOWS?
EVIDENCE FROM THE EUROPEAN UNION

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DO FIRMS' EARNINGS REPORTED UNDER IFRS 3R REVEAL MORE ABOUT FUTURE EARNINGS AND CASH FLOWS

EVIDENCE FROM THE EUROPEAN UNION

Chapter 1 Introduction

International Financial Reporting Standards (IFRS) comprise a series of accounting standards developed by the International Accounting Standard Board (IASB) in order to produce more informative, understandable and comparable financial statements across country boundaries. Previous studies have focused on the determinants or reasons involved in IFRS adoption. They have also shed lights on various effects (including economic and fiscal consequences, accounting quality and capital market reaction) of both voluntary and mandatory adoption of IFRS. Mixed findings are documented about the outcomes of IFRS adoption. From the positive perspective, academics find that the IFRS adoption brings improved comparability, higher accounting quality and more accurate analyst forecast (Pownall and Schipper, 1999; Ashbaugh and Pincus, 2001; Ball, 2006; Barth et al., 2008; Yip and Young, 2012). On the negative side, previous studies also have presented evidence of consistent or even increasing earnings management behavior, degraded accounting quality along with the IFRS adoption (Jeanjean and Stolowy, 2008; Paananen and Lin, 2009). In addition, studies also attribute the positive side of IFRS adoption to firms' reporting incentives and simultaneous enforcement change (Christensen et al., 2008; Christensen et al., 2013). However, the empirical results of several recent studies have thrown challenges to those of previous studies. For example, Pownall and Wieczynska (2012) presents evidence that although IFRS has been mandatorily adopted in the European Unions (EU), many EU firms actually do not use IFRS in practice and instead they take advantage of the definitions, exemptions and deferrals detailed in the regulation to

avoid adoption. H. Daske et al. (2013) also provide evidence that the capital market actually could distinguish between "serious" and "label" adopters[1] by entitling higher market liquidity and lower cost of capital to the former, who have stronger reporting incentives and commit to produce higher quality financial statements. This result is shocking to academics and standard setters as "IFRS adopters" is merely a label and many firms are actually resistant to apply IFRS to their financial reporting. Ahmed et al. (2013) find that mandatory IFRS adoption accompanies with degradation in accounting quality (measured by income smoothing, reporting aggressiveness and earnings management to meet or beat a target metrics). According to one accounting quality review paper by Dechow et al. (2010), who review three categories of earnings quality proxies [2] (properties of earnings, investor responsiveness to earnings and external indicators of earnings misstatements) with conclusion that "there is no measure of earnings quality that is superior for all decision model". And the definition of earnings quality is contingent on the decision context. These studies invite determination of the underlying reasons for firms' reluctance to adopt IFRS. In addition, most investigations of IFRS discuss all the related accounting standards as a group. Although Hamberg el al. (2011) and Bischof (2009) narrow their focus to IFRS 3 (business combination) and IFRS 7 (financial instruments: disclosure) respectively, few studies have ever concentrated on one or a series of related IFRS. Meanwhile, previous studies mostly look at the change of pre- and post- adoption of IFRS and no study has ever noticed the effect of revision made on IFRS.

[1] "Label adopters" refer to firms adopt IFRS without making material changes to their reporting policies while "Serious adopters" are firms adopting IFRS as a broader strategy to increase their commitment to transparency. (H. Daske et al, 2013)

[2] Dechow et al. (2010) reviews three categories of earnings quality proxies including properties of earnings, investor responsiveness to earnings and external indicators of earnings misstatements. They also demonstrate the difficulty to disentangle the fundamental performance on earnings quality from the impact of the measurement system per se.

Motivated by several recent studies that have shown inconsistent empirical results related to the effects of IFRS adoption with those of previous studies, this paper aim to explain the recent findings related to the "label" adopters and the degradation of accounting quality that accompanies with IFRS adoption. Furthermore, we focus on one or a series of related accounting standards to determine the factors that allow standard setters to make specific improvements and avoid the problems associated with previous IFRS pool studies at the same time. In addition, we concentrate on the effect of IFRS revision rather than comparing various domestic accounting systems with IFRS that are commonly documented by previous studies. Last but not least, we narrow down to IFRS 3 which is related to merging and acquisition (M&A) transaction because it is a core growth strategy for companies. Figure 1 shows the number and value of M&A transactions announced around the world and in the Europe zone separately. We can observe an increasing trend in M&A transactions as a whole except for the period of financial tsunami around 2009.

[INSERT FIGURE 1 HERE]

Our study provides more specific empirical results than others by focusing on a single accounting standard: the IFRS 3 (Business Combination) [3], from the mandatory adoption of IFRS in the EU in 2005 through to the IFRS 3 revisions that have been implemented since July 2009. Our analysis of IFRS 3 and its effects consists of two parts. First, we demonstrate the loss of current earnings informativeness related to future earnings and cash flows. In addition, we show empirical evidence for the increase in earnings volatility and demonstrate its aggravated negative effect on seasonal different earnings persistence based on theoretical analysis of IFRS 3 and

[3] Through this study, we use IFRS 3 and IFRS 3R consistently to stand for the original IFRS 3 which took effective since March 31, 2004 and the revised IFRS 3 which has been implemented since July 1, 2009. In this paper, we use IFRS 3R and new IFRS 3 interchangeably.

revised IFRS 3 (IFRS 3R). We find that due to several changes in IFRS 3R, earnings seem to convey less information for future accounting numbers which impedes the power of current earnings to predict future financial performance. In addition, our evidence shows that earnings have fluctuated more violently since the implementation of the new IFRS 3 and that this fluctuation has had an incrementally negative effect on the autocorrelations of seasonal different earnings. Second, we aim to examine the market's reactions to the loss of earnings intelligence and the volatility effect on time-series correlations of earnings in a post-earnings announcement drift (PEAD) context. We find that the capital market is not only underreacting to the loss of current earnings informativeness and the earnings volatility effect, but also recognizing it in an opposite direction actually. Via a before and after comparison, we find that the market fails to absorb the aggregated earnings volatility effect on earnings persistence seriously.

Our study primarily makes three contributions to the literature. First, it sheds lights specifically on IFRS 3 (Business Combination). This single accounting standard occupies an indispensable position among other accounting standards as M&A is a universal expansion strategy involving huge numbers of firms. This study focuses on the relevant changes brought by the revision of IFRS 3. Thus, it actually compares the pre- and post-revision in the circumstance of IFRS adoption while previous studies mostly focus on comparing pre- and post-IFRS adoption. Second, we determine the influence of IFRS 3R on earnings informativeness and volatility, and the effect of earnings volatility on the time-series autocorrelations of seasonal different earnings. This is inspiring for both the standard setters and users of the adopters' financial reports. Our results may explain the behavior of those so-called "label" IFRS adopters who do not actually use IFRS and also inform the public users of financial statements reported under IFRS that they can no longer rely on reported numbers purely for

forecasting purposes. Third, we reveal the capital market's inefficient reaction to the effect of earnings volatility on the time-series process of quarterly earnings in a PEAD context. This is not surprising, as a "strong-form efficient" market is not expected based on previous studies of market efficiency. But our result indicates that the capital market doesn't merely delay its reaction to earnings information. In fact, it ignores it to some extent.

The remainder of this paper is structured as follows: In Section 2, we show regulatory framework of IFRS in global and European contexts, respectively. Section 3 analyzes the changes made in the new version of IFRS 3 and predicts its theoretical effect on financial reporting. In Section 4 and 5, we summarize the literature and develop our hypotheses based on the previous sections. Section 6 includes our research design and the definition of the variables we use to test our hypotheses. Sections 7 and 8 present summary statistics of our sample and the empirical results respectively. Supplemental test are conducted in Section 9 to confirm the robustness of our findings and rule out other possibilities. Finally, in Section 10, we make conclusions about our results and discuss the limitations of our study.

Chapter 2 International Financial Reporting Standards (IFRS)

2.1 IFRS around the World

IFRS is widely adopted by jurisdictions around the world, and several countries such as the United States, Japan, India, Russia, Malaysia and Columbia are considering their adoption in the immediate future. On 14 November 2008, the US Security and Exchange Commission (SEC) published its *Roadmap for the Potential Use of Financial Statement* for comment. It has reiterated the importance of a global convergence of accounting standards and the globalization of capital markets in its draft Strategy Plan for the 2014-2018 periods. The SEC aims to promote high quality accounting standards to meet the needs of investors. Thus, the actual quality of accounting standards is remarkable, and their consistent implementation is equally important. In China, with the new Chinese Accounting Standards for Business Enterprise (CAS) taking effective on January 1, 2007, the Ministry of Finance (MoF) is dedicated to converging PRC generally accepted accounting principles (GAAP) with IFRS. The MoF released its *Roadmap for Continuing Convergence of CAS with IFRSs* in 2011. More than 100 countries currently either permit the use of IFRS or adopt policies that converges domestic GAAP with IFRS. Given the mass adoption of IFRS and the abundance of candidates currently considering adoption, considerable studies have focused on determinants and consequences of IFRS adoption.

Bova and Pereira (2012) explore the reasons for IFRS compliance in a developing country. Their results show that public firms have higher reporting incentives to adopt IFRS than private firms. Higher foreign ownership also seems to motivate IFRS adoption to fulfill distant investors' demand for information and avoid information asymmetry. Gassen and Sellhoen (2006) examine the determinants of voluntary IFRS

adopters in a developed country (Germany) and discover that firm size, international exposure and dispersion of ownership each influence the adoption decision. They also provide evidence that young firms are attracted to adopting IFRS when they initially go public.

Studies have shown mixed and ambiguous consequences of IFRS adoption. On one hands, proponents of IFRS provide evidence that its adoption can enhance accounting quality and comparability of financial reports across countries, make financial reporting more efficient for cross-listed firms and so forth (Covrig et al., 2007; Turley, 2007; Barth et al., 2008; Yip and Young, 2012). For example, Barth et al (2008) developed three widely used measures for accounting quality later including *earnings management*, *timely loss recognition* (conservatism) and *value relevance* and provide evidence that firms voluntarily adopt International Accounting Standards(IAS)[4] appear to involve less earnings management, recognize loss in a more timely manner and convey more information through accounting amounts. Yip and Young (2012) provide evidence of an increase in across-country comparability along with mandatory IFRS adoption in the EU. They find a significant increase in similarity facet without any loss in difference facet during the post-adoption period. However, opponents of IFRS adoption throw doubts on the cost-effectiveness and benefits of converging to IFRS from domestic GAAP. Gordon et al. (2010) suggest that overall accrual quality, earnings predictability and cash predictability between the IFRS and U.S. Generally Accepted Accounting Principles (GAAP) earnings measures do not differ significantly, but do vary in terms of financial reporting incentives. Moreover, the SEC has delayed making a final decision in relation to the proposed "roadmap" towards the mandatory

[4] In 2001, IAS was renamed to IFRS. In this paper, we use IAS and IFRS interchangeably, but primarily refer to IFRS as our sample period starts from the mandatory adoption of IFRS in the EU.

adoption of IFRS, which has also introduced heated debate. In 2009, even SEC Chairman Mary Schapiro expressed reservations about the IASB and about the quality of IFRS (Forgeas, 2008; Cohn, 2009; Leone, 2009). Ahmed et al. (2013) present results that inconsistent with those of Barth et al. (2008), as they find degradation in accounting quality measured by income smoothing, reporting aggressiveness and earnings management to meet or beat a target. As there is no universal definition of accounting quality, the consequences of adopting IFRS have been always controversial.

2.2 IFRS in Europe

Although the EU has adopted virtually all of the IFRS standards, it requires time to comply with the most recently issued standards. The EU Accounting Regime requires that IFRS be adopted on an individual basis in the EU. The adoption process is sometimes called "endorsement". The European Financial Reporting Advisory Group （EFRAG）plays an important role in the "endorsement" process by holding consultation with interest groups and delivering its advices to the Commission about whether the new standard meets the criteria[5] for "endorsement". What's more, the EU has published Commission Regulations in the *Official Journal of the European Union* on December 31, 2004, thereby formally making certain improved International Accounting Standards(IAS) and new IFRS part of European law. According to the official statement announced by the Council of the Minister of the EU in 2002, all of the listed companies in the 28 EU member countries must prepare their consolidated financial statements according to IFRS and IAS as of January 1, 2005. Three other countries in the Europe Economic Area (Iceland, Norway and Liechtenstein) follow the EU's directives, including its accounting directives, despite not being EU member

[5] The criteria include whether it's contrary to the true and fair view and whether it is conducive to the European public good, understandability, relevance, reliability and comparability.

countries. This makes the EU a good setting for testing the effect of mandatory IFRS adoption, as researchers can remove voluntary adopters before IFRS is mandated to avoid self-selection bias.

Many studies have contributed to the costs and benefits of mandatory IFRS adoption in the EU. For example, Amstrong et al. (2010) investigate the market reaction to the EU's mandatory IFRS adoption and find that the market reacts more positively for firms with lower pre-adoption information quality and higher pre-adoption information asymmetry. In addition, they find that code law countries earn a weaker market reaction due to their lesser ability to enforce accounting standards. However, Christensen et al. (2013) argue that researchers wrongly attribute the increase in market liquidity to the mandated IFRS while ignoring the substantive enforcement change simultaneously. Most recently, Dinh and Piot (2014) link IFRS adoption in the EU with auditor industry concentration from a cross-border perspective.

Chapter 3 Regulatory Framework IFRS 3 vs. IFRS 3R

IFRS 3 (business combinations) outlines accounting principles that acquirers should follow once they obtain controls of a business. It requires acquirers to measure the assets and liabilities they acquired on the acquisition date at fair value. This is known as "acquisition method". The IFRS 3 took effect for business combinations agreed to on or after March 31, 2004. However, shortly after the introduction of IFRS 3, the International Accounting Standard Board (IASB) published its Exposure Draft in relation to several proposed amendments to IFRS 3 in June 2005. In January 2008, the IASB issued a revised version of IFRS 3 (IFRS 3R), applying it to business combinations with acquisition dates falling at the beginning of the first annual reporting period commencing on or after 1 July 2009. This new IFRS 3 will have substantial and frequently counter-intuitive consequences on financial statements (Pocket Guide, PwC 2008). This project is designed to unify M&A accounting across the world's major capital markets. It aims to facilitate investors and their advisers focus on assessing the how the activities of the acquirer and its acquired business will combine without concerning on the different ways of consolidation. Even more remarkable is that the new IFRS 3 is a joint project between the IASB and U.S. Financial Reporting Standard Board (FASB), the latter of which later issued a similar Statement of Financial Accounting Standards (SFAS) 141(R). This could be considered a sign of the FASB's willingness to converge U.S. GAAP with IFRS in the future, as the project is designed to unify M&A accounting across the world's capital market. Cadman et al. (2013) explore the economic determinants of earn-out provisions[6] in acquisition agreements and investigate the information content of earn-out fair value adjustments.

[6] Earn-out clause or contingent considerations refer to consideration payable that depend on the post-acquisition performance of target.

There are several amendments in IFRS 3R compared with IFRS 3. According to EFRAG's Effects Study Report related to IFRS 3R and IAS 27A, we discuss the changes in the new version of IFRS 3 separately according to the three ways in which an acquirer may obtain control over a target.

(1) One-step Acquisition

In a one-step acquisition, the acquirer buys all of the assets and liabilities of the acquiree at once, IFRS 3R introduces two changes related to the treatment of contingent considerations and acquisition-related costs. The original IFRS 3 recognizes only contingent considerations on the acquisition date if the payment is probable and can be reliably measured. Furthermore, it includes the acquisition-related costs into investment costs, which influence the goodwill calculation in the later process. However, the new IFRS 3 recognizes all contingent considerations and expenses the acquisition-related cost immediately on the acquisition date.

These two changes also affect the following two kinds of acquisition transactions.

(2) Step Acquisition

Step acquisition refers to obtaining controlling interest over a business through more than one step. One accounting policy change related to step acquisition is that all of the identifiable assets acquired previously should be revalued according to fair value, and the revaluation amount is no longer recognized in equity but immediately in terms of profit and loss.

(3) Partial Acquisition

Partial acquisition means that the acquirer achieves control over the acquiree without holding all of the latter's shares or net assets. Such transactions exhibit non-controlling

interest (NCI). The new IFRS reserves the option for "partial goodwill" method in extant IFRS 3 by recognize NCI at the proportionate rate of all of the identifiable assets while also allowing the new "full goodwill" method by measuring the NCI at fair value. The parallel use of both goodwill measurement methods is caused by respondents' negative comments that the IASB is overemphasizing on the fair value of the business which they think is unreliable. And it's also inconsistent with the view that financial statements should focus on the parent's shareholders rather than the non-controlling portion of business. The full goodwill method will increase the equity at the acquisition date which seems to be suitable for companies with a weak equity base or high leverage but it also requires complicated valuation techniques and raises the likelihood of higher impairment charges in the post-acquisition period.

Meanwhile, the Pocket Guide issued by PricewaterhouseCoopers hints at the effect of IFRS 3R. The guide points out that the new IFRS 3 exaggerates the disconnection between earnings and cash flows and theoretically leads to the reporting of more volatile earnings. This motivates us to empirically test the consequences of IFRS 3R in this study. The word "exaggerate" suggests that such a disconnection already existed in the original IFRS 3. However, IFRS 3R allows for a wider range of intangible assets to be recognized on the acquisition date, which makes acquirers suffer from hefty amortization charges in the post-acquisition period, especially when the merged cash flows of acquirers and acquirees remain unchanged. The revaluation of previously owned assets under the circumstances of step acquisition or partial disposal with a change in controlling status results in gains or losses (usually gains) in earnings. However, cash flows may go in the opposite directions, as only cash outflows occur in this situation. Furthermore, fair value measurement is increasingly and consistently present in the new IFRS 3 inducing more fluctuated earnings. The wider application of

fair value measurement includes the previously-held equity interest in step acquisition, transaction costs, earn-out clauses, goodwill on non-controlling interest and more intangible assets allowed for recognition.

The only previous study related to IFRS 3 is that by Hamberg et al. (2011) who discover an increasing trend in reported earnings and designate it a consequence of the replacement of amortizations by the impairment method to ensure goodwill, more frequent M&A activities, and managers' discretion over earnings. They also discover that the market reacts to the increasing earnings of goodwill-intensive companies with significant upward revaluations during the transition from domestic GAAP to the mandatory IFRS adoption. In other words, their study focuses on the original IFRS introduced almost simultaneously with the mandatory IFRS adoption in the EU.

Chapter 4 Literature Review

4.1 Earnings Informativeness

We focus on the association between current and future earnings and cash flows because the conceptual framework issued by IASB at January 1 2013 emphasizes that "financial reporting should provide information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity". More specifically, in the Project Summary, Feedback and Effect Analysis Report (Business Combinations Phase 2) issued by the IASB in January 2008 discloses its assessment process including the "usefulness" criteria, which indicates whether the information in a financial report is useful to users in assessing the future cash flows.

Earnings are commonly used as company performance measures. They are also widely used in debt covenant contracts, managers' appraisal reports and even initial public offering (IPO) files. Meanwhile, stakeholders may care more about a firm's cash generating ability, as cash flows are probably subject to less distortion. A series of papers by Dechow concentrate on the information content of different earnings components for future cash flows. Dechow et al. (1998) find a clear relation between earnings and cash flows based on the discussion of the two conflicting roles of accruals in Dechow (1994), and determine that the firm-specific operating cycle has an effect on the earnings' predictability of subsequent cash flows. One role of accruals is that they could mitigate the timing and matching problem suffered by cash flows as a performance measure. However, they could also represent a way for managers to exercise discretion in managing earnings. According to Dechow (1994), the first role of an accrual dominates the second, and increases the association between earnings and

future realized cash flows in the future. Furthermore, Dechow and Dichev (2002) find a strong positive relation between accrual quality and earnings persistence. Accrual quality is measured as the standard deviation of residuals from firm-specific regressions of working capital accruals on lag-one, current and lead-one cash flows from operations. Their measure of accrual quality includes not only managers' manipulation, but also the unintentional estimation errors embedded in accruals. Earnings persistence is usually the regression coefficient of current earnings when future earnings are the dependent variables. Thus, earning persistent actually reflects the ability of earnings to forecast future earnings, and Dechow and Dichev find that current earnings could be an outstanding "predictor" of future earnings. This is consistent with Finger's (1994) finding that earnings per se are significant predictors regardless of whether they follow a random walk or time-series model. Taking the accounting system into consideration, Atwood et al. (2011) compare the power of earnings to predict future earnings and cash flows among firms that follow IFRS, U.S. GAAP and Domestic Accounting Standards (DAS). They provide evidence that although earnings exhibit almost equal predictive power for future earnings under IFRS and U.S. GAAP in profit-making situations, earnings reported under IFRS exhibit less predictive power in loss situations.

4.2 Earnings Volatility, Persistence and Predictability

We also look at the change in earnings volatility accompanying the introduction of IFRS 3R and the interaction between earnings volatility and earnings persistence. As mentioned in Section 3, the new IFRS introduces wider applications of fair value measurement and specific rules such as expensing acquisition-related costs immediately, leading to the reporting of more volatile earnings. To test whether earnings volatility actually increases, we must keep the influencing factors of earnings

volatility under control. As proposed by Copeland (1968), corporate managers have incentives to manipulate earnings by lowering the peaks and supporting the troughs to lower the earnings variation. DeFond and Park (1997) documents that managers tend to smooth earnings to improve job security. They borrow from future earnings if current performance is poor, and conversely, delay current earnings if expected future earnings are decreasing. Based on previous researches, Tucker and Zarowin (2006) focus on the relation between earnings informativeness and income smoothing and find that the earnings information higher-smoothing firms is impounded in stock prices to a larger extent than that of lower-smoothing firms. This implies that managers use discretion to communicate their assessment of firms' future performance rather than intentionally distort the numbers. A survey study Graham et al. (2005) echoes and further supplements the previous archival research results. Via interviews with 400 chief financial officers, their study provides evidence that managers believe that outside users actually attach greater importance to reported earnings rather than cash flows. An overwhelming portion (78%) of managers prefer smooth rather than bumpy earnings patterns, as they perceive that volatile earnings impairs the predictability of firms' future prospects and that the market actually values that predictability. Even more noteworthy is that managers use real economic actions rather than accruals to keep up a smoothing accounting appearance.

Motivated by the survey evidence documented by Graham et al (2005), Dichev and Tang (2009) empirically explore the link between earnings volatility and persistence. Their results show that earnings volatility is negatively correlated with earnings persistence, and that the sources of earnings volatility include economic shocks and the accounting determination problems (e.g., mismatching revenue and expense, estimation error in accruals) of income. Furthermore, they also provide evidence that investors do

not understand the earnings volatility implications for future earnings.[7] Frankel and Litov (2009) verify the robustness of the negative effect of earnings volatility on earnings persistence by adding control variables. However, via return tests[8], they find contrasting results related to market intelligence and that investors do not significantly underestimate the earnings volatility effect. These two studies use annual data for the empirical test, in this study we aim to extend this using interim financial data.

4.3 Market Efficiency Studies

There are three kinds of studies that test the market's efficiency under different effects. The first type addresses accrual anomalies. Sloan (1996) demonstrates the lower persistence of accruals compared with cash flows and discovers the market's failure to fully distinguish the persistence difference between cash flows and the accruals component of earnings. By disaggregating the growth in net operating assets into accruals and growth in long-term net operating assets, Fairfield et al. (2003) provide evidence that the market overvalues both components equivalently. Richardson et al. (2005) links the lower accrual reliability with lower earnings persistence which echoes Dechow and Dichev's (2002) finding that accrual quality is positively related to earnings persistence. Furthermore, Richardson et al. (2005) detect a significantly greater market mispricing for accruals (18% abnormal return annually) than Sloan (1996), with a comprehensive definition of accruals[9]. Another series of market efficiency studies test whether the market could impound the information embedded in various earnings components. Burgstahler et al. (2002) focus on special items, which

[7] Dichev and Tang (2009) test whether earnings volatility information allows the identification of predictable forecast errors using two complementary specifications including control for the level of earnings or level of forecast error, respectively. They conclude analysts incorporate partially of the earnings volatility effect in their forecasts.

[8] Frankel and Litov (2009) use return rather than forecast error to remedy the problem of lack of forecast errors and find indifferent stock returns between high volatility versus low volatility earnings.

[9] Richardson et al. (2005) define accruals including not only the operation accruals commonly used (e.g. Hayn, 1985; and Sloan, 1996) but also many accruals and deferrals relating to non-current operating assets, non-current operating liabilities, non-cash financial assets and financial liabilities.

are commonly viewed as more transitory than other earnings components, and discover that although prices reflect relatively more of the special items effect, they fail to fully impound the related implications. Bradshaw and Sloan (2002) explain that the market tends to absorb the information contained in the "street" earnings numbers (numbers announced via corporation press releases) rather than earnings reported under accounting standards. The increasing rift between GAAP earnings and "street" earnings introduces a new viewpoint that managers try to "manipulate" earnings by persuading investors and analysts using newly defined "earnings". This may clarify the reasons for market inefficiency and also provide implications for the declining value relevance of earnings in previous studies. Doyle et al. (2003) further develop the informativeness of exclusion expenses (such as non-recurring, non-cash and miscellaneous expenses) in reported pro forma earnings and find that the market actually values the information contained in these transitory items. Finally, Bernard and Thomas (1990) provide the first PEAD type of study by identifying the market's tendency to delay its reaction to the earnings surprises until the corresponding quarter in the following year. Bartov et al. (2001) explore the relation between PEAD and investor sophistication, which is measured by the percentage of stock held by institutional investors, and provide evidence that investor sophistication is negatively correlated with PEAD. Bartov's results imply that institutional investors assist with market pricing earnings information appropriately and efficiently. Furthermore, Cao and Narayanamoorthy (2011) discover a negative correlation between earnings volatility and PEAD by concluding that earnings surprise and persistence are equally important for investigating market reactions. They also extend the earnings volatility effect on annual earnings persistence documented by Dichev and Tang (2009) to quarterly earnings.

Chapter 5 Hypotheses Development

Our first study stems from the important position of earnings. Earnings are widely used by investors and creditors and also in executive compensation plans, debt covenants contracts and prospectuses of firms seeking to go public (Dechow, 1994). As a superior predictor of future firms' performance to cash flows, earnings informativeness related to future prospects has attracted the attention of both standard setters and outside users of financial statements (Dechow et al., 1998). In Section 3, we theorize that the disconnection between earnings and cash flows becomes exaggerated along with the adoption of IFRS 3R. We expect to see a weaker predictive power of earnings for future cash flows due to M&A activities. For example, in a step-acquisition, the previously acquired assets need to be revalued to fair value on the acquisition date, on this date there is cash outflows for acquiring shares of the target while earnings will include the revaluation gain or loss. In the post-acquisition year, the revaluation gain or loss will not be realized either in the way that acquired assets is resold or is depreciated. Such a rift between the current earnings and future cash flows recognition process impairs the informativeness of the earnings.

Except for a predictor of future cash flows, earnings per se are also significant predictors of future earnings. Investors prefer earnings to convey more information about future earnings. However, as earnings now seem to fluctuate to a greater extent, the reliability of current earnings as reasonable forecasts of future earnings falls under question. Furthermore, few prior studies have shed lights upon the informativeness of interim earnings announcements. Thus, we establish our first pair of hypotheses as follows:

Hypothesis 1.1: *Ceteris paribus*, the association between current earnings from operation and future cash flows from operation weakens with the adoption of IFRS 3R.

Hypothesis 1.2: *Ceteris paribus*, the association between current earnings from operation and future earnings from operation weakens with the adoption of IFRS 3R.

In addition to these hypotheses, we demonstrate two sources of earnings volatility that have led to vigorous swings in earnings since the implementation of the new IFRS 3. One of the sources occurs during the M&A year, when transaction-related costs are expensed immediately or a fair value adjustment gain or loss is recognized in the earnings for those previously owned shares in a step acquisition. Another source of earnings volatility occurs in the post-acquisition period, when the hefty amortization of intangible assets and impairment of goodwill seem to continuously shake earnings numbers. The first source comes entirely from the new provision introduced by IFRS 3R. The second is much more prominent in the new IFRS 3 because it allows for the wider application of fair value measurements on the acquisition date, which triggers a huge amount of amortization after the transaction.

However, the according to paragraph BC 158 of the Basis for Conclusion on IFRS 3, both the IASB and the FASB believe that the decision usefulness of financial statements would be enhanced if intangible assets acquired in a business combination are distinguished from goodwill. While the amortization of intangible assets follows a fixed pattern thus causes little to earnings volatility. Thus the IFRS revision that pushes firm to separate intangible assets from goodwill would in fact reduce earnings volatility.

In the post-acquisition period, though the amortization of intangible assets represents a fixed portion of the fair value of assets, as we mentioned before, one company may initiate more than M&A transaction in the middle of the year and the amortization of

intangible will also contribute to the volatility of quarterly earnings. In addition, subsequent changes in fair value of the earn-out clause will also add fuel to the flame. Meanwhile, the volatility of earnings in subsequent years will be driven by the buyer's ability to assess the probability of the achievement of the pre-determined performance objectives on which conditional payment is based. Finally, the impairment of goodwill will increase if full goodwill method is adopted as the goodwill of non-controlling interest is also included. Therefore, we generate our second hypothesis based on earnings volatility trends:

Hypothesis 2: *Ceteris paribus*, earnings volatility increases with the adoption of IFRS 3R.

A prior survey study conducted by Graham et al. (2005) presents managers' viewpoints of the negative relation between earnings persistence and volatility and their preference for smoother reported earnings. Empirical studies such as that by Dichev and Tang (2009) have documented evidence of the negative correlation between earnings volatility and persistence in terms of annual data. Previous studies have documented that the time-series properties may differ between annual earnings and quarterly earnings. Thus the AR (1) process of annual earnings does not seem to be applicable to quarterly earnings. Through a cross-sectional autocorrelation function, Foster (1977) concludes that there are two components contained in the quarterly earnings process. One is an adjacent quarter-to-quarter component (earnings surprise) and the other is a seasonal component (quarterly earnings momentum). In other words, seasonal different earnings [10] follow an AR (1) process. However, the relation between annual and seasonal difference earnings persistence is unknown, which leads to doubts over the

[10] Seasonal different earnings (SUE) refer to the difference between quarterly earnings and the corresponding quarter in the previous year.

effect of earnings volatility on SUE persistence. Cao and Narayanamoorthy (2011) successfully fill in this gap by confirming a positive relation between annual earnings persistence and SUE persistence, and also extend the ex-ante annual earnings volatility effect to quarterly earnings. Referring to these previous studies, we must first confirm that the effect of earnings volatility on SUE persistence continuously exists in our samples. And combined with our second hypothesis, the increase in earnings volatility is likely to give rise to a stronger earnings volatility effect on SUE persistence after the adoption of IFRS 3R. Thus, we generate our third pair of hypotheses as follows:

Hypothesis 3.1: *Ceteris paribus*, earnings volatility has an adverse effect on the persistence of standardized seasonal different earnings (SUE).

Hypothesis 3.2: *Ceteris paribus*, seasonal different earnings (SUE) persistence is further impaired by the increase of earnings volatility following the adoption of IFRS 3R.

Foster defines "predictive ability" as not only the ability to forecast future values of the same series, but also the capacity to approximate the capital market's expectation model when examining the market's reaction to accounting data (Foster, 1977). As the preceding hypotheses focus on the earnings informativeness, we then move on to test the "security valuation" process. Beginning with Bernard and Thomas (1990), researchers have detected a drift in stock returns related to earlier earnings announcements. This implies that the capital market absorb the information conveyed by earnings gradually rather than immediately. Thus, the so-called PEAD is actually a function of earnings surprise. In addition, Cao and Narayanamoorthy (2011) find evidence that earnings volatility is negatively related to the PEAD returns and this

induces a negative relation between trading frictions and the drift returns.[11] Market efficiency tests have provided mixed results. Dichev and Tang (2009) contend that analysts underestimate the implications of earnings volatility for earnings predictability which results in systematic errors in analyst forecasts. But Frankel and Litov (2009) conclude that the market can fully understand the implications of earnings volatility using a return test. In this study, we analyze the market efficiency under a PEAD context where the market delays its reaction to earnings information till later earnings announcement. First of all, previous study show that the market fail to recognize the earnings volatility implication on earnings persistence in a stock return test. Under a PEAD context, if the market does not only delay its reaction to the earnings information, it means that the market leaves out some information in financial reports and shows no response to it. Secondly, the revision of accounting standard could by totally unfamiliar to market investors and we expect to observe an aggravated earnings volatility effect following the adoption of IFRS 3R since July 1st in 2009. A corollary of the above, we propose that the market cannot wake up from its deep sleep and omits the earnings volatility effect along with the adoption of IFRS 3R to some extent. Therefore, we offer our final pair of hypotheses as follows:

Hypothesis 4.1: *Ceteris paribus*, the capital market cannot impound the earnings volatility effect on earnings persistence.

Hypothesis 4.2: *Ceteris paribus*, the extent to which a capital market recognizes the implications of earnings volatility decreases following the adoption of IFRS 3R.

[11] According to Cao and Narayanamoorthy (2011), trading fictions is usually used in robustness test of mispricing or underreaction in any setting. They find a negative relation between trade fictions and the drift through earnings volatility because it is negatively related with PEAD returns and positively related with trading fictions.

Chapter 6 Empirical Models and Research Design

6.1 The Informativeness of Current Earnings

To test the informativeness of current earnings for future earnings and cash flows across the two sub-periods before and after the adoption of IFRS 3R, we follow the models used by Atwood et al. (2011).

$$CFOS_{i,t+1} = \alpha_0 + \alpha_1\ IBQS_{i,t} + \alpha_2\ POST + \alpha_3\ (IBQS_{i,t} * POST) + \text{Controls} + \theta_{Country} + \theta_{Industry} + \theta_{Fyear} + \varepsilon_{i,t} \quad (1)$$

$$IBQS_{i,t+1} = \beta_0 + \beta_1\ IBQ_{i,t} + \beta_2\ POST + \beta_3\ (IBQS_{i,t} * POST) + \text{Controls} + \Psi_{Country} + \Psi_{Industry} + \Psi_{Fyear} + \lambda_{i,t} \quad (2)$$

where *IBQ* equals the net income before extraordinary items; *CFO* equals the cash flows from operations, measured as *IBQ* minus *Accruals*, where *Accruals* are calculated as the change in noncash current assets less the change in current liabilities plus the change in the current portion of long-term debt plus depreciation, following a study by Pincus et al. (2007). We scale both *IBQ* and *CFO* by average total assets of the most recent eight quarters and get *IBQS* and *CFOS*, respectively. And Post is a time dummy set to one if the calendar quarter follows July 2009 and zero otherwise. $\theta_{Country}$ ($\Psi_{Country}$), $\theta_{Industry}$ ($\Psi_{Industry}$) and θ_{Fyear} (Ψ_{Fyear}) are the country, industry and firm year fixed effects in the future cash flows (earnings) model respectively.

The control variables include economic factors such as GDP growth rate, inflation rate, population growth rate and the ratio of corporate tax revenue over annual GDP for each country. Our cutoff for the time dummy is within the financial tsunami period. As such, we must take economic fluctuation into account. In addition, we control for firm size and income-smoothing behavior. The inclusion of firm size as a control variable is

motivated by political process theory, which implies that managers of large, politically sensitive firms are inclined to use latitude in accounting in order to avoid political costs (Watts and Zimmerman, 1978; Watts and Zimmerman 1983). Controlling for firm size is also supported by Chaney and Jeter (1992), who observe that the market is more likely to impound information from larger firms, as they are exposed to stricter public scrutiny. We measure size as the decile rank of market value at the end of the previous quarter, transformed to a range from -0.5 to +0.5.

Income smoothing is defined as a managers' attempt to use his or her reporting discretion to smooth the firm's earnings realization process. Income-smoothing behavior has two-side effects on earnings informativeness: on one hand, it may improve earnings informativeness if the manager communicates his or her own assessment with the public through his or her discretion over reporting while on the other hand it may deteriorate earnings informativeness if the manager only distorts the earnings numbers out of self-interest. Tucker and Zarowin (2006) verify that the income-smoothing behavior benefits the information contained in the current stock price. According to Collins et al. (1994), income-smoothing behavior is measured by the correlation of a firm's change in discretionary accruals with its change in pre-managed earnings. Collins uses negative correlation, where a more negative measure represents higher-income smoothing behavior. In this study, we use positive correlation with a more positive measure representing higher income-smoothing behavior.

The coefficients of interest are α_1 (β_1) and α_3(β_3) as they imply the association between a firm's current earnings and future cash flows (future earnings) and the increment or decrement in earnings informative value in the post-revision period. We expect to see a positive coefficient for current earnings and a negative coefficient for

the interaction item in both regressions. This would indicate that earnings convey information for future earnings and cash flows, and that the earnings informativeness deteriorates along with adoption of IFRS 3R.

As a supplement to the earnings informativeness test, we run the following regressions for the two sub-periods (Post=0 and Post=1) separately to provide a more intuitional impression of the change in earnings informativeness. We manually compare the informativeness before and after the adoption of IFRS 3R:

$$CFOS_{i,t+1} = \alpha_0 + \alpha_1 IBQS_{i,t} + \text{Controls} + \theta_{Country} + \theta_{Industry} + \theta_{Fyear} + \varepsilon_{i,t} \quad (3)$$

$$IBQS_{i,t+1} = \beta_0 + \beta_1 IBQS_{i,t} + \text{Controls} + \Psi_{Country} + \Psi_{Industry} + \Psi_{Fyear} + \lambda_{i,t} \quad (4)$$

Furthermore, we discuss the earnings informativeness for future earnings and cash flows by partitioning the earnings into positive and negative subsamples. This method is commonly adopted in other studies. The rationale is imbedded in studies by Hayn (1995) and Collins et al. (1999), who provide solid evidence that negative earnings convey less information than positive earnings. More specifically, Hayn (1995) reveals that the lower information content contained in negative can explain the consistently low earnings return coefficient (ERC) documented previously. In addition, Bartov et al. (2005) detect different implications between profit and loss in stock market returns. Thus, we are highly encouraged to divide our sample into profit and loss cases to see the effect of negative earnings on the earnings informativeness.

6.2 Earnings Volatility Trend

To test the effect of IFRS 3 revision on earnings volatility, we use the following simple model:

$$EVOL_{i,t} = \alpha_0 + \alpha_1 \text{ POST} + \alpha_2 SIZE_{i,t} + \alpha_3 Incsmooth_i + \text{Economic Controls} + \theta_{Country} + \theta_{Industry} + \varepsilon_{i,t} \quad (5)$$

The independent variables include the time dummy (POST), size, income-smoothing behavior measure and economic controls. We expect to obtain a positive coefficient for the time dummy, which could prove that earnings volatility increases following the adoption of IFRS 3R. Firm size may have two opposing effects on earnings volatility. First, large firms are well diversified and thus have more stable earnings. Second, our sample comprises firms involved in M&A transactions which have an unclear effect on earnings volatility suggested by Dichev and Tang (2009). Because size and possible diversification effect suggest a negative relation between M&A and earnings volatility while poor targeting skills and weak integration effects may induce a positive relation. In combination, the coefficient of firm size is unclear. Meanwhile, managers usually have incentives to smooth their firms' earnings using their discretions. Thus, we control for income-smoothing behavior and expect a negative relation between income-smoothing and earnings volatility. Finally, the general operating environment also influences earnings volatility, especially for economic shocks. We therefore control for economic factors to see how earnings volatility changes with IFRS 3R adoption.

Our raw measurement of earnings volatility (EVOL) is the variance the earnings from the most recent eight quarters (including quarter t) deflated by the moving average of total assets over the same period. We then sort the firm-quarter earnings volatility and arrange the firms in deciles. The decile rankings of the firms' earnings volatility (DEVOL: transformed by dividing by 9 and subtracting 0.5) is our alternative measure of earnings volatility. Other variables including POST, Size and Incsmooth are defined as in the previous section.

6.3 Earnings Volatility Effect

To test the effect of earnings volatility on earnings persistence, we follow the model used by Cao and Narayanamoorthy (2011), as they successfully extends Dichev and Tang's (2009) earnings volatility effect on annual earnings to standardized quarterly differenced earnings. The regression model is as follows:

$$DSUE_{i,t+1} = a_0 + b_0\ DSUE_{i,t} + c_0\ EVOL_{i,t} + d_0\ (DSUE_{i,t} * EVOL_{i,t}) + \text{Controls} + \theta_{Country} + \theta_{Industry} + \theta_{Fyear} + \varepsilon_{i,t+1} \quad (6)$$

It is necessary to include *EVOL* as a separate independent variable in the regression to eliminate the correlated omitted variable problem. *DSUE* is the *SUE* decile ranking for each quarter ranging from -0.5 to + 0.5, where SUE is the difference between the current quarter's earnings and the earnings from corresponding quarter in the corresponding year. *EVOL* is the earnings volatility measure, defined as in the previous section.

We expect to observe a positive coefficient for current earnings (b_0) and a negative coefficient for the interaction term between current earnings and earnings volatility (d_0). If this is the case, it implies that the seasonal different earnings (SUE) follow Foster's model with a positive autocorrelation, and that the persistence varies between low and high volatility earnings categories.

In addition to the preceding model, we control for firm size, loss and the cross-quarter effect to test the consistency of the effect of earnings volatility on SUE autocorrelation using the following model:

$$DSUE_{i,t+1} = a_0 + b_0\ DSUE_{i,t} + c_0\ EVOL_{i,t} + d_0\ (DSUE_{i,t} * EVOL_{i,t}) +$$

$$g_0 SIZE_{i,t} + h_0(DSUE_{i,t} * SIZE_{i,t}) + \text{Controls} + \theta_{Country} + \theta_{Industry} + \theta_{Fyear} + \varepsilon_{i,t+1} \quad (7)$$

$$DSUE_{t+1} = a_0 + b_0 DSUE_{i,t} + c_0 EVOL_{i,t} + d_0 (DSUE_{i,t} * EVOL_{i,t}) + g_1 LOSS_{i,t} + h_0(DSUE_{i,t} * LOSS_{i,t}) + \text{Controls} + \theta_{Country} + \theta_{Industry} + \theta_{Fyear} + \varepsilon_{i,t+1} \quad (8)$$

$$DSUE_{t+1} = a_0 + b_0 DSUE_{i,t} + c_0 EVOL_{i,t} + d_0 (DSUE_{i,t} * EVOL_{i,t}) + g_0 I_t + h_0(DSUE_{i,t} * I_t) + \text{Controls} + \theta_{Country} + \theta_{Industry} + \theta_{Fyear} + \varepsilon_{i,t+1} \quad (9)$$

SIZE is defined as in the previous section. *LOSS* is an indicator variable set to one if the current earnings are negative and zero otherwise. I_t is an indicator variable set to one if quarters t+1 and t are in the same fiscal year and zero otherwise.

To compare the effect of earnings volatility on earnings persistence before and after the adoption of IFRS 3R, we estimate the regression as Equation (6) for the two sub-periods separately and compare the coefficients of the interaction terms between current earnings and earnings volatility. We expect the coefficient to be consistently negative and become much more negative after the policy change, which would imply that the earning volatility effect is strengthened and that the seasonal different earnings persistence is further impaired by earnings volatility following the adoption of IFRS 3R.

6.4 Market Efficiency Test

We conduct a market efficiency test following the "two-equation method" established by Ball and Bartov (1996). Firstly, the "prediction equation" is identical Equation (6). Secondly, the "pricing equation" represents the capital market's response to the forecast

error (ε_{t+1}) in the prediction equation. Thus, we estimate the following two equations simultaneously:

$$DSUE_{i,t+1} = a_0 + b_0\ DSUE_{i,t} + c_0\ EVOL_{i,t} + d_0\ (DSUE_{i,t} * EVOL_{i,t}) + g_0 SIZE_{i,t} + h_0(DSUE_{i,t} * SIZE_{i,t}) + \varepsilon_{i,t+1} \quad (10)$$

$$Abreturn_{i,t+1} = \alpha_0 + \beta_0\ \varepsilon_{i,t+1} + \mu_{i,t+1} \quad (11)$$

The simultaneous estimation reflects whether the relation between the future and current earnings and the interaction between current earnings and earnings volatility stay the same as those observed when regressing the future earnings on current earnings and the interaction term. ε_{t+1} in Equation 10 represents the earnings surprise or earnings innovation emerged in the earnings process. If the market is efficient at forecasting earnings and the earnings volatility effect, then it should react only to the earnings surprise. In other words, ε_{t+1} in Equation 11 should be identical to ε_{t+1} in Equation 10. Thus, we substitute ε_{t+1} into Equation 10 and obtain the following:

$$Abreturn_{i,t+1} = \alpha_0 - \beta_0 a_0^* + \beta_0 DSUE_{i,t+1} - \beta_0 b_0^*\ DSUE_{i,t} - \beta_0 c_0^*\ EVOL_{i,t} - \beta_0 d_0^* (DSUE_{i,t} * EVOL_{i,t}) - \beta_0 g_0^* SIZE_{i,t} - \beta_0 h_0^* (DSUE_{i,t} * SIZE_{i,t}) + \mu_{i,t+1} \quad (12)$$

Comparing Equations 10 and 12, b_0 and d_0 are the actual coefficients of the current earnings and earnings-volatility interaction term while b_0^* and d_0^* are the inferred coefficients correspondingly. A post-estimation of the actual and inferred coefficients should determine whether the market can fully impound the information contained in the earnings and earnings volatility into a stock price.

$Abreturn$ is the market-adjusted buy-and-hold return, calculated as the raw stock return adjusted for the CRSP value-weighted index including dividends. The other variables are defined as in the previous section.

Several other studies conduct the Mishkin test (Rangan and Sloan, 1998; Cao and Narayanamoorthy, 2011) to measure the extent to which the market recognizes the intertemporal properties of seasonal different earnings and the effect of earnings volatility on such a quarterly earnings process. In this study, we focus more on the change in market intelligence before and after the accounting policy change. Our expectation is that the market is inefficient at including all of the information contained in earnings and is less intelligent following the adoption of IFRS 3R.

Chapter 7 Sample and Descriptive Statistics

7.1 Sample and Data Collection

As a typical feature of capital markets, business combination transactions have increased sharply over the past decades. In 2013, there were over 30,000 M&A transactions made worldwide, with a value exceeding USD 2 billion on average. The large number of M&A transactions provides a good testing platform for our study of IFRS 3/3R.

Our sample consists of 374 listed firms from 20 EU member countries, spanning a period from the EU's mandatory adoption of IFRS in 2005 to the most recent data for 2013. In this study, we split the examination period into two sub-periods using the IFRS 3R effectiveness date (July 1, 2009) as the cutoff. All sample Firms were required to be public and are acquirers involved in M&A transactions both before and after IFRS 3R adoption. These companies are required to prepare consolidated financial statements under the guidance of IFRS 3/ 3R. Listed companies in EU countries have been mandated to adopt IFRS since January 2005 and the change in earnings informativeness along with IFRS 3R can only be tested for firms consistently affected by IFRS. In this study, we do not put any restriction on target companies in terms of incorporation country and listing status. Some may argue that the endogeneity problem can be avoided if the acquisition dates for each firm are used as the cutoff dates. However, in our sample, 345 out of 374(92.24%) firms made more than one M&A transactions before adopting IFRS 3R, and 171 (45.72%) firms made repeat M&A transactions during the short post-revision period. Using the acquisition dates as cutoff dates would not only result in multiple cutoffs for one firm, but also mix up the expected effect due to the overlapping of the pre-acquisition period of one transaction and post-acquisition

period of the previous transaction and produce confusing results. We obtain our M&A transactions data from *Thomson. ONE* for the 2005-2012 period, and firms that made M&A transactions in either of the two sub-periods only were excluded. To be included in the sample, firms were required to have accounting data available in the *COMPUSTAT GLOBAL Fundamental Quarterly Files*. They were also required to have monthly unadjusted price (UP) and market value of equity (MVE) data available from *DataStream*. In addition, the economic factors used as control variables in our study were captured from the *World Bank Database*. Our sample comprises 13,464 firm-quarterly observations.

The reason we use quarterly data is because it could better capture the influence brought by the revision of IFRS 3. The samples included in our study are firms have merging and acquisition transactions both before and after the revision of IFRS 3. And the distribution of M&A transactions in each quarter is as shown in Figure 3.

[INSERT FIGURE 3 HERE]

The vertical axis of the above line chart is the number of M&A transactions in each quarter on the horizontal axis while Quarter 1 starts from first quarter in 2005 and Quarter 32 ends at fourth quarter in 2012. We can observe that the number of M&A transactions is evenly distributed except a sharp downturn around the financial tsunami (year 2008 to 2009, quarter 17 to quarter 24). As mentioned in Chapter 3, quarterly data could better capture the influence brought by the sequential M&A transaction such as the acquisition related cost and the revaluation of previously acquired assets. Because the immediate recognition of acquisition cost, contingent consideration and revaluation could be cancelled out to some uncertain extent if we use annual data. Even though amortization of intangible assets should follow a regular pattern, but one M&A

transaction in the middle of a year would change the amortization pattern of quarterly earnings though such change would be minor in respect of annual earnings.

Another reason we choose to use quarterly data is that in this study we aim at exploring the impact of IFRS 3's revision as well as the capital market reaction to such standard change. And interim financial reporting (quarterly data in this study) is very important for investors to make their investment decision though its reliability has always been under concern. In addition, quarterly data per se provides a good testing platform for market efficiency as forecast errors of quarterly earnings based on seasonal random walk model should not be auto correlated if the market could fully impound all prior earnings information. In addition, Bernard and Thomas (1989) identify the delayed stock market reaction to the seasonal differenced earnings (SUE) which is positively related with adjacent quarters but negatively related with four quarters apart. All above implies that quarterly earnings process is closely tied with the market intelligence.

Other reasons for using quarterly data include: firstly, we want to explore the earnings volatility effect on quarterly earnings as such effect on annual earnings has already be tested in prior studies; secondly, as we only obtain 374 firms in our sample, annual data may make the sample size unpersuasive.

To test the change of earnings informativeness in H1.1 and H1.2, the sample sizes were decreased to 9,719 and 12,214 observations, respectively. Excluded firms might have had missing cash flow from operations values, calculated as income before extraordinary items minus accruals. Many firms did not report their current portion of long-term debt which leads to missing values for accruals and cash flows from operations.

To examine the earnings volatility change proposed in H2, our sample consists of 12,523 firm quarterly observations for both earnings volatility measures (the raw and decile ranking measure).

Our entire sample for the earnings volatility effect test includes 11,580 firm quarter observations, with 5,869 observations in period 1 before IFRS 3R implementation and 5,711 observations in the post-revision period.

The market efficiency test in the final phase contains 11,670 firm quarter observations, and there are 5,918 and 5,752 observations for the pre- and post- revision period, respectively.

In summary, our sample size is sufficient and representative and it facilitates the generalization of our empirical results to a wider scope.

7.2 Descriptive Statistics of the Sample Companies

Quarterly earnings and cash flows data for 2005-2013 were obtained from Compustat. We measure earnings (*IBQ*) using the Compustat data item "income before extraordinary items". The cash flows from operations (*CFO*) are calculated by subtracting accruals from the earnings, with accruals calculated as the change in noncash current assets minus the change in current liabilities plus the change in the current portion of long-term debt plus depreciation, following a study by Pincus et al. (2007). We choose the moving average of the total assets (*ATQ*) from the most recent eight quarters (*AT*) as the scaling factor of the earnings and cash flows data (*IBQS* and *CFOS* correspondingly). SUE refers to the change in current earnings from the earnings of the corresponding quarter in the previous year. We use the previous fiscal quarter's closing market value as the scaling factor for SUE where the market value is obtained

from *DataStream* as the "market value of equity (*MVE*)". We then measure *DSUE* as the transformed decile ranking of scaled SUE with a range from -0.5 to +0.5. Following Dichev and Tang (2009), we measure earnings volatility (*EVOL*) as the variance of the earnings for the most recent eight quarters deflated by the moving average of the total assets. We also used the scaled (from -0.5 to +0.5) decile rank of earnings volatility, as most estimation in the PEAD literature are based on pooled firm-quarter deciled level data. For the company's raw stock return, we adopt a one-quarter-long window beginning on the first day of each calendar quarter and ending one day before the next calendar quarter. We calculate the firm's stock return data using the monthly unadjusted price data from *DataStream*.[12] The market stock return data were obtained from the Centre for Research in Security Prices (CRSP) monthly file using the value-weighted return including dividends. We then calculate abnormal return (*Abreturn*) by subtracting CRSP value-weighted index return from company's raw stock return. *Size* is the decile rank of the market value at the end of the previous quarter, ranging from -0.5 to +0.5 after some transformation. Referring to Cao and Narayanamoorthy (2011), we add two indicator variables: *Loss* which is set to one if the current earnings are negative and zero otherwise, and $I_t$which is set to be one if there is no cross-year effect among the independent and dependent variables. By transforming *SUE*, *EVOL* and *MVE* into decile ranks, the effect of outliers can be undermined. Furthermore, the near-zero mean and range at one entitles implications for the coefficient of DSUE. For example, in a return regression, the coefficient of DSUE may represent the abnormal return obtained from a zero investment strategy. Appendix 1 presents the summary of variable data source and definition in details.

[12] For the firm's stock return, we use the unadjusted price (UP) at the end of each quarter and calculate the return as $(P_{i,t} - P_{i,t-1})/ P_{i,t-1}$.

Table 1 presents the summary statistics used in our analysis. Panel A of Table 1 presents the descriptive statistics of the variables defined previously. There should be 13,464 firm-quarterly observations in total as we obtain 374 firms and 36 quarters from year 2005 to 2013. However, the table indicates that almost every variable suffers from a missing value problem. In the last five columns, we tabulate the descriptive statistics for two sample periods pre- and post- the adoption of IFRS 3R separately. And in the last column, we calculate the mean difference of each variable. Cash flows from operation fall significantly from positive to negative along with the adoption of IFRS 3R. And the univariate analysis also reveals an increasing trend in terms of earnings volatility (*EVOL*) as the difference is significantly different under a t-test.

Panels B and C of Table 1 shed additional lights upon firm-level observation characteristics and the M&A transactions composition in our sample. Panel B shows that the average M&A frequency before IFRS 3R implementation is 10.97, which is much higher than the average during the post-revision period (1.88). This seems contrary to the previous findings, as evidence has shown that IFRS adoption increases foreign direct investment and cross-border investment (Gordon et al., 2012; Louis and Urcan, 2013). The global financial tsunami and the shorter post-revision period may provide alternative explanations. Panel C shows the category compositions of all of the M&A transactions in our sample. It is obvious that one-step acquisition (acquiring 100% of an acquiree's shares or net assets in an one-off transaction) and partial acquisition (obtaining control over an acquiree with less than 100% of the holdings) account for the vast of majority of transactions observed.

[INSERT TABLE 1 HERE]

Table 2 shows the sample distribution by country and industry. Panel A of Table 2 presents the distribution of the 20 countries and indicates that observations from France, Sweden and Germany comprise more than half of the sample observations (52.40% in total). German firms are the most frequently tested firms in IFRS studies. Because German has a strong legal system in terms of its rules of law and the efficiency of its judicial system in ensuring compliance with the chosen accounting standards (Hung and Subramanyam, 2007). In Contrast, Sweden has been criticized for not cooperating actively with other EU members in complying with IFRS. Each EU member state is required to set up an independent institution to oversee the compliance of its financial reports with IFRS. But in Sweden, the responsibility of ensuring IFRS compliance was delegated to a private body from 2003 to 2007. Though this field of work was taken back by the stock exchange later, another private body will probably take over this again in the immediate future. Furthermore, according to Paananen (2008), evidence indicates a significant degradation in accounting quality in Sweden, especially for committed adopters. This composition populates our sample with various compliance levels and we could cancel out the effect of the legal system.

In addition, the sample industry distribution in Panel B indicates that our sample spread over 10 different industries and most of them come from the high-technology and industrial firms (37.96% in total). We remove 144 observations from the finance industry (four firm observations from Austria, Belgium, Cyprus and Sweden, respectively) though the IFRS adoption in these four countries includes the banking and assurance industry. Because these companies may be subject to different regulations, we exclude them from the sample.

[INSERT TABLE 2 HERE]

7.3 SUE Persistence and Abnormal-returns-based Case

Before testing our hypotheses, we must verify whether our sample has the same properties as those of previous studies. Table 3 presents our verification of the SUE autocorrelation pattern and abnormal return regression pattern. We use the following model to test the SUE autocorrelation property:

$$DSUE_{i,t+k}=a_k+b_k DSUE_{i,t}+\varepsilon_{i,t+k} \text{ , } k = 1, 2, 3, 4,$$

Panel A of Table 3 presents the results of this regression for the full sample and extreme quintiles based on earnings volatility. Consistent with the pattern documented by Bernard and Thomas (1990), we observe a positive-positive-positive-negative **(+ + + -)** pattern from lags one to four. The autocorrelation decreases from 0.390 at lag one to -0.216 at lag four, which reveals deteriorated earnings persistence as the predictive horizon increases. For comparison purposes, we also present the result from Rangan and Sloan (1998) in column (2) under the table and find that we obtain similar results across different samples. In addition to the full sample regression results, we report the regression results for the highest and lowest earnings volatility quintiles separately. In line with the full sample regression result, the earnings predictive power deteriorates over a longer predictive horizon for both subsamples. Moreover, we observe a stronger autocorrelation and higher R^2 value for the low-volatility firms than for the high-volatility firms. The overall results imply that earnings volatility has a notable effect on earnings predictive power.

Panel B of Table 3 shows the abnormal return regression results over a quarterly window. The estimation model is as follows:

$$Abreturn_{i,t+k}=a_k+b_k DSUE_{i,t}+\varepsilon_{i,t+k} \text{ , } k = 1, 2, 3, 4,$$

We do not observe a pattern similar (+ + + -) to those of previous studies. Instead, we obtain a straight positive pattern that has an overall decreasing trend except for the returns surrounding the earnings announcement two quarters ahead. And the sharp decrease in the coefficient of $DSUE_{i,t}$ at lag two may be caused by the more space of manager' discretion in interim than year-end financial reports and the market could recognize this by underreacting to the interim earnings announcement. Based on our result, an abnormal return at 0.15% could be earned by adopting a PEAD strategy (by going long and short on the highest and lowest SUE deciles, respectively).

[INSERT TABLE 3 HERE]

7.4 Quarterly Earnings Persistence and Earnings Volatility

Following Dichev and Tang (2009) and Cao and Narayanamoorthy (2011), we test the effect of earnings volatility on earnings persistence using Foster's model. The earnings volatility is measured as mentioned in Section 7.2, and we further assign firms into quintiles based on their earnings volatility rankings. After replacing quarterly earnings with a SUE, we obtain the following model:

$$DSUE_{i,t+1}=\alpha+\beta\ DSUE_{i,t}+\varepsilon_{i,t+1}$$

Panel A of Table 4 presents the earnings persistence (coefficient β) and the R^2 value for the preceding regression along with the earnings volatility quintiles. Q1 is the quintile of firms that exhibit the lowest earnings fluctuation, and correspondingly Q5 is the quintile of firms that exhibit the highest earnings volatility. The results show that the earning persistence coefficient decreases from 0.472 in Q1 to 0.311 in Q5, and that both the R^2 and adjusted R^2 values decrease by half from 20% to 10%.

Aside from Foster's model, Brown and Han (2000) points out that nearly 20% of firms have a quarterly earnings process consistent with the AR (1) model. In cases where Dichev and Tang (2009) testify that earnings volatility has an adverse effect on annual earnings persistence, we aim to extend earnings volatility effect from annual to quarterly earnings. Thus, in the Panel B of Table 4, we report the autocorrelation coefficient of the quarterly earnings according to the earnings volatility quintiles. The model is as follows:

$$Q_{i,t+1}=\alpha + \theta\, Q_{i,t} + \varepsilon_{i,t+1}$$

The autocorrelation of quarterly earnings decreases from 0.762 to 0.514 from the bottom to the earnings volatility quintile to the top quintile. Meanwhile, the R^2 and adjusted R^2values deteriorate from 54% to 28%.

The results in both panels imply that earnings volatility is inversely related to the persistence of both quarterly earnings and seasonal differenced earnings.

[INSERT TABLE 4 HERE]

Chapter 8 Empirical Results

8.1 Earnings Informativeness

This section focuses on the information contained in current earnings that relates to future earnings and cash flows. Previous studies have pointed out that earnings are superior predictor for future accounting numbers because accruals could mitigate the timing and matching problem when cash flow is used as a predictor. However, as documented in previous sections, IFRS 3R adoption leads to a wider gap between earnings and cash flows that may result in a loss of informativeness for earnings. Thus, we test the extent to which public users of financial statements can rely on the earnings numbers to forecast future firm performance.

8.1.1 Current Earnings and Future Cash Flows

Panels A and B of Table 5 shows the regression results with the same variation in the models. Model 1 is similar to Equation 1 but lacks the interaction term between the current earnings and time dummy. Model 2 is identical to Equation 1. And Models 3 and 4show the regressions for profit and loss cases, respectively.

The coefficient of current earnings (*IBQS*) is consistently positive and significant except for the loss situation in the final column. This confirms that current earnings carry information that can be used to forecast for future cash flows. It is also consistent with previous studies that less information is imbedded in negative earnings (Hayn, 1995; Collins et al, 1999;). We also observe a significantly negative coefficient for the earnings-time dummy interaction term (*IBQS*POST*), which supports our hypothesis that earnings informativeness deteriorates following the adoption of IFRS 3R. Comparing Models 3 and 4, we find that the current earnings coefficient deteriorates

from 0.477 to 0.0775, which implies that firms who make profit and adopt IFRS 3R suffer more from the loss of earnings informativeness. In addition, we observe that the control variables have a consistent effect on future cash flows. A positive relation between firm size and future cash flows is reasonable, as large scale firms have a higher cash-generating ability. Furthermore, income-smoothing behavior seems to have an inverse influence on future cash flows, which may be caused by managers recognize future earnings in advance to maintain a stable growth of income.

8.1.2 Current Earnings and Future Earnings

Panel B in Table 5 presents the results of current earnings informativeness related to future earnings. The model setting is similar to that in Panel A. In Model 2, current earnings have a significantly positive coefficient, and the interaction term has a significantly negative coefficient. Although this reveals that current earnings are good predictor for future earnings, their predictive power weakens following IFRS 3R adoption. A comparison between columns 3 and 4 in Panel B exhibits the similar extent in terms of deterioration on information value for future earnings.

8.1.3 Longer Forecast Horizon

Following Atwood el al. (2011), we extend our forecast horizon from one to two quarters ahead to determine whether the informativeness of earnings and earnings volatility effect reverse within a longer predict slot. Thus, we replace the dependent variable with the average of future earnings and cash flows using data based on one and two quarters ahead. This test is triggered by previous studies such as that by Bandyopadhyay et al. (1995), who states that the importance of forecasted earnings for forecasting stock prices increases along with the forecast horizon. Thus, extending the

prediction period may ensure that a lower amount of information contained in earnings is indeed caused by policy changes rather than transitory items over a short horizon.

The last column in Panel A and B of Table 5 shows the regression results for the longer forecast horizon. We obtain similar results, implying that the earnings reported under the new IFRS 3 bear less information related to future firm performance. By using the average of future cash flows 1 and 2 quarters ahead, current earnings seem to suffer less information loss than 1 quarter ahead situation. But for future earnings, current earnings still suffer largely from the deterioration on their informativeness.

[INSERT TABLE 5 HERE]

8.2 Earnings Volatility Change

In this section, we aim to uncover the change in earnings volatility along with IFRS 3R adoption. We use the model previously presented as Equation 5 to conduct the test. We use two measures of earnings volatility. The first is the raw earnings variance of a firm scaled by its average total assets (*EVOL*). The second is the decile ranking of the earnings variance (*DEVOL*), transformed by dividing by 9 and subtracting 0.5, with the result ranging from -0.5 to +0.5.

Table 6 shows earnings volatility tendency along with the introduction of the revised IFRS 3. We observe a constantly positive coefficient for the time dummy *POST*, which is set at one following the implementation of IFRS 3R in July 2009 and zero otherwise. The decile ranking measurement of earnings variance has a more significant increasing trend than the raw earnings volatility measurement. This is reasonable because two important control variables Size and Incsmooth have similar range. This result supports

our second hypothesis that IFRS 3R adoption leads to greater fluctuation in reported earnings.

For the control variables included in the estimation model, income-smoothing behavior seems to be inversely related to earnings volatility except in column 2. This indicates that managers use their discretions to create earnings with stable growth. The consistently positive coefficients of size imply that although large firms are well diversified, the weak integration and the poor targeting problem embedded in M&A transactions dominates the diversification effect. The underlying rationale could be that large firms have more merging and acquiring capacity and would like to take every chance, as long as the transactions have favorable prospects. In this way, earnings volatility is positively related with firm size. In addition, economic controls have an effect upon earnings volatility. Our finding of the increase in earnings volatility is robust to controls for country and industry fixed effects.

[INSERT TABLE 6 HERE]

8.3 Earnings Volatility Effect

In this section, we test the influence of earnings volatility on the autocorrelation of standardized seasonal different earnings. We then focus on whether the increased earnings volatility further impairs the earnings persistence of seasonal different earnings.

Panel A of Table 7 presents the regression results for six models. Model 1 is the same as Equation 6 presented in Section 6. Model 2 is an independent test of the effect of firm size on the autocorrelations of seasonal different earnings. Models 3-5 correspond with Equations 7-9 testing the robustness of the earnings volatility effect to size, loss

and the cross-quarter effect, respectively. Model 6 test size and cross-quarter effect simultaneously. First, we observe consistently positive coefficients for the current earnings and negative coefficients for the earnings-volatility interaction term consistently in all of the models. This reaffirms that current earnings convey information related to future earnings to some extent. Second, the autocorrelations of seasonal different earnings deteriorate sharply under the effect of earnings volatility. And this effect is immune to size, negative earnings and the cross-quarter effect. The result of Model 2 shows that size is negatively related to earnings persistence. This result contradicts Cao and Narayanamoorthy's (2011) result, as they detect a positive correlation between size and earnings persistence. As explained in Section 6.2, size is expected to have two-sided effects on earnings persistence. For our sample comprising firms that made at least two M&A transactions during the study period, firm size is positively correlated with M&A transaction frequency [13]. Meanwhile, the weak targeting and integration problem linked with M&A may result in a negative correlation between M&A activities and earnings persistence. Thus, through M&A activities, size is negatively related to earnings persistence due to the particularity of our sample firms. We find no negative effect of loss on earnings persistence, and we attribute this result to the small proportion of negative earnings in our entire sample (only 2,225observations with negative earnings out of 13,464 observations).

Furthermore, our regression results in the final two columns show a negative cross-quarter effect on earnings persistence. Several studies have provided possible explanations for this effect. Kross and Schroeder (1990) detects that the interim and fourth-quarter earnings announcements of small firms exhibit a significant informativeness difference, and argue that large firms are under the close watch of

[13] The correlations between firm size and M&A transaction frequency (P1_no and P2_no) are 0.501*** and 0.237***, respectively.

regulatory parties and the public. Mendenhall and Nichols (1988) also provide evidence that year-end earnings surprises, especially bad news, experience a lower market response than earnings surprises announced during the interim period. Because it is more convenient for managers to use discretion over interim reporting than annual reporting, they tend to delay bad news until year end. In addition, Salamon and Stober (1994) take sales seasonality into account when they explore the cause of the low ERCs found in previous studies. Their results show that fourth-quarter earnings announcements face a floundering response from the capital market after controlling for the peak-quarter effect. All of these studies demonstrate that fourth-quarter earnings contain noises, which the market settles by underreacting to them. Our result is consistent with the explanation that fourth-quarter earnings have a lower predictive power than the first-quarter earnings in the following year.

Panel B of Table 7 reports the same six regression models as Table 7, only over a longer prediction span. The results imply a consistent negative effect of earnings volatility on earnings persistence that is robust to firm size, loss and the cross-quarter effect.

[INSERT TABLE 7 HERE]

We further test and compare the earnings volatility effect before and after the implementation of IFRS 3R. The model is identical to Equation 6 and we make separate estimations for the pre-and post-revision periods. We use two sets of earnings volatility measurements to confirm the consistency of our results. In the raw scaled earnings volatility settings, we observe an increase in the earnings volatility effect from -0.0002 to -0.00052 and the difference is significant with a chi-square value of 18.85. We find similar results for the decile ranking of the scaled earnings volatility setting, as

the earnings-volatility interaction coefficient increases from -0.178 (with z-statistics of -3.82) to -0.248 (with z-statistics of -5.57), and the difference between these two coefficients is significant with a chi-square value of 45.95. According to these results, earnings persistence is further impaired by an increase in earnings volatility. This result also shows that size has a continuously negative effect on future earnings. Furthermore, the decrease in terms of adjusteed R^2 value from 17.1% (17.4%) to 14.1% (14.8%) reminds us that IFRS 3R adoption may lead to a loss of earnings informativenss.

[INSERT TABLE 8 HERE]

8.4 Market Efficiency Test

In this section, we test whether the capital market can fully absorb the relation between current and future earnings and the effect of earnings volatility on earnings persistence. Following the "two-equation method" developed by Ball and Bartov (1996), we analyze how the market understands the earnings process and the role of earnings volatility in such a process. Furthermore, we compare the market intelligence related to earnings autocorrelation and the effect of earnings volatility to determine whether the increase in earnings volatility further confuses the stock market.

Table 9 shows that our market efficiency test takes the form of the Mishkin test (1983). The first column is the test for the full sample, and the second and third columns are separate tests for the pre- and post-revision periods. Parameters b_0 and d_0 are the actual coefficients for the earnings forecast equation (Equation 10) and b_0^* and d_0^* are the inferred coefficients from the pricing equation (Equation 12).

with previous results. However, in terms of the inferred coefficients, the coefficient of current earnings (b_0^*) is negative. This implies that the stock market not only fails to

fully impound quarterly earnings persistence into stock prices, but also recognizes it in an opposite directions. A post-estimation test shows that coefficients b_0 and b_0^* are significantly different with a chi-square of 4.33. In terms of the coefficient of the earnings-volatility interaction term, although we obtain two significantly negative coefficients, the post-estimation test reveals that the market underestimates the effect of earnings volatility on earnings persistence with a chi-square of 3.91.

When comparing market efficiency before and after the implementation of IFRS 3R, we observe that the market has continuously misunderstood the autocorrelation of quarterly difference earnings (SUE). However, the market has gradually eliminated this misunderstanding, as the results show a difference in coefficients of current earnings (b_0-b_0^*) at 1.371 (with a chi-square value of 6.60) for the pre-revision period and 0.507 (with chi-square value of 3.15) for the post-revision period. Our results show that the market recognized the effect of earning volatility on earnings persistence to some extent during the pre-revision period, as the actual and inferred coefficients for the earnings-volatility interaction term are not significantly different. However, the market has failed to impound the increase in earnings volatility and its aggregated effect following the implementation of IFRS 3R, as the coefficient of earning-volatility interaction term is less negative in the pricing equation than that in forecasting equation. In addition, it is worth mentioning that a horizontal comparison of d_0 in the final two columns of Table 9 could reconfirm an increase in the earnings volatility effect.

[INSERT TABLE 9 HERE]

Chapter 9 Robustness Checks

9.1 Other EU Listed Firms under IFRS

An important issue for this study analyzing consequences around IFRS 3R adoption is whether the observed outcomes could be attributed to the revision of IFRS 3 in 2009. Therefore, we must rule out the effect of other IFRS standards, especially those that experienced changes in the same year. According to the official IASB website, most of the accounting standards amended in 2009 were related to financial instruments, including IAS 32 (Financial Instruments: Presentation and Classification of Rights Issues), IFRS 9 (Financial Instruments: Replacement of IAS 39) and IFRS 7 (Financial Instruments: Disclosure). Other revised standards include general guidelines such as IFRS 1 and IAS 1, related to the first-time adoption of IFRS and the presentation format of financial statements, respectively. To address the concern that we may include the influence of the entire IFRS accounting system rather than only that of IFRS 3 in our tests, we conduct the tests again using a sample of EU listed firms but without any M&A transactions made during the study period. Thus, this sample consists of firms that adopted IFRS without applying IFRS 3 or IFRS 3R in practice. If this sample does not lead to the same result documented earlier, we can safely infer that the informativeness loss, increased earnings volatility and more profound earnings volatility effect and the market inefficiency are induced by the adoption of IFRS 3R. However, if we find similar results in this sample, we must be careful in accounting for our results.

Table 10 shows the results related to the earnings predictive power for future cash flows and earnings for firms that adopted IFRS but did not use IFRS 3 in practice. The four models in this table provide a setting identical to that in Table 5. In Panel A of

Table 5, we observe that the information conveyed by current earnings increase rather than decrease from the Model 2, as there is a significantly positive coefficient (0.257) for the earnings-time dummy interaction term. In addition, a simple comparison of Models 3 and 4 indicates that earnings carry more information after the cutoff with an increasing adjusted R^2 value that contracts with the result of the firms that actually adopted IFRS 3 in their financial reports. In Panel B, we find similar results, demonstrating that the firms that complied with IFRS but did not practice IFRS 3/3R experienced no informativeness loss in their reported earnings.

[INSERT TABLE 10 HERE]

Table 11 shows the test results for the change in earnings volatility. We mostly obtain positive but insignificant coefficients for the time dummy. However, we observe a significantly positive coefficient in the third column, implying a sharp increase in earnings volatility. This observation does abate once we control for the fixed effect. The weak growth in earnings volatility can be explained by the widespread application of fair value accounting in the IFRS accounting regime.

[INSERT TABLE 11 HERE]

This result strengthens our confidence that IFRS 3R adoption causes a loss of earnings informativeness. We ring the bells for public users who rely on financial statements of corporations, and call for their carefulness in forecasting the future performance of firms when M&A transactions come into play.

9.2 Financial Tsunami Sensitivity Test

The time dummy we use in this study overlaps with the period of financial tsunami to some extent. According to Mala & Chand (2012), though the adoption of Fair Value

Accounting (FVA) is blamed to be the contributing factor of the financial crisis, the majorities of countries intending to adopt IFRS in the near future are not affected by the global financial crisis and are still committed to adopt IFRS as planned. Therefore, we exclude the year 2008 and 2009 observations to test the sensitivity of our results subject to financial crisis. Table 12 presents all the main results of this study when observations from first quarter in year 2008 to fourth quarter in 2009 are excluded. Panel A, B and C could be compared to Table 5, 6 and 7 correspondingly. The results are consistent with previous ones which indicates that our result is insensitive to financial tsunami.

[INSERT TABLE 12 HERE]

9.3 Enforcement Environment

First of all, H. Daske et al. (2013) point out that the existence of "label adopters" of IFRS and the market is sufficiently intelligent to distinguish the serious adopters from those labelled ones. It makes us wonder that if the adoption of IFRS 3/3R leads to the loss of information value for current earnings, whether those "label adopters" who make insignificant change in reporting policy will suffer less for such negative side of IFRS. But we could not partition out sample into two groups at this stage. Daske et al. (2013) concentrate on voluntary IFRS adopters. Thus, it's applicable for them to divide all voluntary IFRS adopters to two groups based on the underlying reporting incentive. However, in this study we focus on the mandatory IFRS adoption of IFRS 3 and use the uniform cutoff from 2005. This makes insufficient variation in terms of reporting incentives across different firms.

According to La Porta et al. (1998), differences in the nature and effectiveness of financial reporting system can be traced in part to the variations in terms of investor protections. And protecting investors from expropriation of insider information relies

on the legal rules and its enforcement power. They find that common (civil) law system has the strongest (weakest) power of investor protection and such difference in respect of investor protection will lead variations of investors' demand of external financial reporting. Therefore, we partition our sample into two groups based on law system. The first group is countries with civil law (or code law) system and the second group is under common law system. The legal system of each EU member country is described in Appendix 2. Civil law is codified and countries with civil law system have comprehensive, continuously updated legal codes. Common law is uncodified and it is largely based on precedent, meaning the judicial decisions that have already been made in similar cases. Therefore, civil law system is usually regarded as with stronger implementation power than common law system. For the 20 countries observations included in our study, only Ireland and the UK are under common law system, all the other countries have civil law system. Thus, we conduct subsample test as in Panel A of Table 13. The result shows that countries under civil law system suffer more informativeness loss than those under common law system.

Our explanation for this result could be split into two parts: First of all, the strict implementation of IFRS under civil law makes adopters suffer more loss in earnings information for future performance. This implies that there is some inherent problem associated with IFRS which cost strict adopters the information value of its financial reporting. Secondly, the more comprehensive investor protection environment with a common law system requires companies disclose as much as information eliminate information asymmetry. Such transparent makes investors suffer less of earnings information.

Secondly, Christensen et al. (2013) also attributes the increase in market liquidity to the substantive reporting enforcement change in five member countries in EU including

Finland, Germany, the Netherland, Norway and the U.K. In this study, we do not include companies from Norway though they also adopt IFRS as it's in the Europe Economic Area. Therefore, we exclude observations from Finland, Germany, the Netherland and the U.K to see whether our main result is tied with the institutional change or purely by the revision of IFRS 3 per se.

The result in Panel B of Table 13 shows that for those firms adopt IFRS but without corresponding change in terms of implementation power, the loss of information value for future earnings is consistent with previous result, but such loss turns to be insignificant for future cash flows. This means the revision of IFRS 3 per se will leads to deterioration of earnings information value while simultaneous enforcement reform reinforce such effect with supervision on implementation status. This result also echoes with previous subsample test on civil law versus common law system that stronger enforcement environment make IFRS adopters suffer more from the revision of IFRS 3 in respect of earnings' information content.

Thirdly, as mentioned in Chapter 7.2 that Germany and Sweden are two representative IFRS adopters both under civil law system. Therefore, we perform a subsample test on these two countries separately to see the influence of enforcement power. Panel C of Table 13 shows the result of subsample test. We could observe that Germany suffers larger loss in respect of earnings informative value. At this stage, we could infer that enforcement power has impact on the extent of informativeness loss.

[INSERT TABLE 13 HERE]

9.4 Earnings Components Decomposition

Following Dechow (1994) and Dechow et al. (1998), we acknowledge that earnings are a superior current performance measure and a predictor of future performance. Their superiority comes from accruals, which mitigate the timing and matching problems embedded in cash flows. As we have evidence demonstrating that earnings reported under IFRS 3R cease to contain as much information, we aim to discover the underlying causes of this informativeness loss. The role of accruals following the IFRS 3R adoption is significant. Sloan (1996) documents the lower persistence of accrual components in earnings and the market's inability to impound the difference in persistence between cash flows and accruals. Thus, we decompose earnings into cash flows and accruals to determine their separate contributions to earnings' predictive power.

The modelling process is as followed:

$$CFOS_{i,t+1} = \alpha_0 + \alpha_1 \ CFOS_{i,t} + \alpha_2 \ AccrualS_{i,t} + \text{Controls} + \theta_{Country} + \theta_{Industry} + \theta_{Fyear} + \varepsilon_{i,t} \quad (13)$$

If we substitute $CFO_{i,t}$ using ($IBQ_{i,t}$ -$Accrual_{i,t}$), then we could get the following equation:

$$CFOS_{i,t+1} = \alpha_0 + \alpha_1 \ IBQS_{i,t} + (\alpha_2\text{-}\alpha_1) \ AccrualS_{i,t} + \text{Controls} + \theta_{Country} + \theta_{Industry} + \theta_{Fyear} + \varepsilon_{i,t} \quad (14)$$

Thus, the coefficient of Accrual represents the incremental contributions of accruals to earnings informativeness. We therefore choose scaled quarterly earnings (*IBQS*) and accruals (*AccrualS*) as independent variables where scaled cash flows from operations

($CFOS_{t+1}$) and quarterly earnings ($IBQS_{t+1}$) from one quarter ahead are the dependent variables, respectively.

Table 14 shows the regression results for the proposed model. We add a time dummy and interaction terms between the time dummy and earnings as well as accruals respectively to facilitate a comparison between the pre- and post-revision periods. Panel A exhibits the forecasting ability of earnings and accruals for future cash flows. We find a positive incremental effect in both the pre- and post-revision periods for accruals, which is consistent with previous findings that accruals indeed assist earnings in better predicting future cash flows. However, in terms of the forecasting power for future earnings, Panel B of Table 14 shows that accruals played an ambiguous role by improving earnings forecast ability in the pre-revision period but degrading this in the post-revision period. This invites for further studies of how accruals change the role of current earnings in predicting future earnings.

[INSERT TABLE 14 HERE]

9.5 Annual Test

Because the capital market effects documented in this study partially stem from the changes affecting goodwill recognition and impairment test of goodwill is required to be conducted annually. Thus, we add annual test to see whether the phenomenon of earnings informativeness loss exist for annual earnings. Table 15 presents the empirical result where the regression variables are defined similarly with quarterly data. The result represents that annual earnings suffer from the same flaw for losing informativeness for both future earnings and future cash flows. Though the phenomenon is not as significant as quarterly data, as we mentioned before, this may be caused by cancelling out effect when a firm repeat M&A transactions within one year.

[INSERT TABLE 15 HERE]

In addition to the preceding robustness test, we perform additional tests by excluding voluntary adopters from our sample (removing 83 voluntary adopters and leaving 291 firm observations), replacing value-weighted market returns with equal weighted market returns, using a three-interaction term (e.g., earnings multiply by time dummy and loss dummy simultaneously) in the regression and extending the forecast horizon to one year ahead. We obtain consistent results, which are untabulated in this paper.

Chapter 10 Conclusions and Discussions

A growing number of studies are focusing on the determinants and consequences of mandatory or voluntary IFRS adoption. These studies offer a "benchmark" of the costs and benefits of IFRS adoption to both standard setters and public users of financial statements. They also have implications for the global financial reporting convergence process. However, several recent studies have challenged the findings of previous research by documenting contrary results, including the downward trend of accounting quality and the existence of "label" adopters and heterogeneity involved in IFRS adoption (Pownall and Wieczyska,2012; H. Daske et al., 2013; Ahmed et al.,2013). The recent IFRS findings give rise to a new round of debate, as IFRS has gained considerable momentum around the world and is currently widely adopted or permitted by jurisdictions and several states (United States, Japan, India, Russia, etc.) are considering shifting their domestic accounting standards to IFRS.

Our study investigates two out of the three general categories of accounting quality defined by Dechow et al. (2010), including earnings informativeness as well as earnings persistence (properties of earnings) and market efficiency in terms of the quarterly earnings surprise process and earnings volatility effect (investor responsiveness to earnings).

In the first phase of this study, we test the deterioration in earnings information content related to future firm performance (earnings and cash flows) based on the findings of previous studies stating that earnings are a superior predictor per se due to the role of accruals (Dechow, 1994; Dechow et al., 1998; Finger, 1994) and their importance in the equity valuation process. Our results demonstrate degradation in the predictive power of earnings following IFRS 3R adoption. Such a loss of informativeness should

attract attention from standard setters to remediate the disconnection between earnings and future firm performance. Investors should also consult financial statements with caution, as earnings are not as reliable as they once were.

In addition to this test, we detect an increasing trend in earnings volatility brought on by IFRS 3R. Both empirical and survey studies have presented an inverse relation between earnings volatility and persistence in terms of annual data (Dichev and Tang, 2009; Frankel and Litov, 2009; Graham et al., 2005). We successfully extend the earnings volatility effect to quarterly earnings following Foster's model by constructing seasonal and momentum components in quarterly earnings. Our results show that earnings volatility impairs the autocorrelation of the quarterly earnings surprise. In addition, we discover an aggravated earnings volatility effect along with greater fluctuating earnings in the period following IFRS 3 revision.

Finally, in terms of investors' responsiveness to earnings properties, three types of studies have proved the imperfection of the capital market to recognize the lesser persistence of accruals, specific properties of earnings components and to timely response to the information conveyed by earnings (Sloan, 1996; Burgstahler et al., 2002; Bradshaw and Sloan, 2002; Bernard and Thomas, 1990; Bartov et al., 2002; Cao and Narayanamoorthy, 2011). Although we do not expect a "strong- form efficient" market, our findings imply that the capital market cannot fully impound the quarterly earnings process and the earnings volatility effect by reacting in an opposite direction or underreact. Under the PEAD context, we find solid evidence that market omits quarterly earnings process and the increased earnings volatility effect on this process. And a comparison of the pre- and post-revision periods reveals that capital market could gradually realize the quarterly earnings process to some extent but it still

underestimates the aggregated negative effect of earnings volatility on such process along with the adoption of IFRS 3R.

This study may explain the reluctance of firms to “seriously” adopt IFRS by shedding light on a single IFRS standard. Our evidence shows that stronger enforcement power or stricter legal system may lead to more serious informativenss loss. And this loss could be attributed to IFRS 3 with confidence as we rule out other IFRS standards by testing other EU listed firms with no M&A transaction ever. We also provide some caveats for those dependent on financial statements. They should no longer solely rely on earnings as a source of information when a firm is involved in M&A transactions and adopting IFRS in its financial reports.

However, our research subjects to several limitations: First of all, several changes brought by the new IFRS 3 come from wider use of fair value measurement. The reliability of fair value measurement including intangible assets, contingent considerations and the previously acquired assets depends on the existence of active market in the target company country. However, in this study our sample include firm-level observations only therefore we could not partition the sample based on the country of the target company because one acquirer usually involve in sequential M&A transactions and the target companies may include both developed and developing country. The same problem occurs when we consider to conducting subsample test based types of M&A transaction (one-step acquisition, step or partial acquisition).

Secondly, as documented by Dechow et al. (2010), earnings persistence depends on a firm’s fundamental performance and accounting measurement systems. Because it is difficult to disentangle the roles of each, we cannot conclude that the less persistent earnings stem solely from a firm’s fundamental performance. Similar to the investors’

responsiveness criteria used in our study, although we link earnings to the usefulness of decisions, our inferences may be biased by omitted correlated variables that affect investor reactions. In addition, using a uniform cutoff (before and after July 2009) prevents us from exclusively ruling out the effect of economic shocks, regulatory change and enforcement reform that occurred simultaneously. It is also important to note that the Mishkin test is also controversial, as Kothari, Sabino and Zach (2005) argue that its results are sensitive to survivorship biases and truncation errors and Kraft, Leone and Wasley (2007) deny its superiority to the OLS method.

Further research could elaborate more on the loss of earnings informativeness and its consequences within a bigger picture. For example, auditors' response and analysts forecast accuracy should be considered as earnings are no longer as informative as they were. In addition, there is possibility to dig deeper for the reasons for earnings informativeness loss by testing firms' characteristics and determine which factor makes earnings suffer more from informativeness loss.

TABLE 1

Summary Statistics

Panel A: Firm-quarter Observations						
		Full Sample		***Pre***	***Post***	***Difference***
Variable	N	Mean	Std. Dev.	Mean	Mean	
IBQ[14]	12,721	257.729	3731.687	295.713	217.171	-78.54
IBQS	12,721	0.0106	0.0643	0.0120	0.0091	-0.0029 ***
Accrual	10,025	359.505	8663.596	250.888	462.075	211.187
CFO	10,025	-49.736	8459.677	128.50	-218.05	***-346.56*** **
CFOS	10,025	-0.0012	0. 0651	0.00029	-0.0026	-0.0029**
SUE	12,100	-14.164	4123.239	-36.530	7.533	44.063
DSUE	12,100	0.0002	0.3179	-0.0282	0.01246	0.0249 ***
EVOL	12,843	3.7884	61.7257	2.8356	4.7576	***1.9221*** **
DEVOL	12,843	-0.00054	0.31969	-0.02804	0.02760	0.05581***
Return	12,705	0.0552	2.0413	0.01523	0.09772	0.08248**
Mktreturn	12,705	0.0196	0.0892	-0.00350	0.04427	0.04776***
Abreturn	12,705	0.0355	2.0425	0.01873	0.05345	0.03554
ATQ	12,465	22896.24	201237.40	18537.10	27500.60	8963.50***
AT	12,465	21428.63	184272.20	16941.07	26168.62	9227.55***
MVE	12.705	14025.26	113947.80	14543.54	13473.20	-1070.34
Size	12,705	0.0052	0.3185	0.01005	0.00011	-0.00994**
Loss	12.705	0.1751	0.3801	0.16237	0.18872	0.02635***
It	12,705	0.2313	0.4217	0.22188	0.24138	0.01950***

Panel B: Firm Observations						
Variable	N	Mean	Std. Dev.	10^{th} Pctl.	50^{th} Pctl.	90^{th}Pctl.
P1_no	374	10.97	11.39	2	7	23
P2_no[15]	374	1.88	1.72	1	1	4
Incsmooth	371	0.068	0.441	-0.555	0.118	0.651

Panel C: M&A Transaction Details[16]				
	One-step Acquisition	Step Acquisition	Partial Acquisition	Total
Period 1	1,315(*66.35%)*	82(*4.14%)*	324(*16.35%)*	1,982
Period 2	815(*65.04%)*	32(*2.55%)*	196(*15.64%)*	1,253
Total	2,130(*65.84%)*	114(*3.52%)*	520(*16.07%)*	3,235

[14] *IBQ*, *CFO* and *ACCRUAL* are all in the unit of million dollars. And *IBQS* and *CFOS* are scaled *IBQ* and *CFO* respectively by the moving average of total assets following Atwood et al. (2011).
[15] We present the frequencies of M&A transactions for the pre- and post-revision period separately in Figure 2.
[16] There are 4,826 M&A transactions from 2005 to 2012 in total, but only 3,235 out of them have transactions details available.

TABLE 2

Sample Distribution by Country and Industry

Panel A: Sample Country Distribution				
Country		Frequency	Percentage	Accu.Percent
AS	(Austria)	396	2.94	2.94
BL	(Belgium)	144	1.07	4.01
CC	(Czech Republic)	36	0.27	4.28
DN	(Denmark)	648	4.81	9.09
EA	(Estonia)	72	0.53	9.63
FN	(Finland)	972	7.22	16.84
FR	(France)	***2,988***	22.19	39.04
GR	(Greece)	216	1.60	40.64
HU	(Hungary)	36	0.27	40.91
IR	(Ireland)	252	1.87	42.78
IT	(Italy)	792	5.88	48.66
LV	(Slovenia)	36	0.27	48.93
LX	(Luxembourg)	36	0.27	49.20
NT	(Netherlands)	576	4.28	53.48
PL	(Poland)	504	3.74	57.22
PO	(Portugal)	72	0.53	57.75
SP	(Spain)	648	4.81	62.57
SW	(Sweden)	***1,476***	10.96	73.53
UK	(United Kingdom)	972	7.22	80.75
WG	(Germany)	***2,592***	19.25	100.00
Total		13,464	100.00	100.00
Panel B: Sample Industry Distribution				
Industry		Frequency	Percentage	Accu.Percent
1	CPS	1,368	10.16	10.16
2	ENERGY	1,152	8.56	18.72
3	HEALTH	1,188	8.82	27.54
4	HT	***2,556***	***18.98***	46.52
5	IND	***2,556***	***18.98***	65.51
6	MATERLS	1,332	9.89	75.40
7	MEDIA	1,188	8.82	84.22
8	MATERLS	612	4.55	88.77
9	STAPLES	1,008	7.49	96.26
10	TELECOM	504	3.74	100.00
Total		13,464	100.00	100.00

TABLE 3

SUE Persistence and Abnormal-return-based Case

Panel A: DSUE (*Dependent Variable* $DSUE_{i,t+k}$*)*				
	k=1	*k=2*	*k=3*	*k=4*
Full sample				
$DSUE_{i,t}$ (1)	**0.390*** **	**0.194*** **	**0.054*** **	**-0.216*** **
	(39.13)	**(18.14)**	**(4.87)**	**(-19.57)**
(2)	***0.400**** **	***0.230**** **	***0.090**** **	***-0.170**** **
Adj. R^2	0.152***	0.037***	0.003***	0.045***
	(2114.07)	(442.06)	(31.91)	(509.11)
N	11789	11408	11041	10698
Highest Earnings Volatility Quintile				
$DSUE_{i,t}$	**0.311*** **	**0.129*** **	**0.005**	**-0.283*** **
	(16.55)	**(6.51)**	**(0.23)**	**(-14.24)**
Adj. R^2	0.102***	0.017***	-0.0004	0.085***
	(273.75)	(42.36)	(0.05)	(202.71)
N	2413	2335	2258	2176
Lowest Earnings Volatility Quintile				
$DSUE_{i,t}$	**0.472*** **	**0.228*** **	**0.104*** **	**-0.153*** **
	(23.57)	**(9.98)**	**(4.36)**	**(-6.32)**
Adj. R^2	0.200***	0.044***	0.009***	0.019***
	(555.72)	(99.70)	(19.01)	(39.94)
N	2213	2142	2068	2008
Panel B: Quarter-Long Abnormal Returns *(Dependent Variable* $Abreturn_{i,t+k}$*)*				
	k=1	*k=2*	*k=3*	*k=4*
$DSUE_{i,t}$	0.1500***	0.0105	0.1390	0.1360
	(4.62)	(0.12)	(1.46)	(1.44)
Adj. R^2	0.0004**	-0.0001	0.0003**	0.0003**
	(6.45)	(0.03)	(4.99)	(4.92)
N	12215	11961	11602	11235

***p<0.01, **p<0.05, *p<0.10.

(1) Coefficients and t-statistics (in parentheses) are from Fama-Macbeth regressions with Newey-West standard errors, which are robust to autocorrelation and hetetoskedasticity.
(2) Coefficient from Rangan and Sloan (1998)

SUE is the difference between the current quarter's earnings and the earnings of the corresponding quarter in the previous year. $DSUE_{i,t}$ is the scaled decile rank for each quarter transformed by dividing by 9 and then subtracting 0.5. Thus, $DSUE_{i,t}$ is ranging from -0.5 and +0.5. $Abreturn_{i,t}$ is the market-adjusted buy-and-hold return(raw return adjusted for the CRSP value-weighted index return), calculated from the first day of each calendar quarter and ending one day before next calendar quarter.

TABLE 4

Quarterly Earnings Volatility and Earnings Persistence

Panel A: Foster Model

$$(Q_{i,t+1} - Q_{i,t-3}) = \alpha + \beta\,(Q_{i,t} - Q_{i,t-4}) + \varepsilon_{i,t+1}$$

$$DSUE_{i,t+1} = \alpha + \beta DSUE_{i,t} + \varepsilon_{i,t+1}$$

Quintiles by $EVOL_{i,t}$	β (Persistence)	*t*-statistics	R^2	Adj R^2
Volatility Q1(low)	0.472***	23.57	0.2009	0.2005
Volatility Q2	0.472***	25.52	0.2153	0.2150
Volatility Q3	0.434***	23.55	0.1891	0.1887
Volatility Q4	0.344***	18.02	0.1190	0.1187
Volatility Q5(High)	0.311***	16.55	0.1020	0.1016
Difference (Q1-Q5)	0.131***			
P-value on difference	<0.001			

Panel B: AR(1) Model

$$Q_{i,t+1} = \alpha + \theta\, Q_{i,t} + \varepsilon_{i,t+1}$$

Quintiles by $EVOL_{i,t}$	θ (Persistence)	*t*-statistics	R^2	Adj R^2
Volatility Q1(low)	0.762***	53.86	0.5403	0.5401
Volatility Q2	0.658***	42.31	0.4197	0.4195
Volatility Q3	0.634***	40.95	0.4054	0.4052
Volatility Q4	0.532***	31.17	0.2831	0.2828
Volatility Q5(High)	0.514***	31.53	0.2877	0.2874
Difference (Q1-Q5)	0.248***			
P-value on difference	<0.001			

***p<0.01, **p<0.05, *p<0.10

$Q_{i,t}$ is the decile rank of earnings before extraordinary items in quarter t deflated by average total assets. *SUE* is the difference between the current quarter's earnings and the earnings of the corresponding quarter in the previous year. $DSUE_{i,t}$ is the scaled decile rank for each quarter transformed by dividing by 9 and then subtracting 0.5. Thus, $DSUE_{i,t}$ is ranging from -0.5 and +0.5. $EVOL_{i,t}$ is the variance of earnings for the latest eight quarters till quarter t, scaled by moving average of total assets over the same period.

TABLE 5

Earnings informativeness for future cash flow and earnings

Panel A: Current Earnings and Future Cash Flows *(Dependent Variable: CFOS_1)*					
	Model 1	***Model 2***	***Model 3Profit)***	***Model 4(Loss)***	***Model 5(2 quarters)***
IBQS	**0.207*** **	**0.392*** **	**0.477*** **	0.0775	**0.380*** **
	(2.99)	**(6.84)**	**(4.88)**	(0.84)	**(8.71)**
POST	-0.0004	0.0005	-0.00060	0.0023	-0.0059*
	(-0.13)	(0.16)	(-0.17)	(0.27)	(-2.58)
*IBQS*POST*		**-0.243*** **	**-0.231***	-0.0713	-0.174
		(-2.80)	(-1.84)	(-0.70)	(-1.42)
Gdp_growth	-0.0031	-0.0030	-0.0053***	0.0123	0.0005
	(-1.28)	(-1.20)	(-2.86)	(1.41)	(0.31)
Inflation	0.0105**	0.0112**	0.0083	0.0376*	0.0009
	(2.34)	(2.45)	(1.43)	(1.74)	(0.19)
Pop_growth	0.0628**	0.0590**	0.0521	0.215**	0.0272
	(2.27)	(2.12)	(1.58)	(2.28)	(1.15)
Tax	-0.0069	-0.0066	-0.0056	-0.0344	-0.0037
	(-0.91)	(-0.85)	(-0.73)	(-1.05)	(-0.65)
Size	0.0132***	0.0130***	0.00052*	0.0375***	0.0126***
	(4.46)	(4.44)	(1.81)	(3.73)	(5.58)
Incsmooth	-0.0032**	-0.00343**	-0.0026*	-0.0098*	-0.0030***
	(-2.28)	(-2.36)	(-1.93)	(-1.92)	(-3.14)
Intercept	0.093	0.082	0.067	0.438	0.061
	(0.66)	(0.57)	(0.50)	(0.68)	(0.56)
N	9719	9719	8103	1616	9046
Adj. R^2	0.023	0.027	0.026	0.033	0.076

Panel B: Current Earnings and Future Earnings (*Dependent Variable: IBQS_1*)					
	Model 1	***Model 2***	***Model 3Profit)***	***Model 4(Loss)***	***Model 5(2 quarters)***
IBQS	-0.099	**0.374*****	**0.347*****	**0.274*****	**0.304****
	(-0.52)	**(5.17)**	**(5.27)**	**(2.08)**	**(7.48)**
POST	0.009	0.0114*	**0.017****	-0.0058	0.0103***
	(1.49)	(1.93)	**(2.39)**	(-0.79)	(2.58)
*IBQS*POST*		**-0.577*****	**-0.612*****	**-0.458*****	**-0.427****
		(-2.83)	**(-2.23)**	**(-2.64)**	**(-6.62)**
Gdp_growth	-0.000004	0.0008	0.0007	0.0001	0.0007
	(0.00)	(0.12)	(1.12)	(0.05)	(1.09)
Inflation	-0.00004	0.0022	-0.0004	0.0234***	0.0016
	(-0.02)	(1.00)	(-0.22)	(3.98)	(0.83)
Pop_growth	0.0260***	0.0152*	0.0087	0.117***	0.0137*
	(2.77)	(1.80)	(1.03)	(2.66)	(1.82)
Tax	-0.00003	0.0017	0.0041	-0.0062	0.0038*
	(-0.01)	(0.54)	(1.33)	(-0.58)	(1.86)
Size	0.0120***	0.0092***	0.0021	0.0215***	0.0008***
	(2.74)	(2.80)	(0.82)	(4.04)	(4.60)
Incsmooth	-0.0022**	-0.0023**	-0.0003	-0.00717*	-0.0020****
	(-2.14)	(-2.26)	(-0.51)	(-1.84)	(-2.90)
Intercept	0.0126	-0.0275	-0.0627	-0.0007	-0.0649*
	(0.18)	(-0.48)	(-1.12)	(0.00)	(-1.68)
N	12214	12214	10090	2124	11824
Adj. R^2	0.018	0.068	0.064	0.080	0.090

***p<0.01, **p<0.05, *p<0.10

Note: We include country, industry and firm year fixed effect in both sets of regression but not report them for brevity.

TABLE 6

Earnings Volatility Change

	EVOL		DEVOL	
POST	**1.872***	**1.753****	**0.061*****	**0.059*****
	(1.72)	**(2.36)**	**(13.10)**	**(13.97)**
Incsmooth	-2.274***	0.479***	-0.0127**	-0.0062
	(-3.68)	(2.83)	(-2.31)	(-1.22)
Size	**17.71*****	**2.351*****	**0.577*****	**0.544*****
	(5.66)	**(10.22)**	**(80.26)**	**(67.03)**
Gdp_growth	1.090***	-9.252	0.0158***	-0.0018
	(4.26)	(-1.34)	(7.69)	(-0.25)
Inflation	16.60***	23.05	0.0247***	-0.0034
	(4.60)	(1.59)	(6.69)	(-0.22)
Pop_growth	-20.02***	11.32	0.032***	-0.035
	(-4.60)	(0.31)	(2.69)	(-0.85)
Tax	0.571***	-74.21**	-0.0005	0.0097**
	(4.38)	(-2.18)	(-0.99)	(0.48)
Intercept	-36.95***	1314.1**	-0.0857***	-0.185
	(-4.42)	(2.15)	(-7.62)	(-0.50)
Country FE	NO	YES	NO	YES
Industry FE	NO	YES	NO	YES
N	12523	12523	12523	12523
Adj R^2	0.051	0.540	0.340	0.447

***p<0.01, **p<0.05, *p<0.10

EVOL is the variance of earnings for the latest eight quarters till quarter t, scaled by moving average of total assets over the same period. *DEVOL* is the decile ranking of EVOL, transformed with a range from -0.5 to + 0.5. *Incsmooth* is the correlation of a firm's change in discretionary accruals with its change in pre-managed earnings. *Size* is the decile rank of the market value at the end of the previous quarter, ranging from -0.5 to +0.5 after transformation.

TABLE 7

Earnings Volatility Effect

Panel A: Earnings Volatility Effect on Seasonal Difference Earnings Autocorrelation						
	Model 1	***Model 2***	***Model 3***	***Model 4***	***Model 5***	***Model 6***
DSUE	**0.381*** **	**0.354*** **	**0.385*** **	**0.373*** **	**0.412*** **	**0.417*** **
	(37.43)	**(34.36)**	**(37.14)**	**(32.25)**	**(34.49)**	**(34.37)**
DEVOL	-0.0024		0.0235*	0.0002	-0.004	0.0224*
	(-0.234)		(1.85)	(0.02)	(-0.39)	(1.76)
DSUE DEVOL*	**-0.212*** **		**-0.239*** **	**-0.215*** **	**-0.207*** **	**-0.237*** **
	(-6.62)		**(-5.50)**	**(-6.63)**	**(-6.48)**	**(-5.46)**
SIZE		-0.041***	-0.052***			-0.051***
		(-3.97)	(-4.10)			(-4.02)
DSUE SIZE*		**-0.092*** **	0.049			0.053
		(-2.91)	(1.15)			(1.25)
LOSS				-0.0153		
				(-1.52)		
DSUE LOSS*				0.0075		
				(0.27)		
It					-0.0009	-0.0009
					(-0.14)	(-0.15)
DSUE It*					**-0.116*** **	**-0.115*** **
					(-5.33)	**(-5.31)**
Gdp_ growth	-0.025***	-0.024***	-0.025***	-0.025***	-0.025***	-0.025***
	(-2.99)	(-2.89)	(-2.94)	(-2.97)	(-2.96)	(-2.91)
Inflation	0.0414	0.0391	0.0388	0.0426	0.043	0.041
	(1.565)	(1.50)	(1.46)	(1.61)	(1.62)	(1.52)
Pop_ growth	0.0874	0.0857	0.0811	0.0885	0.0931	0.0868
	(0.95)	(0.94)	(0.89)	(0.96)	(0.99)	(0.94)
Tax	-0.000009	-0.0018	-0.0011	0.0001	-0.0008	-0.0018
	(0.00)	(-0.04)	(-0.02)	(0.00)	(-0.02)	(-0.04)
Incsmoo th	-0.00395	-0.0041	-0.0040	-0.0035	-0.0042	-0.0042
	(-0.62)	(-0.65)	(-0.62)	(-0.55)	(-0.66)	(-0.66)
Intercep t	-0.0126	0.0379	0.0061	-0.0169	-0.017	0.003
	(-0.01)	(0.04)	(0.01)	(-0.02)	(-0.02)	(0.00)
*Fixed Effect**	YES	YES	YES	YES	YES	YES
N	11580	11580	11580	11580	11580	11580
Adj. R^2	0.174	0.172	0.176	0.175	0.177	0.178

***p<0.01, **p<0.05, *p<0.10

* We include country, industry and firm year fixed effects in the regression but not report it for brevity.

Panel B: Longer Forecast Horizon for Earnings Volatility Effect						
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
DSUE	**0.280*** **	**0.260*** **	**0.286*** **	**0.280*** **	**0.296*** **	**0.302*** **
	(32.12)	**(30.18)**	**(32.18)**	**(28.43)**	**(29.26)**	**(29.29)**
DEVOL	0.0029		0.039***	0.0026	0.0028	0.0385***
	(0.34)		(3.66)	(0.29)	(0.32)	(3.62)
DSUE DEVOL*	**-0.163*** **		**-0.198*** **	**-0.161*** **	**-0.158*** **	**-0.197*** **
	(-6.01)		**(-5.50)**	**(-5.84)**	**(-5.80)**	**(-5.48)**
Size		-0.048***	-0.069***			-0.069***
		(-5.50)	(-6.47)			(-6.43)
DSUE Size*		**-0.0495***	0.0673*			0.0695**
		(-1.87)	(1.93)			(1.99)
Loss				0.0027		
				(0.32)		
DSUE Loss*				0.0039		
				(0.17)		
It					-0.0057	-0.0058
					(-1.05)	(-1.06)
DSUE It*					**-0.057*** **	**-0.056*** **
					(-3.06)	**(-3.02)**
Gdp_ growth	-0.0116	-0.0111	-0.0113	-0.0116	-0.0118	-0.0115
	(-1.53)	(-1.41)	(-1.49)	(-1.53)	(-1.53)	(-1.49)
Inflation	0.0535**	0.0508**	0.0503**	0.0533**	0.0551**	0.0519**
	(2.11)	(2.00)	(1.99)	(2.10)	(2.16)	(2.05)
Pop_ growth	0.0331	0.0294	0.0266	0.0328	0.0372	0.0307
	(0.41)	(0.37)	(0.34)	(0.41)	(0.45)	(0.38)
Tax	0.0192	0.0177	0.0175	0.0192	0.0185	0.0167
	(0.48)	(0.43)	(0.44)	(0.48)	(0.46)	(0.41)
Incsmoo th	-0.0049	-0.0051	-0.0049	-0.0049	-0.005	-0.0051
	(-0.90)	(-0.93)	(-0.91)	(-0.91)	(-0.93)	(-0.94)
Intercep t	-0.377	-0.334	-0.345	-0.376	-0.375	-0.341
	(-0.49)	(-0.42)	(-0.45)	(-0.49)	(-0.49)	(-0.44)
*Fixed Effect**	YES	YES	YES	YES	YES	YES
N	11158	11158	11158	11158	11158	11158
Adj. R^2	0.168	0.168	0.172	0.168	0.169	0.173

***p<0.01, **p<0.05, *p<0.10

* We include country, industry and firm year fixed effects in the regression but not report it for brevity.

TABLE 8

Earnings Volatility Pre- and Post- Comparison

	Model 1		***Model 2***	
	Pre	Post	Pre	Post
DSUE	**0.410*** **	**0.354*** **	**0.417*** **	**0.376*** **
	(28.56)	**(24.76)**	**(28.35)**	**(26.60)**
EVOL	0.0002*	0.00034***		
	(1.94)	(3.34)		
*DSUE * EVOL*	-0.0002	**-0.00052*** **		
	(-1.57)	**(-4.03)**		
DEVOL			-0.0517***	0.0808***
			(-2.75)	(4.61)
*DSUE*DEVOL*			**-0.178*** **	**-0.248*** **
			(-3.82)	**(-5.57)**
Diff: Post -Pre		**-0.00032****		**-0.07****
Chi^2		(**18.85**)		**(45.95)**
Gdp_growth	-0.0196**	0.0205	-0.0221*	0.018
	(-2.05)	(1.30)	(-2.18)	(1.14)
Inflation	0.0087	0.0071	0.0135	0.0098
	(0.30)	(0.23)	(0.46)	(0.31)
Pop_growth	0.0936	0.0616	0.0835	0.0207
	(1.00)	(0.22)	(0.93)	(0.08)
Tax	0.0243	-0.0025	0.0145	-0.0009
	(0.51)	(-0.20)	(0.31)	(-0.07)
Incsmooth	-0.0064	-0.0006	-0.0067	-0.0016
	(-0.72)	(-0.06)	(-0.76)	(-0.17)
Size	-0.0444***	-0.0410***	-0.0133	-0.0765***
	(-3.11)	(-2.77)	(-0.71)	(-4.35)
Intercept	-0.530	0.047	-0.356	0.027
	(-0.60)	(0.77)	(-0.41)	(0.45)
*Fixed Effect **	YES	YES	YES	YES
N	5869	5711	5869	5711
Adj. R^2	0.171	0.141	0.174	0.148

***p<0.01, **p<0.05, *p<0.10

*We include country and industry fixed effect in the regression but not repot it for brevity.

TABLE 9

Mishkin Test of Market Efficiency for Earnings Volatility Effect

We estimate coefficients simultaneously of the two following equations using the simultaneous nonlinear procedure proposed by Mishkin [1983]:

$$DSUE_{i,t+1} = a_0 + b_0\ DSUE_{i,t} + c_0\ EVOL_{i,t} + d_0\ (DSUE_{i,t} * EVOL_{i,t}) + g_0\ SIZE_{i,t} + h_0(DSUE_{i,t}\ *\ SIZE_{i,t}) + \varepsilon_{i,t+1} \quad (10)$$

$$Abreturn_{i,t+1} = \alpha_0 - \beta_0 a_0^* + \beta_0 DSUE_{i,t+1} - \beta_0 b_0^*\ DSUE_{i,t} - \beta_0 c_0^*\ EVOL_{i,t} - \beta_0 d_0^*\ (DSUE_{i,t} * EVOL_{i,t}) - \beta_0 g_0^* SIZE_{i,t} - \beta_0 h_0^*(DSUE_{i,t}\ *\ SIZE_{i,t}) + \mu_{i,t+1} \quad (12)$$

Parameter	Full Sample	Pre	Post
b_0	**0.35741*** **	**0.36577*** **	**0.32735 *** **
	(34.79)	(24.78)	(22.70)
b_0^*	-0.33557	-1.00539*	-0.17991
	(-1.01)	(-1.90)	(-0.63)
d_0	**-0.00031 *** **	**-0.00016**	**-0.00046*** **
	(-3.20)	(-1.32)	(-3.54)
d_0^*	-0.00095 ***	-0.00066	-0.0011**
	(-2.73)	(-0.96)	(-2.58)
β_0	0.17241 **	0.08167*	0.25004**
	(2.53)	(1.79)	(1.97)
Chi-square to Test Market Efficiency Constraints *			
$b_0 = b_0^*$ & $d_0 = d_0^*$	**5.38***	**8.68****	3.81
$b_0 = b_0^*$	**4.33****	**6.70*****	**3.15***
$d_0 = d_0^*$	**3.91****	0.49	**2.90***

***p<0.01, **p<0.05, *p<0.10

*A significant chi-square value implies that the real coefficient in Equation 10 and the inferred coefficient in Equation 12 are significantly different.

SUE is the difference between the current quarter's earnings and the earnings of the corresponding quarter in the previous year. $DSUE_{i,t}$ is the scaled decile rank for each quarter transformed by dividing by 9 and then subtracting 0.5. Thus, $DSUE_{i,t}$ is ranging from -0.5 and +0.5. $EVOL_{i,t}$ is the variance of earnings for the latest eight quarters till quarter t, scaled by moving average of total assets over the same period. $Abreturn_{i,t}$ is the market-adjusted buy-and-hold return(raw return adjusted for the CRSP value-weighted index return), calculated from the first day of each calendar quarter and ending one day before next calendar quarter. $SIZE_{i,t}$ is the decile rank of the market value at the end of the previous quarter, ranging from -0.5 to +0.5 after transformation.

TABLE 10

Earnings Informativeness of Other EU listed firms

Panel A: Earnings Informativeness for Future Cash Flows				
	Model 1	***Model 2***	***Model 3(Profit)***	***Model 4(Loss)***
IBQS	**0.468*** **	**0.385*** **	**0.425*** **	0.234
	(6.35)	**(3.99)**	**(5.08)**	(1.44)
Post	-0.0146***	-0.0141***	-0.0151***	-0.0072
	(-4.44)	(-4.30)	(-3.44)	(-1.04)
*IBQS*Post*		**0.257** **	0.157	**0.404** **
		(2.53)	(1.40)	**(2.48)**
Size	0.0123***	0.0112***	0.0070**	0.0125**
	(3.65)	(3.59)	(2.08)	(1.99)
Incsmooth	-0.0077***	-0.0071***	-0.0005	-0.0122***
	(-3.37)	(-3.30)	(-0.19)	(-3.77)
*Fixed Effect**	YES	YES	YES	YES
N	13564	13564	8616	4948
Adj. R^2	0.085	0.089	0.037	0.094
Panel B: Earnings Informativeness for Future Earnings				
	Model 1	***Model 2***	***Model 3(Profit)***	***Model 4(Loss)***
IBQS	**0.406*** **	**0.364*** **	**0.406*** **	**0.260*** **
	(4.63)	**(3.80)**	**(8.55)**	**(2.76)**
Post	-0.0024*	-0.0019	-0.0021	0.0041
	(-1.67)	(-1.32)	(-1.08)	(1.03)
*IBQS*Post*		**0.185***	-0.018	**0.271** **
		(1.84)	(-0.21)	**(2.46)**
Size	0.0214***	0.0203***	0.0125***	0.0204***
	(6.05)	(7.21)	(9.42)	(4.53)
Incsmooth	-0.0078***	-0.0070***	-0.0017	-0.0090***
	(-4.15)	(-4.41)	(-1.24)	(-3.55)
Fixed Effect	YES	YES	YES	YES
N	16809	16809	10574	6235
Adj. R^2	0.205	0.210	0.185	0.154

***p<0.01, **p<0.05, *p<0.10

* We include Economic Controls including GDP growth, inflation rate, population growth and the ratio of tax revenue over GDP as well as country, industry and firm year fixed effects but do not report them for brevity.

TABLE 11

Earnings Volatility Change for Other EU Listed Firms

	EVOL		***DEVOL***	
Post	0.0041	-0.0148	**0.0287*** **	0.0078
	(0.19)	(-0.31)	**(6.63)**	(0.78)
Incsmooth	0.0486	-0.0218	0.0889***	0.0679***
	(1.59)	(-0.91)	(17.64)	(13.17)
Size	**1.087*** **	**0.546*** **	**0.507*** **	**0.397*** **
	(22.77)	**(16.46)**	**(78.96)**	**(55.04)**
Gdp_growth	-0.0168***	-0.0023	-0.0058***	-0.0049***
	(-4.42)	(-0.41)	(-9.88)	(-5.81)
Inflation	0.139***	0.0741***	0.00975***	0.00162
	(9.89)	(4.29)	(7.36)	(0.80)
Pop_growth	-0.404***	-0.170***	-0.099***	-0.076***
	(-11.61)	(-3.51)	(-18.51)	(-7.81)
Tax	0.0179***	-0.0074***	0.0023***	0.0008
	(9.55)	(-3.51)	(6.38)	(1.18)
Intercept	-0.1939***	0.1361**	0.0393***	-0.0015
	(-4.32)	(2.45)	(4.48)	(-0.06)
*Fixed Effect**	NO	YES	NO	YES
N	17300	17300	17300	17300
Adj. R^2	0.087	0.475	0.268	0.368

***p<0.01, **p<0.05, *p<0.10
*Fixed Effects include country and industry fixed effect in this regression.
EVOL is the variance of earnings for the latest eight quarters till quarter t, scaled by moving average of total assets over the same period. *DEVOL* is the decile ranking of EVOL, transformed with a range from -0.5 to + 0.5. *Incsmooth* is the correlation of a firm's change in discretionary accruals with its change in pre-managed earnings. *Size* is the decile rank of the market value at the end of the previous quarter, ranging from -0.5 to +0.5 after transformation.

TABLE 12

Financial Tsunami Sensitivity Test

Panel A: Earnings Informativeness for Firms' Future Performance				
	IBQS_1		*CFOS_1*	
IBQS	**0.403*****	**0.392*****	**0.459*****	**0.439*****
	(4.28)	**(4.11)**	**(6.15)**	**(5.86)**
POST	0.00291	-0.00143	0.00219	-0.0120
	(1.32)	(-0.30)	(1.06)	(-0.48)
*IBQS*POST*	**-0.692*****	**-0.683*****	**-0.282*****	**-0.270****
	(-3.95)	**(-3.92)**	**(-2.64)**	**(-2.58)**
Size	0.0091***	0.0124***	0.00927***	0.0138***
	(3.62)	(4.87)	(3.30)	(3.97)
Incsmooth	-0.00184	-0.00279**	-0.00358**	-0.00406**
	(-1.63)	(-2.29)	(-2.13)	(-2.41)
Gdp_growth	0.00234***	0.00023	0.00068	-0.00312
	(4.13)	(0.30)	(0.71)	(-1.14)
Inflation	0.00073	0.00243	-0.00209	0.0109**
	(0.67)	(1.10)	(-1.24)	(2.36)
Pop_growth	-0.0085***	0.0154**	-0.00363	0.0572**
	(-3.13)	(1.96)	(-0.75)	(2.02)
Tax	0.0001**	0.0017	0.00021	-0.00638
	(1.15)	(0.52)	(1.22)	(-0.81)
Intercept	0.0088***	-0.0280	-0.00476	0.0777
	(2.69)	(-0.46)	(-1.06)	(0.53)
*Fixed Effect**	NO	YES	NO	YES
N	9266	9266	7328	7328
Adj. R^2	0.155	0.157	0.026	0.029

***p<0.01, **p<0.05, *p<0.10

*Fixed Effects include country, industry and firm year fixed effect in this regression

Panel B: Earnings Volatility Trends

	EVOL		DEVOL	
POST	**2.324*****	1.567	**0.079*****	**0.400****
	(2.91)	(0.68)	**(14.85)**	**(2.39)**
Size	13.95***	2.029***	0.570***	0.532***
	(5.24)	(8.13)	(68.86)	(56.87)
Incsmooth	-1.594***	0.527***	-0.0132**	-0.0056
	(-3.04)	(2.96)	(-2.08)	(-0.95)
Gdp_growth	0.808***	-6.364	0.0124***	-0.0003
	(3.64)	(-1.33)	(5.21)	(-0.05)
Inflation	12.13***	15.59	0.0226***	-0.0147
	(4.04)	(1.55)	(5.34)	(-0.95)
Pop_growth	-15.44***	9.424	0.0252***	-0.0252
	(-4.16)	(0.37)	(1.88)	(-0.55)
Tax	0.428***	-50.38*	-0.00086	0.0216
	(3.86)	(-2.12)	(-1.49)	(1.16)
Intercept	-27.16***	891.1**	-0.0967***	-0.426
	(-3.79)	(2.10)	(-7.48)	(-1.22)
*Fixed Effect**	NO	YES	NO	YES
N	9568	9568	9568	9568
Adj. R^2	0.052	0.547	0.336	0.446

***p<0.01, **p<0.05, *p<0.10

*Fixed Effects include country, industry and firm year fixed effect in this regression.

Panel C: Earnings Volatility Effect on SUE Autocorrelation

	DSUE_1	DSUE_1	DSUE_1	DSUE_1	DSUE_1	DSUE_1
DSUE	**0.358*****	**0.325*****	**0.358*****	**0.356*****	**0.382*****	**0.382*****
	(34.23)	**(31.44)**	**(31.30)**	**(29.42)**	**(31.83)**	**(29.59)**
DEVOL	0.0011		0.0264***	0.0028	0.0004	0.0248*
	(0.10)		(2.02)	(0.25)	(0.03)	(1.69)
*DSUE **	**-0.267*****		**-0.276*****	**-0.265*****	**-0.265*****	**-0.278*****
DEVOL	**(-8.29)**		**(-6.89)**	**(-8.16)**	**(-8.26)**	**(-6.94)**
Size		-0.039***	-0.0502***			-0.0488***
		(-3.33)	(-3.72)			(-3.62)
*Dsue*Size*		**0.134*****	0.0235			0.0282
		(-4.29)	(0.61)			(0.73)
Loss				-0.0116		
				(-1.20)		
*Dsue*Loss*				-0.0099		
				(-0.39)		
It					-0.0118*	-0.0117
					(-1.62)	(-1.61)
*Dsue*It*					**-0.0942*****	**-0.0927*****
					(-4.21)	**(-4.14)**
Gdp_growth	-0.0238**	-0.0231*	-0.0233**	-0.0238**	-0.024**	-0.0236*
	(-2.01)	(-1.95)	(-1.97)	(-2.01)	(-2.03)	(-2.00)
Inflation	0.0370	0.0349	0.0344	0.0379	0.0396	0.0371
	(1.08)	(1.01)	(1.00)	(1.10)	(1.15)	(1.08)
Pop_growth	0.081	0.0796	0.0754	0.0816	0.0875	0.0820
	(0.75)	(0.73)	(0.70)	(0.75)	(0.81)	(0.76)
Tax	0.0077	0.0594	0.0070	0.0080	0.0066	0.0059
	(0.17)	(0.13)	(0.15)	(0.18)	(0.15)	(0.13)
Incsmooth	-0.0041	-0.0039	-0.0042	-0.0039	-0.0044	-0.0044
	(-0.58)	(-0.55)	(-0.58)	(-0.54)	(-0.61)	(-0.62)
Intercept	-0.119	-0.064	-0.106	-0.126	-0.117	-0.103
	(-0.13)	(-0.55)	(-0.12)	(-0.14)	(-0.13)	(-0.12)
*Fixed Effect**	YES	YES	YES	YES	YES	YES
N	8644	8644	8644	8644	8644	8644
Adj. R^2	0.155	0.151	0.156	0.155	0.157	0.158

***p<0.01, **p<0.05, *p<0.10

*Fixed Effects include country, industry and firm year fixed effect in this regression

TABLE 13

The Impact of Enforcement Environment

Panel A: Civil Law versus Common Law System				
	Civil Law		***Common Law***	
	IBQS_1	*CFOS_1*	*IBQS_1*	*CFOS_1*
IBQS	**0.362*****	**0.365*****	**0.560*****	**0.581*****
	(4.83)	**(5.95)**	**(7.40)**	**(4.92)**
POST	0.0117*	0.00152	0.00240	-0.0145*
	(1.83)	(0.41)	(0.93)	(-1.69)
*IBQS *POST*	**-0.571*****	**-0.225****	**-0.0665**	**-0.0205**
	(-2.79)	**(-2.54)**	(-0.39)	(-0.08)
Size	0.00905***	0.0133***	0.0115***	0.00626
	(2.59)	(4.27)	(3.28)	(0.79)
Incsmooth	-0.00179*	-0.00357**	-0.00627**	-0.00546
	(-1.71)	(-2.38)	(-2.56)	(-1.02)
Gdp_growth	-0.000118	-0.00252	0.00276	-0.0166
	(-0.15)	(-0.95)	(1.23)	(-1.32)
Inflation	0.00495**	0.00799	-0.00520**	0.0248*
	(1.97)	(1.56)	(-2.49)	(1.89)
Pop_growth	0.0124	0.0251	0.0127***	0.0671***
	(0.64)	(0.70)	(3.75)	(4.30)
Tax	0.00356	0.000363	0.00216	-0.0425**
	(0.91)	(0.04)	(0.67)	(-2.20)
_cons	-0.0756	-0.0399	-0.0183	0.908**
	(-1.03)	(-0.24)	(-0.26)	(2.15)
*Fixed Effect**	YES	YES	YES	YES
N	11284	8979	1031	791
Adj. R^2	0.066	0.020	0.410	0.186

***p<0.01, **p<0.05, *p<0.10

*Fixed Effects include country, industry and firm year fixed effect in this regression

Panel B: Countries with No Substantive Enforcement Change				
	IBQS_1	IBQS_1	CFOS_1	CFOS_1
IBQS	**0.372*****	**0.348*****	**0.426*****	**0.413*****
	(5.47)	**(5.32)**	**(5.95)**	**(5.45)**
POST	0.0048**	0.0159*	0.00009	-0.00076
	(2.35)	(1.73)	(0.04)	(-0.18)
*IBQS*POST*	**-0.621*****	**-0.604*****	-0.098	-0.134
	(-2.77)	**(-2.78)**	(-0.85)	(-1.31)
Size	0.0079*	0.0095*	0.0079**	0.0112**
	(1.73)	(1.69)	(2.21)	(2.47)
Incsmooth	-0.0025*	-0.0036**	-0.0033*	-0.0047**
	(-1.93)	(-2.47)	(-1.72)	(-2.40)
Gdp_growth	0.00323***	0.00055	0.00098	-0.0019
	(3.90)	(0.53)	(1.00)	(-0.63)
Inflation	0.00065	0.00261	-0.00172	0.0117***
	(0.44)	(1.06)	(-1.01)	(2.72)
Pop_growth	-0.0167***	0.0165*	-0.00520	0.0604**
	(-3.51)	(1.91)	(-0.85)	(2.38)
Tax	-0.00005	0.00337*	0.00013	-0.0128*
	(-0.67)	(1.91)	(0.88)	(-1.79)
Intercept	0.0146***	-0.0606*	-0.0016	0.289**
	(4.00)	(-1.74)	(-0.31)	(2.23)
Fixed Effect	NO	YES	NO	YES
N	7717	7717	6047	6047
Adj. R^2	0.079	0.086	0.036	0.044

Panel C: Sweden versus Germany				
	Sweden		***Germany***	
	IBQS_1	CFOS_1	IBQS_1	CFOS_1
IBQS	0.296***	0.280**	0.241***	0.293***
	(3.18)	(2.05)	(3.68)	(2.58)
POST	0.0012	0.0017	0.0029	0.0039
	(0.37)	(0.28)	(0.99)	(1.10)
*IBQS*POST*	-0.0466	0.0244	**-0.224*****	**-0.309****
	(-0.36)	(0.12)	**(-3.26)**	**(-2.43)**
Size	0.0160***	0.0176*	0.0023	0.0053
	(2.80)	(1.92)	(0.45)	(1.13)
Incsmooth	-0.0099**	-0.0128**	0.0016	-0.0021
	(-2.42)	(-2.01)	(1.04)	(-0.72)
_cons	0.00428	-0.00564	0.00898***	-0.00525**
	(1.64)	(-1.35)	(6.98)	(-2.00)
N	1420	805	2363	1959
Adj. R^2	0.097	0.031	0.007	0.007

TABLE 14

Informativeness of Earnings Components

Panel A: Accruals and Future Cash Flows				
	Model 1	***Model 2***	***Model 3(Profit)***	***Model 4(Loss)***
IBQS	**0.267*** **	**0.386*** **	**0.424*** **	**0.148***
	(4.24)	**(6.42)**	**(4.11)**	**(1.65)**
Accruals	0.230***	0.203***	0.243***	0.031
	(5.89)	(5.78)	(6.06)	(0.48)
Post		0.00293	0.00234	0.00333
		(0.80)	(0.56)	(0.38)
*IBQS*Post*		-0.189*	-0.191	-0.180
		(-1.86)	(-1.10)	(-1.30)
*Accr*Post*		0.052	-0.071	**0.301*** **
		(0.73)	(-1.17)	**(2.67)**
Incsmooth	-0.0036**	-0.0038***	-0.0037***	-0.0080
	(-2.54)	(-2.64)	(-2.64)	(-1.52)
Size	0.0145***	0.0146***	0.0075**	0.0359***
	(4.75)	(4.79)	(2.48)	(3.59)
N	9310	9310	7746	1564
Adj. R^2	0.086	0.088	0.063	0.149
Panel B: Accruals and Future Earnings				
	Model 1	***Model 2***	***Model 3(Profit)***	***Model 4(Loss)***
IBQS	**0.290*** **	**0.412*** **	**0.513*** **	**0.163*** **
	(5.73)	**(8.38)**	**(6.26)**	**(2.75)**
Accruals	-0.0544	0.0116	0.0098	-0.0095
	(-1.43)	(1.31)	(1.22)	(-0.45)
Post		0.0035***	0.0031	0.0019
		(2.66)	(1.58)	(0.46)
*IBQS*Post*		-0.189**	-0.194	-0.124
		(-2.38)	(-1.63)	(-1.23)
*Accr*Post*		**-0.127***	-0.118	-0.124
		(-1.74)	(-1.38)	(-0.97)
Incsmooth	-0.0011	-0.0012	-0.0009	-0.0045
	(-1.27)	(-1.46)	(-1.56)	(-1.02)
Size	0.0076***	0.0079***	0.0032**	0.0228***
	(4.47)	(4.82)	(2.13)	(4.10)
N	9675	9675	8011	1664
Adj. R^2	0.123 0.138	0.233	0.111 0.120	0.109

***p<0.01, **p<0.05, *p<0.1

TABLE 15

Annual Earnings Informativeness

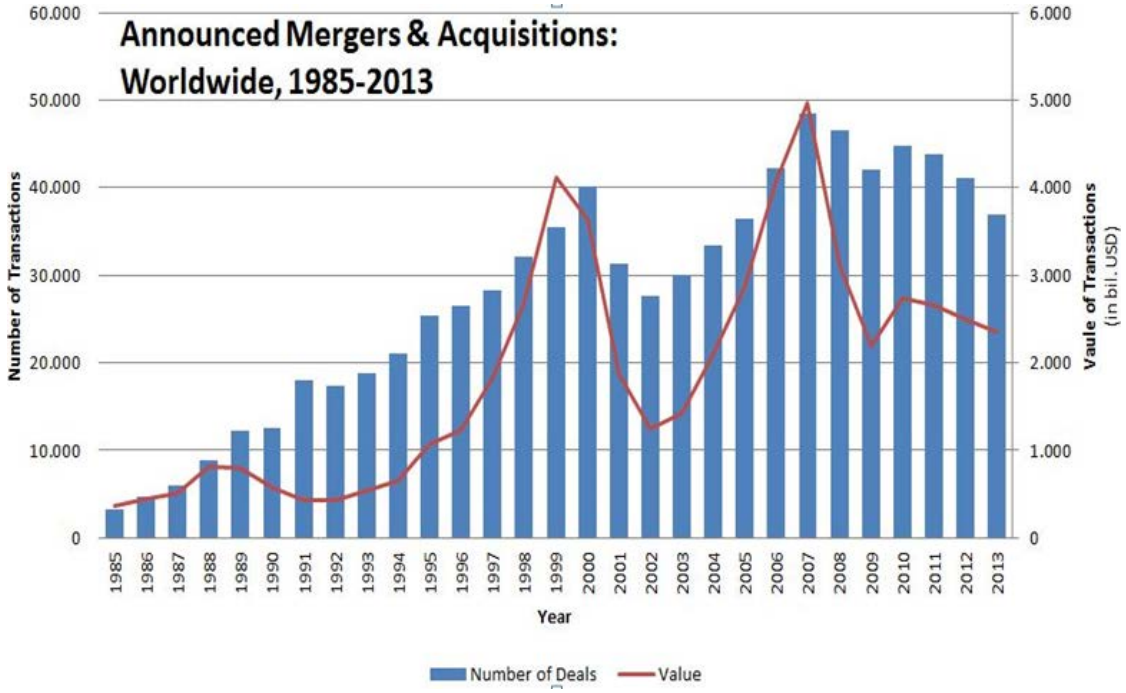
	IBS_1		*CFOS_1*	
IBS	**0.409*****	**0.285***	**0.237*****	**0.301****
	(4.00)	**(1.71)**	**(3.30)**	**(2.02)**
POST	0.110	0.0404	-0.0522	-0.628
	(1.55)	(0.38)	(-0.43)	(-1.63)
*IBS*POST*	**-0.402*****	**-0.291***	**-0.318*****	**-0.376***
	(-3.79)	**(-1.78)**	**(-2.88)**	**(-1.96)**
Gdp_growth	0.00404**	0.0368	-0.00194	0.0640
	(2.54)	(0.83)	(-0.71)	(1.23)
Inflation	0.0499	0.168	-0.0340	0.0959
	(1.14)	(1.03)	(-0.47)	(0.68)
Pop_growth	-0.0839	-0.263	0.0670	-0.108
	(-1.28)	(-1.08)	(0.61)	(-0.49)
Tax	-0.000254	0.0305**	0.000770	0.00828
	(-0.32)	(2.13)	(0.67)	(0.43)
Size	-0.123	-0.146	0.150	0.0325
	(-1.06)	(-0.96)	(0.70)	(0.20)
Incsmooth1	-0.0185	-0.0269	0.0769	0.0931
	(-0.73)	(-0.88)	(0.89)	(0.92)
Intercept	-0.0654	-0.816	0.0148	-0.122
	(-0.78)	(-1.48)	(0.14)	(-0.21)
Fixed Effect	NO	YES	NO	YES
N	2543	2543	2507	2507
adj. R-sq	0.001	0.014	-0.001	-0.007

***p<0.01, **p<0.05, *p<0.10

*Fixed Effects include country, industry and firm year fixed effect in this regression

FIGURE 1

Merging & Acquisitions Statistics



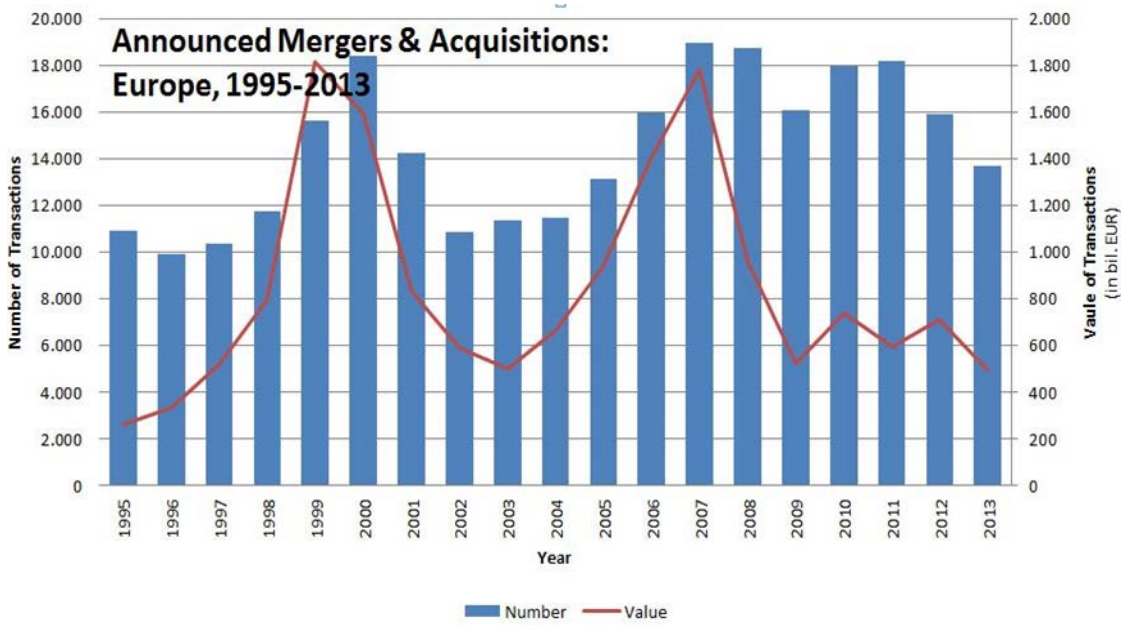
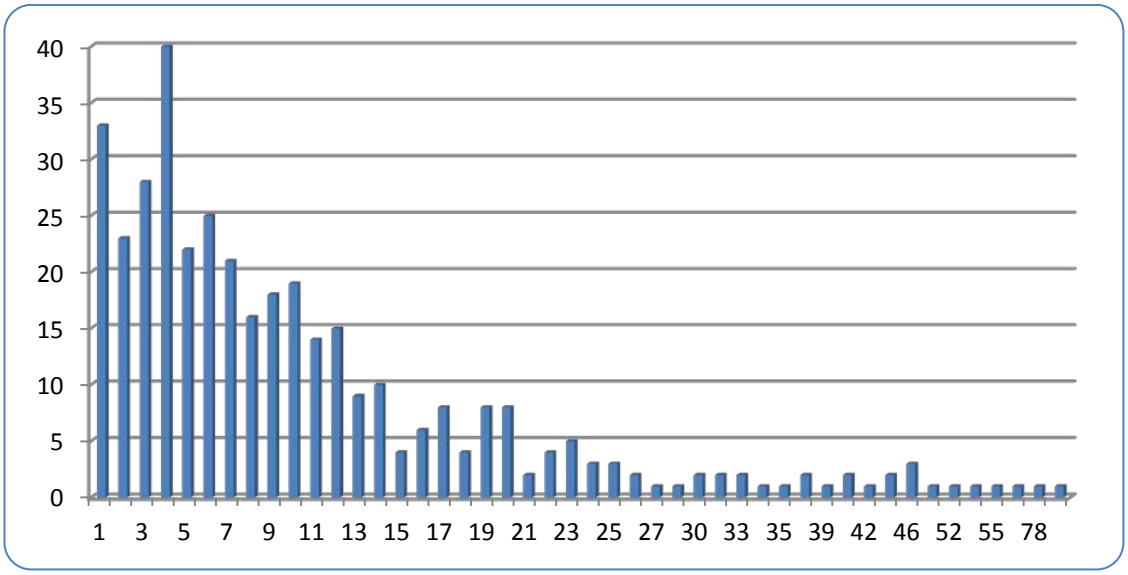


FIGURE 2

Merging & Acquisition Frequencies for two-sub periods

Panel A: P1_no Distribution



Panel B: P2_no Distribution

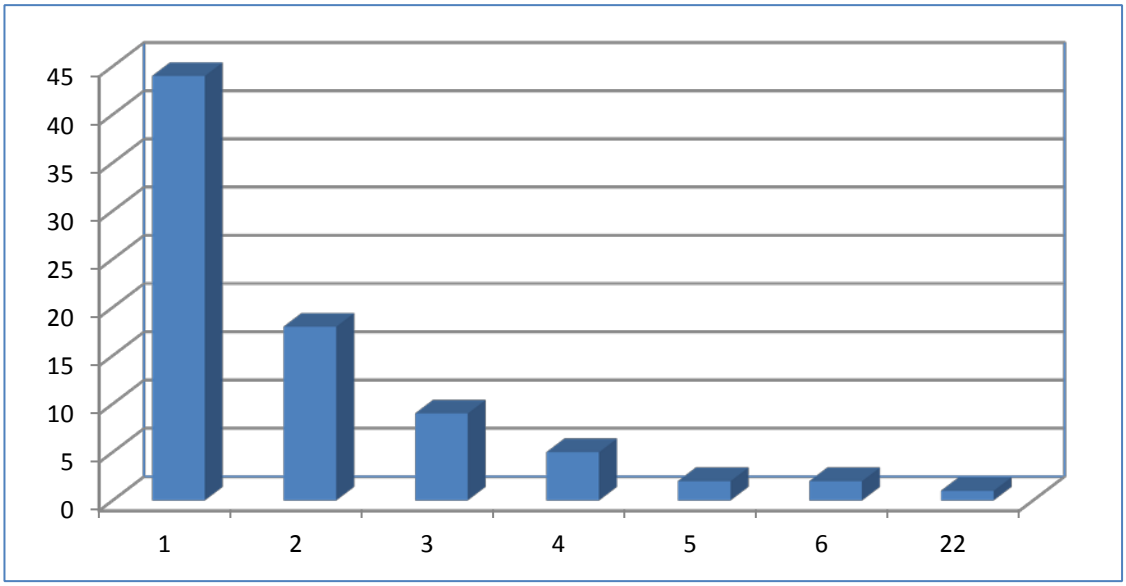


FIGURE 3

M & A transactions distribution

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Transaction no	136	143	125	143	151	195	158	152	171	199	177	172	176	180	192	130	91	101	119	127	79	132	131	156	152	147	134	119	194	177	181	153

Appendix 1 Data Definition and Source

Variable	Definition	Source
Panel A: Firm Quarter Level		
IBQ	Quarterly Income before extraordinary items	COMPUSTAT Quarterly Data Items #8.[17]
CFO	Measured as IBQ-Accruals	COMPUSTAT.
Accruals	Measured as Δnoncash current assets-Δcurrent liabilities+Δcurrent portion of long-term debt + depreciation	COMPUSTAT Quarterly Data Items (item #40- item #36)- Δ item #49 + Δ item #45 + item#5.
IBQS	Quarterly Income before extraordinary items scaled by moving average of total assets	COMPUSTAT.
CFOS	Quarterly CFO scaled by moving average of total assets	COMPUSTAT.
SUE	The difference between the current quarter's earnings and the earnings from the corresponding quarter in the previous year.	COMPUSTAT Quarterly Data Items #8.
DSUE	The decile ranking of SUE scaled by the closing market value of equity for the previous quarter, transformed to a range from -0.5 to +0.5.	
EVOL	The variance of earnings for the most recent eight quarters, deflated by average total assets	COMPUSTAT Quarterly Data Items #8.
DEVOL	The decile ranking of EVOL, transformed to a range from -0.5 to +0.5.	
Return	Use the unadjusted price (UP) at the end of each quarter and calculate the return as ($P_{i,t}$ - $P_{i,t-1}$)/ $P_{i,t-1}$.	DataStream monthly data.
Mktreturn	Value-weighted market return including dividends.	Centre for Research in Security Prices (CRSP) monthly file.
Abreturn	Quarterly market-adjusted buy-and-hold return (raw return adjusted for CRSP value-weighted index return)	1
ATQ	Quarterly total assets.	COMPUSTAT Quarterly Data Items #44.
AT	Moving average of total assets (*ATQ*) for the most recent eight quarters.	N/A
MVE	Market Value of Equity	DataStream monthly data.
Size	The decile rank of the market value at the end of the previous quarter, ranging from -0.5 to +0.5 after some transformation.	N/A
Loss	An indicator variable set to one if the current earnings is negative and zero otherwise.	N/A
I_t	An indicator variable set to be one if there is no cross-year effect among the independent and dependent variables	N/A

[17] We use the COMPUSTAT Quarterly Data Items definition available at http://fmwww.bc.edu/ec-p/data/obsolete/compustat.qtly.items.html.

Variable	Definition	Source
Panel B: Firm Level		
P1_no	The frequency of Merging & Acquisition transactions in the pre-revision period of IFRS 3R.	Thomson. ONE
P2_no	The frequency of Merging & Acquisition transactions in the post-revision period of IFRS 3R.	Thomson. ONE
Incsmooth	Measured by the correlation of a firm's change in discretionary accruals with its change in pre-managed earnings.	COMPUSTAT.

Appendix 2

Legal System of EU member countries

Country	Legal System
Austria	civil law system; judicial review of legislative acts by the Constitutional Court
Belgium	civil law system based on the French Civil Code; note - Belgian law continues to be modified in conformance with the legislative norms mandated by the European Union; judicial review of legislative acts
Cyprus*	mixed legal system of English common law and civil law with Greek Orthodox religious law influence
Czech Republic	in 2014, a new civil code will replace the existing civil law system, which is based on former Austro-Hungarian civil codes and socialist theory and has been amended 40 times since the Communist regime fell in 1989
Denmark	civil law; judicial review of legislative acts
Estonia	civil law system
Finland	civil law system based on the Swedish model
France	civil law; review of administrative but not legislative acts
Germany	civil law system
Greece	civil legal system based on Roman law
Hungary	civil legal system influenced by the German model
Ireland	common law system based on the English model but substantially modified by customary law; judicial review of legislative acts in Supreme Court
Italy	civil law system; judicial review of legislation under certain conditions in Constitutional Court
Luxembourg	civil law system
Netherlands	civil law system based on the French system; constitution does not permit judicial review of acts of the States General
Poland	civil law system; changes gradually being introduced as part of broader democratization process; limited judicial review of legislative acts, but rulings of the Constitutional Tribunal are final
Portugal	civil law system; Constitutional Court review of legislative acts
Slovenia	civil law system
Spain	civil law system with regional variations
Sweden	civil law system influenced by Roman-Germanic law and customary law
United Kingdom	common law system; has nonbinding judicial review of Acts of Parliament under the Human Rights Act of 1998

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