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International Accounting Standardization across Countries with Unequal Enforcement– Questionable Benefits at a High Price?

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MBA, Emory University, 2005

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An abstract of
a dissertation submitted to the Faculty of the James T. Laney School of Graduate Studies of Emory University in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Business

2011

Abstract

International Accounting Standardization across Countries with Unequal Enforcement– Questionable Benefits at a High Price?

By: Maria Ivanova Vulcheva

This paper examines the potential of global accounting standardization to decrease the overall reporting quality of the affected jurisdictions because of their ongoing institutional differences. I hypothesize this might come as a consequence of the cost related to the transition from one set of accounting standards to another, which is fully incurred only in the jurisdictions with stronger enforcement and efficient implementation. I test my hypothesis by comparing firms' delisting decisions in two code-law and two common-law countries around the introduction of IFRS in the European Union. My findings indicate that the costs of standardization are sufficient to push some firms out of the market. However, given a level of incentives the delisting probability is greater for companies, which operate in common-law jurisdictions. The results suggest that better awareness of the costs of standardization is needed before it can go any further.

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TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

1. INTRODUCTION

"[…] because that's always been one of the issues with the European Community in this country. They set rules in Brussels which many of the countries merrily ignore, but the Brits always then enforce those rules and then we find all of a sudden that we're at some form of competitive disadvantage and I wouldn't want the same to apply to accounting rules."

- Anonymous British Financial Statement Preparer[1]

"You come back to the practical realities that every CEO in the United States is saying, why am I going to pay for changing to new rules and regulations when I don't buy into the motherhood and apple pie statement about the need for one consistent set of standards"

-Bob Moritz, U.S. Chairman of PricewaterhouseCoopers[2]

Over the course of the 20th century accounting standardization at the national level quickly became the norm despite an overall lack of empirical evidence regarding its advantages and drawbacks (Ball 2006; Merino and Coe 1978; Baxter 1979). Once established firmly at the national level, accounting standardization got a further push with the creation of the International Accounting Standards Committee in 1973. In a few short decades new International Financial Reporting Standards (IFRS) were developed, adopted in over 100 countries,[3] mandated for publicly listed firms in the European Union, and made a center of the global harmonization effort of the IASB and the FASB.

With the multiplication of operational and institutional differences at the supranational level, supporters of standardizing international accounting practices need to show that with IFRS the standardization pendulum did not "swing too far" (Sunder

[1] S. Fearnley, A. Gillies, T. Hines, and C. Willett, Bewildered but better informed: A qualitative, interview-based study into the attitudes of some UK accountants and regulators to the EU IFRS conversion project prior to its implementation in the UK, (2007), Project Report, London: Institute of Chartered Accountants in England and Wales.
[2] M. Howell, Global accounting rules may face big delays, (February 3, 2010), Reuters.com.
[3] http://www.iasplus.com/usa/ifrsinsights/0805ifrsinsights.pdf.

2009). Thus, unlike in the case of national standards a large empirical literature on the possible benefits of international standardization has started developing. However, so far the findings of this literature have been at best mixed. Research suggests that at the time of the IFRS adoption investors had an incremental negative reaction to events that increased the probability of this adoption for code-law, weaker enforcement countries (Armstrong et al. 2009). Benefits claimed to ensue from accounting standardization, such as higher reporting comparability, better liquidity, and lower cost of capital, were mostly felt in common-law, stronger enforcement jurisdictions (Barth et al. 2010; Daske et al. 2008). Even in those jurisdictions, however, the benefits were strongest among voluntary adopters, i.e. firms that would have switched to IFRS without the state mandate (Daske et al. 2008). While the benefits seem questionable, so far the only research focusing on costs of the IFRS adoption deals with changes in audit fees resulting from it (Kim et al. 2010). No evidence has been provided on the cost associated with abolishing national accounting standards as an inseparable part of the economic, political, and social mechanism of each country, and replacing them with IFRS in the name of international standardization.

My study makes a first attempt to suggest and test one such possible cost for investors. I argue that any accounting standards, regardless of their quality, adopted over a number of jurisdictions with different levels of enforcement might end up being detrimental to investors. I suggest that this damage might arise because of the possibility of companies' discontinuing their public reporting rather than due to their decisions about what numbers to report. Any change in the system of reporting is related to costs associated with, among others, training of accounting personnel, investors, and analysts

to understand the new standards; use of consulting services in the process and restructuring of IT systems and reporting infrastructures (Jermakowicz & Gornik-Tomaszewski 2006; Dunne et al. 2008). However, these costs are assumed disproportionately by companies operating in countries with stronger enforcement. In these countries, companies have to assume the full cost of standard adoption. Burdened by such costs, the companies in regimes with stronger enforcement might decide to leave their respective stock exchanges in larger numbers, resulting in delisting of firms that on average exhibit higher reporting quality than their non-delisting counterparts from regimes with weaker enforcement. Such delisting behavior, if found in countries with stronger enforcement, combined with doubtful improvement in accounting quality of companies in weaker enforcement countries (Ball et al. 2003), might at best leave investors with less publicly available information. At worst, it might lead to an overall decrease in accounting quality of public firms over the affected jurisdictions.

In the paper, I compare the delisting behavior post-IFRS of companies from two common-law European Union members with strong enforcement, the UK and Ireland, with that of companies from two code-law countries with traditionally weak enforcement, Germany and Italy.[4] I consecutively address three research questions. I start by testing whether the costs related to the introduction of IFRS are sufficiently large to lead to an increase in delisting behavior during the year of the introduction of the new regulation.[5]

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[4] I expect that the proposed cost of international standardization will be lower in the European Union than in other parts of the world, because of larger institutional similarities and smaller enforcement disparities between European Union countries and expected lower cost to be incurred in switching to a set of standards considered better suited for the western economies (Mir and Rahaman 2005).

[5] In the process of studying the delisting behavior of the companies from the four jurisdictions, I do not distinguish between different causes for delisting for two main reasons: (1) lack of data–I am able to find the reason for delisting only for the companies listed on the Italian stock exchange; and (2) similar to Engel et al. (2007), I expect that the companies might use different means to avoiding the cost of IFRS, including mergers and acquisitions, especially since IFRS costs are associated with economies of scale (EU

Second, I test whether companies with higher reporting incentives are less likely to delist after the introduction of IFRS. For the purpose, I summarize the firm characteristics documented by prior research to be conducive to increased financial reporting into a reporting incentives variable and compare the delisting behavior of low- and high-incentive European companies pre- and post-IFRS.[6] Third, I test whether companies with higher reporting incentives are more likely to delist in jurisdictions with better enforcement institutions and investor protection[7] under the effect of international standardization.

Consistent with my expectations, the analysis shows an overall increase in the delisting probability in the year of IFRS introduction, which is not associated with a simultaneous increase in listings. This indicates that when it comes to the European Union companies in my sample, the costs/benefit ratio changes enough to push some of them out of the market. However, the increase in costs is not uniform for all companies. Reporting incentives influence the probability of companies to remain listed, with high-incentive companies being more likely to stay on their domestic exchanges after the new standards. Further analysis shows that while various company characteristics determine the overall delisting behavior of my sample firms, size and belonging to the financial and banking industries are the main drivers of company delisting behavior post-IFRS,

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Implementation of IFRS and the Fair Value Directive, Report of the European Commission, available online at: http://www.iasplus.com/uk/0710 icaewifrsreportexecsummary.pdf).

[6] As used by North (2005) and Ball et al. (2003) "firm incentives" are a product of the market and political institutional framework that exists outside of the firm and determines the rules of the game in a given jurisdiction. In contrast, my incentives variable is a summary of firm characteristics found to increase the likelihood that firms provide more transparent and higher quality financial reporting.

[7] An important assumption in my analysis is that the majority of firms delist voluntarily both pre- and post-IFRS since a change in the number of exchange initiated delistings will change my conclusions. While data availability does not allow me to determine the reason for delisting for each company in my sample, a check of ten randomly chosen companies from each country (5 from each period) failed to uncover any exchange-initiated delistings. In both periods most delistings were due to a merger or an acquisition, followed by bankruptcies, going private transactions, and switches to a less regulated market.

indicating that the costs of the new standards fall disproportionately on smaller firms and firms from the financial and banking industries. The results also provide evidence that the probability of delisting given the companies' level of incentives is higher in the two common law countries in my study, i.e. the UK and Ireland. These findings are robust to the use of different measures of institutional characteristics and enforcement. They are consistent with the idea that the increase in costs related to the new standards is mainly felt in countries that provide more stringent implementation. The results support the proposed disadvantage of imposing a single set of accounting standards over a number of countries with varying enforcement levels.

My paper makes three primary contributions. First, my paper is an important first step towards a more empirically-based debate on the costs of accounting standardization, provided this debate has so far been absent from the accounting literature (Ball 2006; Sunder 2009). The findings of the analysis that standardization might have a negative impact on jurisdictions with higher enforcement are especially timely given the drive for the elimination of the differences between IFRS and US GAAP, and for the eventual establishment of a single set of global accounting standards. Since the US market provides the highest level of enforcement, far exceeding that of the UK one (Coffee 2007), my results suggest that further research is needed before the change to IFRS in the U.S. becomes a fact.

Second, the results in my paper also speak to the effectiveness of implementation and enforcement of IFRS across the European Union following the mandatory introduction of the standards. The uncovered delisting trends support the view that such uniform implementation will be hard if not impossible to achieve (Ball 2006), given the

ongoing institutional differences between jurisdictions. The findings suggest that the creation of one "global player segment" (Leuz 2010) that allows companies with a high level of reporting incentives to commit to higher quality of reporting might be an option preferable to investors compared to the mandatory adoption of a set of global accounting standards.

Finally, the findings of the paper that IFRS stands to affect the delisting behavior of EU companies differently depending on the profile of these companies and the enforcement they face also have significance in light of the intensifying exchange competition (Coffee 2002). Being aware of the changes that IFRS can introduce in the competitive landscape of the European financial markets can point to the measures that national legislators need to take in order to secure the viability of their home exchanges.

The paper proceeds as follows. Section 2 provides an overview of the mandatory IFRS adoption process in the European Union, reviews the related literature, and develops the hypotheses. Section 3 describes the empirical models I use to test these hypotheses. Section 4 outlines the sample selection process and discusses the sample's characteristics. Section 5 presents the results of the analysis. Section 6 contains additional analysis. Finally, section 7 concludes and discusses some of the paper's limitations.

2. REVIEW OF LITERATURE AND HYPOTHESES DEVELOPMENT

2.1. Chronology of the mandatory adoption of IFRS in the European Union[8]

The initiative to create a common set of accounting standards dates back to 1973. In this year, Australia, Canada, France, Germany, Japan, Mexico, Ireland, and the UK became the founders of the International Accounting Standards Committee (IASC) and put it in charge of developing a new common set of standards. Twenty-seven years later, on June 13, 2000, the European Commission issued a Communication with which it proposed the mandatory adoption of the International Accounting Standards (IAS) for the consolidated financial statements of European Union firms no later than 2005.

In April 2001, the IASC was replaced by the International Accounting Standards Board (IASB). Unlike its predecessor, but similar to the FASB, the IASB started electing its members based on their expertise instead of their association with a given country. The new Board was funded by a not-for-profit foundation (the IFRS foundation) in order to strengthen its independence. One of the main goals included in the Constitution of the IASB was "to develop, in the public interest, a single set of high quality, understandable and enforceable global accounting standards that require high quality, transparent and comparable information in financial statements and other financial reporting to help participants in the world's capital markets and other users make economic decisions." Following this goal, the IASB started setting standards known as International Financial Reporting Standards (IFRSs). Since its creation, the IASB issued a number of standards, some of which amended standards issued by its predecessor, while others dealt with issues still not covered by any of the IAS's.

[8] This section relies heavily on information from the Official website of the IASB (www.ifrs.org), Deloitte's IFRS website (www.IASplus.com), and Regulation (EC) No 1606/2002 of the European Parliament (available online at: http://eurlex.europa.eu/LexUriServ/ LexUriServ.do?uri= CONSLEG:2002R1606:20080410: EN :PDF).

On July 19th 2002, following the recommendation of the European Commission and the improvements introduced in the operations of the IASB, the European Parliament passed Regulation (EC) No 1606/2002, which required that all publicly listed firms use IFRS for their consolidated statements starting in 2005. The regulation adopted by the European Parliament created the possibility for an exemption from certain provisions of companies in the European Union that have listed only debt securities within the Community. Similarly, the regulation created the possibility of exemptions for firms whose securities were traded in both the European Union and a third regulated market, and which followed other internationally accepted standards. Those firms were allowed to adopt IFRS starting in 2007. Finally, member states were permitted to extend the scope of the regulation and make IFRS mandatory for the statements of individual firms and for non-public companies.

In 2004, the IASB completed the construction of a so-called "stable platform" by issuing a set of standards needed for countries that had to mandatorily switch to IFRS in 2005. However, while the initial legislation created provisions for enforcement of the new standards, in its report from November 2007, CESR pointed out that only 11 out of the 27 European Union members had completely abided by these provisions.[9] Similarly, the literature so far suggests that institutional differences persist and continue to determine the ability of EU member states to get the benefits associated most frequently with IFRS.

[9] CESR's review of the implementation and enforcement of IFRS in the EU, (November, 2007), available online at: http:// www.standardsetter.de/drsc/docs/qb/2007_q4/Sonstiges_Studie-CESR.pdf.

2.2. The questionable benefits of mandatory IFRS adoption

Research studying the effects of mandatory IFRS adoption has so far concentrated on the benefits anticipated as a result of the adoption. Among these benefits are better quality of reporting and disclosure, lower cost of capital, higher comparability, and liquidity of mandatory adopters. However, the findings of the literature on the IFRS adoption benefits are quite ambiguous. While some studies find that such benefits are realized, most studies either fail to find any of the suggested benefits of IFRS adoption or find that benefits are limited to a subset of companies and countries and strongly dependent on the institutional environment.

Some studies document that the mandatory adoption of IFRS has improved the overall quality of reporting and disclosure. For example, Chen et al. (2010) argue in favor of the ability of accounting standards to increase reporting quality in lieu of institutional and incentive factors. The authors study the changes in a number of quality measures in fifteen European Union countries for the period 2000–2007 and find that the mandatory IFRS adoption leads to a marginal improvement in the quality of reporting of their sample firms in terms of less managing of earnings towards a target, smaller absolute discretionary accruals, and increases in accruals quality.

The results of this study are supported by others showing an increase in value relevance and a decrease in information asymmetry. Aharony et al. (2010) look at the change in value relevance of goodwill, R&D expense, and asset revaluations for fourteen European Union member states in the year immediately preceding and the year of mandatory IFRS adoption. The authors find that prior to IFRS adoption the items they study are less value relevant in countries that have more differences between domestic GAAP and IFRS, but these are also the countries where mandatory adoption results in the

greatest improvements in value relevance. Their analysis of institutional effects does not produce strong variation of value relevance results between countries. Likewise, Horton and Serafeim (2008) find that the mandatory adoption of IFRS in the UK market is value relevant and that most value relevance is gained from the disclosure of bad news, which lead to negative reconciliation adjustments. The authors attribute the increase in value relevance to the disclosure of additional information. Finally, Mueller et al. (2010) study the change in information asymmetry for REITs, mandated by IFRS to disclose the fair value of their investment property assets. They find that compared to voluntary IFRS adopters, mandatory IFRS adopters see larger improvement in information asymmetry measured using bid-ask spreads, despite the fact that information asymmetry for them remains higher following the IFRS mandate.

The findings of increased accounting quality and value relevance are also supported by findings of increased comparability and resulting higher forecast accuracy of analysts. Horton et al. (2008) find that IFRS benefits mandatory adopters. The authors show an increase in forecast accuracy for these adopters and associate it to both improved quality of information and higher information comparability. Similarly, looking at fifteen European countries following the mandatory adoption of IFRS, Bueselinck et al. (2010) find an increase in the precision of analysts' private and public information in the period 2005–2007. Their results indicate that the improvement is largest for firms with largest reconciliation between domestic GAAP and IFRS and for analysts that make forecasts for companies in more than one European country, suggesting improved comparability.

On the other side of the spectrum, a number of authors are unable to find significant improvements associated with the mandatory adoption of IFRS and in some

cases suggest that the effect of IFRS adoption can be negative. Unlike authors that find positive effects on reporting quality, Ahmed et al. (2010) use a sample of firms from countries which mandatorily adopt IFRS and find that following the IFRS adoption the firms in these countries see decreases in accounting quality, in terms of more earnings smoothing, more aggressive gain recognition, less timely loss recognition, and more aggressive accruals reporting.

Findings of a lack of improvement in accounting quality are supported by studies that find no increase and sometimes a decrease in value relevance. Atwood et al. (2010) study the association between current IFRS earnings and future earnings and cash flows. The authors find that the association between current earnings and future cash flows is weaker under IFRS than under US GAAP, and does not differ under IFRS and non-US domestic GAAP. Similarly using a sample of all UK firms for the period 2003–2006, Paanen and Parmar (2008) find no increase in the predictive ability of accounting information for equity values following the adoption of IFRS by UK companies.

In support of the lack of changes in accounting quality and value relevance, Lang et al. (2010) find no effect of the mandatory IFRS adoption on comparability. The authors show that the mandatory adoption of IFRS is associated with an increase in the degree of earnings comovement and no change in the degree to which earnings map into market returns. They conduct further tests to show that the mapping of earnings into returns is the real test of countries' comparability, whereas the increase in earnings comovement is actually associated with lower analyst coverage and forecast accuracy, higher forecast dispersion and bid-ask spreads, and thus eventually with lower ability of investors and analysts to compare firms' performance.

A third set of studies lies between the two extremes of research. These studies find that the anticipated benefits of mandatory IFRS adoption are being realized but only for a subset of companies and countries. Armstrong et al. (2009) find that investors in the European Union expect that the mandatory IFRS adoption will result in benefits but they will not be uniformly distributed across companies and countries. Considering thirteen events that increase the probability of IFRS adoption in the European Union and three events that decrease such probability, the authors find an incremental positive return for companies and banks with lower pre-IFRS reporting quality and for those that have higher information asymmetry. However, they also find an incremental negative reaction to the events that increase the probability of IFRS adoption for firms from code-law jurisdictions, which they interpret as an indication of concerns that investors have about the enforcement of the standards in these countries.

Some research on institutional ownership following the mandatory IFRS adoption also confirms the findings of Armstrong et al. (2009). Florou and Pope (2009) show that following mandatory IFRS adoption, the institutional ownership in their sample firms increases by 3.3% on average, while the average number of investors goes up by 10. The increase is mostly due to value and growth investors, which unlike index and income investors, base their decisions on financial information. Thus, they conclude that the mandatory adoption of IFRS results in higher quality of financial information and reduction in the cost of capital. However, they also find that this is the case only for mandatory adopters with strong enforcement, low levels of corruption, and less earnings management. Similarly, DeFond et al. (2011) find that ownership of US mutual funds in European Union firms increased following the mandatory adoption of IFRS in 2005. This

increase, however, is limited to firms with large improvements in comparability from countries with strong enforcement. Furthermore, the authors find that ownership in mandatory adopters actually goes down if they don't see large improvements in comparability and enforcement is lax.

Consistent with the findings of changes in institutional ownership are a number of studies that demonstrate the improvements of reporting quality and value relevance are larger in strong enforcement jurisdictions or limited to such jurisdictions. Houqe et al. (2010) find that following the mandatory adoption of IFRS in forty-six jurisdictions during the period 1998–2007, the improvement of accounting quality is limited to countries with strong investor protection. Osma and Pope (2011) hypothesize and find that firms use strategic Balance Sheet adjustments to get rid of the "balance sheet bloat" as part of their mandatory transition to IFRS. However, the authors also find that this is the case for firms from weak-enforcement jurisdictions. Barth et al. (2010) compare "accounting system comparability" and value relevance of earnings, changes in earnings, and book values for firms from twenty-six countries that report using IFRS or US GAAP. They find that both accounting system comparability and value relevance are larger between US GAAP and IFRS firms than between US GAAP and domestic GAAP firms. However, they also find larger comparability for firms coming from common-law jurisdictions. Something more, the value relevance is similar for US GAAP and IFRS firms that adopt the international standards mandatorily and come from common-law jurisdictions. Landsman et al. (2011) examine the information content of earnings announcements for sixteen mandatory IFRS adopters vs. the content in eleven countries which do not mandate IFRS. They find that the IFRS mandate increases information

content, measured through abnormal return volatility and trading volume, but the increase is stronger for companies coming from stronger enforcement countries.

Some studies' findings on the benefits resulting from IFRS in terms of cost of capital and forecast precision are consistent with the findings on accounting quality and value relevance. Li (2010) shows that mandatory IFRS adoption is associated with a forty-seven basis points decrease in the cost of capital for mandatory adopters, domiciled in jurisdictions with strong enforcement. Daske et al. (2008) show an increase in liquidity and Tobin's q, and a decrease in cost of capital for firms from twenty-six countries that mandate IFRS. However, the effects are limited to firms from strong-enforcement jurisdictions and high reporting incentives, and stronger for voluntary adopters. Byard et al. (2010) find a substantial decrease in forecast errors and forecast dispersion for companies from countries with standards that differ a lot from IFRS and with strong enforcement. Examining countries whose standards differ a lot from IFRS but have only weak enforcement, they find positive effect on the information environment limited only to firms with strong reporting incentives.

While the large stream of literature on the benefits of the mandatory adoption of IFRS reaches ambiguous conclusions, very little is known so far about the costs of the transition.

2.3. The costs of IFRS adoption

Research on the costs of transition is limited to the change in audit fees (Kim et al. 2010). I propose a different cost associated with international standardization, namely disproportionately high delistings in countries with stronger enforcement. This negative consequence of mandatory IFRS adoption depends crucially on the assumption that IFRS

are costly enough to cause companies to leave their home exchanges. I hypothesize that this is the case based on prior literature on the relationship between accounting regulation and delistings in the US following the introduction of the Sarbanes-Oxley Act of 2002 (SOX), and a number of studies suggesting higher expenses for the switch to IFRS compared to the ones required for applying SOX.

The findings of the growing SOX literature suggest that although being a costly decision, often related to negative returns and slump in liquidity (Sanger and Peterson 1990; Macey et al. 2008), delisting as a result of new regulation is a viable firm strategy. Following the introduction of SOX, an increase in the quarterly number of going-private transactions for US firms is found by Engel et al. (2007). The data presented by Leuz et al. (2008) also speak to a higher number of US firms that decide to discontinue public reporting after the passage of SOX, which the authors attribute to the cost of the regulation. Finally, Hansen et al. (2009) find that although mostly due to overall economic conditions, the delisting jump after SOX is marginally associated with the regulation for smaller companies and with its Section 404 for larger, poorly performing US firms.

A similar reaction to the costs of the SOX regulation is observed for foreign firms cross-listed in the US. Hostak et al. (2007) find an increase in delistings and a decrease in new listings of Level II and Level III ADRs following the 2002 introduction of SOX. Similarly, Piotroski and Srinivasan (2008) find that after the introduction of the regulation some smaller, less profitable cross-listers are more likely to opt against being on the US market.

Given that the costs associated with SOX are sufficient to force certain public firms to exit the market, this is likely to be the case for IFRS. Unlike SOX, which is an incremental change to the US reporting practices, IFRS represents a major, and very comprehensive shift of the entire system of national standards followed by the affected countries (Fearnley and Hines 2007). Hence, it is reasonable to assume that the costs related to the IFRS change will be even higher. Indeed in a survey of stakeholders of the IFRS introduction in three of my sample countries (the UK, Ireland, and Italy), Dunne et al. (2008) report a significant increase in the number and volume of new disclosures and a preparer-reported IFRS price tag of £1M to £50M in the UK, up to €100M in Ireland, and €1M to €1.4M in Italy for the upgrade of information systems, training, consulting, and auditing. Some of the interviewees point to an increase in finance department personnel of up to 25% to accommodate the standards' introduction. A recent survey of the European Commission also estimates both initial and ongoing costs around the IFRS implementation as material. In a report the Commission estimates that the initial cost of IFRS implementation will range from 0.31% of turnover for companies with turnover under €500M to 0.05% of turnover for companies with turnover over €5,000M. Recurring costs for the implementation of IFRS will range from 0.06% of turnover for companies with turnover under €500M, to 0.008% of turnover from companies with turnover above €5,000M. In a survey of financial officers in charge of the IFRS adoption as of 2004 and from German companies included in the DAX-30 index, Jermakowicz et al. (2007) find that the cost of transition is the second major concern for these officers, preceded only by the complexity of the new standards.

Given the findings of US-based research, and the character and costs of the change in the European Union, I formulate the following alternative hypothesis:

H1: The mandatory introduction of IFRS in the European Union will result in an increase in the number of delistings of EU public companies

I further expect that companies whose characteristics give them higher incentives to remain listed and continue reporting, will be the ones willing to incur the higher costs related to the IFRS implementation. Accounting studies on cross-listing, voluntary disclosure, and early standard adoption have all provided evidence on the types of firm characteristics that determine these incentives. According to these studies firms that are larger (Buzby 1975; Watts and Zimmerman 1978; Ball and Foster 1982; Chow and Wong-Boren 1987; Craswell and Taylor 1992; Lang and Lundholm 1993; Depoers 2000), have wider international presence, in terms of both exchange listings and foreign operations (Cooke 1989; Meek et al. 1995; Depoers 2000; Ashbaugh 2001), carry more debt (Hossain et al. 1995; Ahmed and Courtis 1999; Tarca et al. 2005; Bushee and Leuz 2005), grow faster (Doidge et al. 2004; Melvin and Tonone 2009), and have lower ownership concentration (Cooke 1989; McKinnon and Dalimunthe 1993) tend to provide more financial information and have more incentives to continue reporting. As a result, these companies will have better motivation to abide by the regulation and lower propensity to delist. Hence, the second alternative hypothesis I test is as follows:

H2: The probability of delisting post-IFRS will be greater for companies with low firm-level reporting incentives than for those with high firm-level reporting incentives

Finally, I expect that in countries with stronger enforcement and institutions even some companies with high firm-level incentives will be pushed out of the market. Only in these countries will firms actually need to incur the higher implementation costs in full. The European Union has not created supranational institutions to enforce IFRS. Therefore, using countries from two groups with historically different institutional arrangements I can test for the effect of enforcement and institutional characteristics. The first group includes the UK and Ireland, the second is comprised of Italy and Germany.

The difference in institutional arrangements and enforcement levels between the two groups of countries emanates from their legal origin. The UK and Ireland represent the common-law tradition, while Italy and Germany are part of the code-law one. Prior research has shown that common-law countries have higher investor protection than code-law ones (La Porta et al. 1998). This results in more developed and liquid financial markets and more dispersed share ownership (Faccio and Lang 2002). Having their shares held by a large number of arm's-length investors makes common-law companies resolve information asymmetries through more transparent reporting (Ball et al. 2000) and increases these companies' need for strong enforcement mechanisms (Francis et al. 2001). Code-law companies, on the other hand, have a large percentage of their shares held by insiders, founding family members, or the state (Faccio and Lang 2002). Since these companies resolve any reporting asymmetry through direct communication with investors, they rely less on transparent public reporting (Ball et al. 2000) and accompanying enforcement.

Some country-specific studies provide evidence that these institutional differences persist and determine the very approach of the European Union member states towards

IFRS adoption. The fewer discrepancies between UK GAAP and the new standards (Street 2002) have not prevented British authorities from executing gradual regulatory changes to ensure a smooth accounting transition. At the same time, despite the huge dissimilarities between Italian GAAP and IFRS (Street 2002), Italy was among the countries least prepared for the transition and unlike most countries in the Union, which created separate enforcement authorities, Italy delegated the enforcement to its existing capital market regulator (Delvaille et al. 2005). Germany, in turn, created a two-tier enforcement system at the time of the IFRS introduction. However, the power and efficiency of the two new enforcement institutions is doubtful given the finding of Ernstberger et al. (2008) that their establishment is not accompanied by higher liquidity or equity valuation of the German firms and fails to curb earnings management.

I expect that this persistence in institutional differences between code- and common-law countries should cause differences in the enforcement of the new standards as well. German and Italian companies, regardless of their reporting incentives, will be able to adopt IFRS merely "as a label" (Daske et al. 2007) and remain largely unaffected by the new regulation (Ball 2000; Ball et al. 2003). At the same time, UK and Irish companies will be forced to incur the full cost associated with the standards, which might cause even firms with higher reporting incentives to leave their home exchanges. Therefore, I formulate the following alternative hypothesis:

H3: Given a level of incentives, companies will be more likely to delist in common-law countries (i.e. countries with strong enforcement and investor protection) than in code-law countries (i.e. countries with weak enforcement and investor protection)

3. EMPIRICAL MODELS

I use a two-sample test of proportions to compare the delisting and listing percentages in 2005 with the listing and delisting percentages during the rest of the sample period and thus test my first hypothesis that the introduction of IFRS leads to an overall increase in net delistings.

To test my second hypothesis that the delisting behavior of the firms in my sample following the IFRS adoption is influenced by their reporting incentives, I use the following probit regression:

$$\mathbf{Pr(Delisting_{it}) = ß_0 + ß_1 IFRSAdopt^{\gamma} + ß_2 INCENT_{it-1} + ß_3 IFRSAdopt^{\gamma} * INCENT_{it-1} + \Sigma ß_j Controls_i + \Sigma \gamma_j Exchange + \Sigma \delta_j Industry + \varepsilon} \quad \mathbf{(1)}$$

I run this regression for the sample period 1998–2007. The IFRS variable I include in it is an indicator variable with two alternative operationalizations. For $\gamma = 0$, it equals one in 2005, the year of mandatory IFRS adoption, and zero otherwise. For $\gamma=1$, it switches to one for 2005 and all years thereafter. Due to the costs related to the IFRS introduction, I expect a positive sign for the coefficient of this variable.

The second variable I include in the regression is a lagged measure of firm incentives ($INCENT_{t-1}$). I form this variable following the procedure of Wintoki (2007). This author uses the procedure to sort firms in portfolios positioned to benefit or be hurt by the requirement of SOX for outside director monitoring. Summarizing all firm characteristics into one incentives variable has the advantage of a more succinct representation and interpretation of the interactions between these characteristics and the IFRS introduction. However, a major drawback is that the incentives variable becomes a

"black box" and it is difficult to determine which of the characteristics have most influence on my findings. To mitigate this drawback of the analysis, I break down the incentives variables into separate firm characteristics and interact those with IFRSAdopt$^{\gamma}$ as part of my supplementary analysis in section 6.1 of the paper.

To form the incentives variable, I first rank in deciles each of a number of firm characteristics found by previous literature to affect the companies' reporting choices. The ranking is done so that companies with the highest incentive to report based on a given firm characteristic are in the highest decile. I add up the decile ranks for each company in a given year to get the company's incentives index for this year. Then I proceed to rank in quintiles the incentives indices of all companies within that year and use the quintile ranks of the incentive index as my incentives variable. I test the relationship between the incentives variable in a given year and the probability of company delisting in the following year, and predict a negative sign for the coefficient of incentives.

As part of the incentive variable I include several firm characteristics. The first of those is size (SIZE), measured as the natural logarithm of the dollar-denominated total assets. I hypothesize that size will be positively related to the reporting incentives. It is less costly for larger firms to secure the human and technical aspect of reporting (Buzby 1975; Depoers 2000). Proprietary costs decrease in size, since larger firms face less fierce competition (Buzby 1975; Craswell and Taylor 1992). At the same time, being a focus of attention, larger firms benefit from disclosure by eliminating the need for investors and analysts to acquire private information (Diamond 1985) and by preventing them from misinterpreting non-disclosure (Verrecchia 1983). Larger firms also decrease their

political costs by disclosure, which enhances corporate image (Watts and Zimmerman 1978; Craswell and Taylor 1992) and helps achieve lower cost of shareholder-debtholder-manager contracting (Chow and Wong-Boren 1987).

The second firm characteristic I include in my incentives variable is sales growth (GROW). I measure it as the percentage change in sales from the previous year. I expect this variable to be positively associated with the firm's reporting incentives, since it is optimal for controlling shareholders to commit themselves to reporting and lower private benefits of control only if the firm has growth opportunities that can be financed through external sources (Doidge et al. 2004).

I further include leverage (LEV), or the ratio of total debt to total assets, as a determinant of the firm's disclosure incentives and expect a positive relationship. Prior research hypothesizes that agency costs are higher for firms with more debt (Jensen and Meckling 1976; Smith and Warner 1979), and thus disclosure should increase with leverage (Meek et al. 1995).

My incentives variable also includes three proxies for the foreign presence of the company. One measures the number of foreign exchanges on which it is listed (FEXCH), the second is an indicator variable equal to one if the company is present on the NYSE or NASDAQ and zero otherwise (USList),[10] while the third proxy equals the foreign sales of the firm as a percentage of its total sales (FSALES).[11] I predict a positive relationship between the incentives to report and each of these variables. With respect to listing, prior

[10] Since USList is a dichotomous variable it cannot be included in the incentives index following the ranking procedure described earlier. For this reason, I adjust for it in the calculation by adding 1 to the incentives index values of companies that are listed on the NYSE or NASDAQ.

[11] I include both FEXCH and FSALES in my incentives variable since Dumontier and Raffournier (1998) argue that companies can extract more than financial benefits from more transparent reporting. Furthermore, the correlation analysis in Table 2 shows low and insignificant correlation between these two variables.

research has shown that companies listed abroad disclose more because of the increased information need of their international shareholder base (Meek et al. 1995) and foreign capital providers (Choi and Mueller 1984).

While a US listing is already captured by the FEXCH variable, I include a separate indicator variable to reflect the findings of prior literature (Coffee 2002; Doidge et al. 2004) that a cross-listing on a US stock exchange subjects the cross-listed company to stricter enforcement than that faced by its domestic counterparts. This indicator variable is also a proxy for the different characteristics that make cross-listed companies voluntarily submit themselves to stricter enforcement and thus pre-commit to more reporting (Lang et al. 2003). The increase in the foreign portion of the business of the company is also associated with an increase in the amount of information controlled by the firm, its disclosure (Depoers 2000), and its use for bonding activities, which show that the firm acts responsibly (Cooke 1989).

I additionally include as a reporting incentive ownership concentration measured as the Herfindahl index of ownership (OWN). The index equals the sum of squares of the percentage stock ownership for the three largest shareholders of the firm. It varies between 0 and 1, with higher values corresponding to higher ownership concentration. I expect ownership concentration to be negatively associated with the firm's disclosure incentives. Agency costs for the firm are higher when its shares are widely held. One way to reduce them is through voluntary provision of information (McKinnon and Dalimunthe 1993). Furthermore, the greater the number of shareholders, the more heterogeneous their information needs and the diversity of information disclosed (Cooke 1989).

Finally, I subtract from the reporting incentives variable an indicator variable equal to 1 if a firm is in the financial and banking industries (SIC 60 to 67). I expect this variable to be negatively related to the firm's incentives to remain listed and continue reporting because of the findings of prior research that IFRS forces firms in the financial and banking industries to make more and costlier changes than their non-financial counterparts (Dunne et al. 2008).

In addition to the firm characteristics in my lagged incentives variable, I also include in the regression an interaction between this variable and the IFRS indicator variable ($IFRSAdopt^{\gamma}$). I expect that by imposing additional costs on public firms IFRS will increase the number of low-incentive companies willing to delist from the four exchanges in my study. For this reason, I predict a negative coefficient for this variable.

As a supplemental control I include in the model a lagged measure of firm profitability (ROA_{t-1}). I do not include this measure as part of my incentive variable since I do not have a clear prediction about its relationship with firm reporting incentives. However, I control for it since prior literature documents that firm performance is an important determinant of its probability of delisting. I also include as a control variable a proxy for general economic, financial and political conditions in the four countries in my study (PRSIndex). The need for such control is shown by Hansen et al. (2009), who find that most delistings of US companies after SOX are associated with overall economic conditions. I operationalize the proxy for economic, financial, and political conditions using the PRS composite risk score, which is a concise representation of a number of financial, economic, and political factors for a given country and is calculated on a monthly basis by the PRS Group Inc. (see Appendix 2 for detailed description of all three

components included in the risk score and their respective weights). [12] To calculate the score, I average its value over the 12 months of each sample year. Since, by construction, higher values of the score correspond to lower risk for the country, I expect a negative relation between my PRSIndex variable and the delisting probability. Finally, I include industry dummies, based on a 1-digit SIC classification and excluding the financial and banking industry, to control for industry-related factors that might affect the delisting probability, and exchange dummies to control for possible differences in exchange fees and conditions.

I test H3 on the interaction between IFRS, delisting incentives, and enforcement institutions using two different methods. First, I run regression (1) separately for the two common-law countries (the UK and Ireland) and for the two code-law counties (Germany and Italy). Alternatively, I run the following probit regression:

$$\mathbf{Pr(Delisting_{it}) = \beta_0 + \beta_1 IFRSAdopt^{\gamma} + \beta_2 INCENT_{it-1} + \beta_3 IFRSAdopt^{\gamma} * INCENT_{it-1} + \beta_4 Origin + \beta_5\ IFRSAdopt^{\gamma} * Origin + \Sigma \beta_j Controls_i + \Sigma \gamma_j Exchange + \Sigma \delta_j Industry + \varepsilon} \quad \mathbf{(2)}$$

In addition to the $IFRSAdopt^{\gamma}$, incentives and control variables defined above, I include an indicator variable for origin (Origin), which equals one if the company is domiciled in a common-law country and zero otherwise. I expect that the proxy for origin and the interaction between origin and my IFRS adoption dummy will both be positively associated with the probability of delisting. To test the robustness of the results obtained from the common/code-law distinction, in section 6.3 of my additional analysis, I rerun

[12] See Frost et el. (2008) for the way the PRS index compares to other risk indices.

regression (2) using a number of different measures used in prior research as proxies of institutional and enforcement characteristics.

4. SAMPLE

4.1. Sample selection and data sources

The population for my study includes companies listed on the London, Dublin, Frankfurt, and Milan Stock Exchanges in any year during the period 1998–2007. I obtain the necessary information for the London Stock Exchange (LSE) from its website, for the Milan Stock Exchange from a research report of Ricerche e Studi S.p.A.,[13] for the Dublin Stock Exchange through direct communication with the exchange, and for the Frankfurt Stock Exchanges from the University of Karlsruhe.

For my main analysis, I restrict the population to domestic public companies. Such restriction maintains consistency because the data from the Frankfurt Stock Exchange contain domestic companies only, and avoids double-counting since some companies are listed on two or more of the four exchanges.

To minimize the noise in my enforcement measure, the main analysis also excludes companies from exchange segments with lax listing and reporting requirements and such that do not mandate IFRS adoption in 2005. Based on these selection criteria, I exclude from the analysis firms listed on the UK AIM market, on the Italian Expandi and the Standard Segment (Class 2) Market, on the German Open Market, and on the Irish Enterprise Exchange (for a detailed description of the segments of the four exchanges see Appendix 3). This selection procedure results in a total initial population of 4,140

[13] Ricerche e Studi S.p.A. is a wholly-owned subsidiary of Mediobanca – Banca di Credito Financiario S.p.A, set up in 1970 as a separate economic and financial research unit with its own team of expert researchers to produce company and industry surveys of the type Mediobanca has been publishing since 1946.

companies from the four countries included in the main analysis: 2,616 from the UK, 908 from Germany, 532 from Italy, and 84 from Ireland. Besides these firms, in a supplementary analysis focused only on the London Stock Exchange, which I conduct in Section 6.4, I use the population of 1,913 domestic firms listed on London's AIM market. In the main analysis I do not distinguish between voluntary and mandatory adopters and assume that all firms in the population adopted in 2005. I do not exclude voluntary adopters since I assume that the mandatory adoption of IFRS might be associated with institutional changes that make it costlier for those adopters to stay on the respective exchanges as well, especially if they had adopted IFRS "as a label" (Daske et al. 2007). However, my additional analysis in section 6.3 explicitly controls for voluntary adoption.

I obtain information on most firm characteristics forming my incentives measure and additional control variables from the Worldscope database. To maximize the number of observations, I assume that missing values for the percentage of foreign sales (FSales) equal zero if the values for the previous and subsequent firm-years are missing as well; if these values are present I form an average for the firm-year between them. This assumption imputes the value of zero to 8,711 firm-years, representing 53% of all firm-years with non-missing data on other firm characteristics. Another assumption I make is that if the company lacks information about the exchanges it is listed on, or the only exchange code provided by Worldscope is "OTH" (other), it is listed on its domestic exchange only. Finally, I calculate the Herfindahl index of ownership using the field "MajorShareholdersCurrent", which provides information on individuals or companies that own 5% or more of the stock of the firm, based on its last annual filing. If less than three large shareholders are provided, I make one of two assumptions. First, I assume that

the ownership of the unreported shareholders to be included in the largest three is 4.99% and for this reason it is not reported. Second, I assume that it is anywhere between 0% and 5% and take the average of 2.50%. The correlation between the Herfindahl indices calculated following each of the assumptions is 1 and for this reason I use only the ownership index based on my 2.50% assumption in further analysis. My final sample consists of 3,019 firms (16,556 firm-years) of which: 1,933 firms (10,379 firm-years) from the UK, 691 firms (3,765 firm-years) from Germany, 333 firms (2,036 firm-years) from Italy, and 62 firms (376 firm-years) from Ireland.

I collect data on the US listings of my sample firms from the ADR databases of Bank of New York Mellon, Citigroup, and JP Morgan. Finally, I get information on the PRSIndex variable used to control for overall financial, economic, and political conditions in the four countries from the International Country Risk Guide (ICRG) Risk Rating System published by PRS Group Inc. for the period 1998–2007. Appendix 1 contains a complete list of variable definitions and data sources.

4.2. Sample description

Panel A of Table 1 provides descriptive statistics for the firm-level characteristics included in my incentives variable for the entire sample. The logarithm of total assets measured in million US dollars for the sample companies has a mean (median) value of 5.55 (5.26). The mean (median) debt-to-assets ratio for these companies is 21% (17%). Their sales grow at an average rate of 40%. However, the large variability of this measure and its much lower median value of 9%, show that only a few firms are responsible for this impressive growth. At least half of the companies in my sample are not listed on any foreign exchanges and limit their sales to their domestic markets, as seen from the

median values for FSALES and FEXCH, both equal to zero. However, the measures of foreign activity also exhibit high variability with some sample firms listed on up to 9 foreign exchanges and realizing all of their sales abroad. An average Herfindahl index of 12% and a skewness of this measure to the right (median equal to 3%) show that most firm-years have highly dispersed stock ownership probably attributable to the large proportion of common-law (i.e. UK and Irish) firms in the sample. A mere 3% of the firm-years in my sample have a US stock exchange listing. Finally, the average profitability for the firm-years in my sample is negative and equal to -2%.

Further insight is afforded by the subdivision of my sample companies into a group of companies that stayed listed during the entire period of the study (Listed) and a group of firms that delisted at some point during the sample period (Delisted) (see panel B of table 1). Panel B of table 1 includes the mean and median value of the firm-year characteristics that form part of my Incentives variable. It also shows a comparison of the mean and median values based on a t-test with unequal variances and a Wilcoxon rank sum test, respectively. As expected, firms that delisted during the period of the study are significantly smaller, are present on fewer foreign exchanges including US ones, have a more concentrated ownership, and lower profitability.

Panel C of table 1 shows the mean and median values of the characteristics of firm-years in my sample before and after the mandatory IFRS adoption. The comparison of these means and medians shows that firm-years in the post-adoption sample period are larger, have lower leverage, are listed on more foreign exchanges including U.S. ones, and are more profitable (i.e. have higher ROA).

A comparison of means and medians based on the legal origin of their home country also suggests systematic differences between companies (see panel D of table 1). Consistent with expectations, code-law firms have more concentrated ownership. Surprisingly, however, these firms' presence on foreign exchanges exceeds that of common-law firms. Despite being listed on more stock exchanges, consistent with the idea that code-law firms try to avoid stricter enforcement, they have lower presence on the US exchanges. During the sample period, code-law firms also have higher leverage and lower profitability (i.e. have lower ROA) than their common-law counterparts.

Moving from the firm-level incentives to the country-level variables, panel A of table 2 provides descriptive statistics for the PRSIndex variable I use to control for economic, political, and financial conditions in the sample countries. The panel shows that the highest average value of the variable (i.e. lowest risk) is in Ireland, and the lowest value (i.e. highest risk) is in Italy. Panel B of table 2 contains Pearson (below the diagonal) and Spearman (above the diagonal) correlation coefficients for the values of the PRSIndex in the four countries during the sample period. The coefficients suggest great variability: from a close correlation in economic, political, and financial conditions in Ireland, Italy, and the UK to a great disparity between the conditions in these three countries and Germany. The descriptive statistics indicate that despite being subject to the common economic, political, and financial policies of the European Union, the four countries are at a different place in their economic cycles, once again suggesting the need to control for country-specific economic, political, and financial conditions.

Finally, panel C of table 2 contains the values of a diverse number of measures of enforcement and institutional characteristics used in prior literature. A detailed

description of these measures and the source of their values are provided in Appendix 1. Panel D shows that the Pearson (below the diagonal) and Spearman (above the diagonal) correlation coefficients between these measures and my origin dummy (Origin) are high and range from 0.52 to 0.98. The rest of the pairwise correlations between the measures are also high, with the exception of the measure Rule-of-law developed by Kaufmann et al. (2008) (Kauf) and the measure of public enforcement (Public) of La Porta et al. (2006).

5. EMPIRICAL FINDINGS

5.1. Listing and delisting trends

Table 3 provides information on the number of listed stocks and the percentage of stocks listing and delisting each year from the London, Dublin, Milan, and Frankfurt Stock Exchanges. The average percentage of stock delistings from all four exchanges over the sample period is 7.6%. Considering the separate stock exchanges, the delisting average is highest for the LSE (9.5%), and lowest for the Frankfurt Stock Exchange (4.0%). Based on my first hypothesis, I expect the maximum percentage of delistings from the four exchanges to be reached in 2005, the year of IFRS introduction. I test this hypothesis using a two-sample test of proportions. The statistical significance is based on a two-sided test. The results show that across the four exchanges, the proportion of companies delisting in 2005 is three percentage points higher than the average proportion for the rest of the sample period. The difference is significant at the 0.01 level. The listings are 1% lower compared to the rest of the sample period, and the difference is significant at the 0.1 level.

A separate analysis of the four exchanges shows large differences in the delisting patterns of their companies underlying the observed general trend. The overall results are driven by the LSE. There, the delisting percentage, just as the total one, attains its maximum in 2005, and is significantly higher than the average delisting percentage for the rest of the period. At the same time, for the Irish, Italian and German stock exchanges, the proportion of delistings is not significantly different in 2005 than the average proportion of delistings for the rest of the period. A jump in the percentage of delistings is noticed in Ireland in 2006, the year following the mandatory IFRS adoption. An analysis of new listings shows that the proportion of listings in 2005 is significantly lower than the average proportion of listings for the rest of the period for Germany and Italy, but is not significantly different for the UK and Ireland. These findings suggest that the mandatory IFRS adoption did not cause firms to list in larger numbers thus offsetting the negative effects of increased delistings in any of the four jurisdictions. The results of the analysis support my expectations of an overall increase in delistings after the mandatory IFRS adoption. However, they also indicate that the trend is due mostly to the common-law markets (i.e. to the UK and partly to the Irish markets).[14]

Consistent with these findings, the Pearson and Spearman correlation coefficients in table 4 show that origin is positively and significantly related to the probability of delisting.

[14] The data I have for the UK market start in 1999. Thus, the data for 1998 are deduced from information on the listings and delistings during 1998 and total listings in 1999. To make sure that imprecision in the data for 1998 does not drive the results, I rerun the two-sample proportion tests for all markets excluding 1998. The results are similar both in direction and statistical significance.

5.2. Incentives and delisting

Table 5 shows the marginal effects, calculated at the mean from regression (1), testing the influence of firm incentives and mandatory IFRS adoption on the delisting decisions of the sample companies. The results of all models are based on regressions with robust standard errors, clustered by entity, and adjusted for the non-linearity of the probit model.[15] The models in the table differ by their definition of the IFRS indicator variable. Model_1 and Model_2 define this indicator variable as one in 2005 and zero otherwise. Model_3 and Model_4 define it as one for 2005 and all the years thereafter. Model_1 and Model_3 include only the variables of interest, while Model_2 and Model_4 include control variables as well. All four models include industry and exchange fixed effects.

Consistent with my expectations, the coefficient of the IFRS indicator variable in Model_1 and Model_2 is positive and significant at the 5 percent level. This indicates that the probability of delisting increased by about 2% in 2005, after the introduction of the new standards. The sign of this indicator variable's coefficient remains positive and significant at the 10 percent level in Model_3, but loses statistical significance in Model_4.

For all four models, my Incentives variable has the expected negative sign and is significant at the 0.01 level. This result speaks of lower delisting probability of about 1.6% for higher incentive companies during the entire sample period. Consistent with H2, the interaction between the IFRS indicator variable and the incentive variable is

[15] For a linear regression with interaction effects: $ß_1x_1 + ß_2x_2 + ß_{12}x_1x_2 + ßX = y$, $\delta^2[Ey|x_1, x_2, X]/ \delta x_1 \delta x_2 = \delta^2[Ey|x_1, x_2, X]/ \delta x_1x_2 = ß_{12}$. However, for a probit regression with an interaction effect $y = \Phi(ß_1x_1 + ß_2x_2 + ß_{12}x_1x_2 + ßX)$, where $\Phi(.)$ is the cumulative normal distribution function, the interaction effect is given by the cross-derivative $\delta^2\Phi(.)/ \delta x_1\delta x_2 = ß_{12}\Phi'(.) + (ß_1 + ß_{12}x_2)*(ß_2 + ß_{12}x_1)* \Phi''(.)$ and is not equal to $\delta^2\Phi(.)/ \delta x_1x_2 = ß_{12}\Phi'(.)$ computed by Stata (Ai and Norton 2003).

statistically significant in Model_1 and Model_2 and has the expected negative sign, showing that the introduction of IFRS in 2005 in the four countries in my study increased the delisting probability for their companies, but this increase is more pronounced (by about 1%) for the lower-incentive firms. While the calculated marginal effects seem modest, they are economically significant, given that the basic delisting probability of all four probit models, holding all variables at mean, is between 5.3% and 5.4%.

5.3. Origin, incentives and delisting

Panel A of table 6 contains the marginal effects of probit regression (2), which I use to test the joint effect of incentives and origin on the probability of delisting. They are based on a regression with robust standard errors, clustered by entity, and adjusted for the non-linearity of the probit model. Model_1 includes only the variables of interest, while Model_2 includes control variables as well. Both models in panel A of table 6 define the IFRS indicator variable as one in 2005 and zero otherwise and include industry and exchange fixed effects.

Similar to the models in table 5, the incentives variable in both models is negative and statistically significant, decreasing the overall probability of delisting for my sample firms by about 1.6%. The significant and negative interaction between the incentive and IFRS adoption variables shows that the 2005 introduction of IFRS further increases this probability for lower incentive firms by about 0.5% in Model_1, and remains negative although it loses statistical significance in Model_2. The probability of delisting is negatively and significantly associated with the profitability of the firms in the previous year. The PRSIndex variable as a proxy for economic, political, and financial conditions

in the four countries has the expected negative sign and is statistically significant at the 0.05 level.

While the results for these variables remain similar to the ones obtained from testing regression (1), adding enforcement to the model makes the IFRS adoption dummy lose its statistical significance. At the same time, the measure of origin and the interaction between it and the IFRS adoption dummy are both positive and significant at the 0.01 level. The coefficients indicate that Origin increases the delisting probability by about 4%, while following the mandatory IFRS adoption, being domiciled in a common-law jurisdiction is associated with higher delisting probability of an additional 3%, given a base probability with all variables at mean of about 5%. My interpretation of these findings is that enforcement plays a more important role for the delisting decisions of the companies in my sample than IFRS *per se*. Furthermore, consistent with my third hypothesis, the positive and significant coefficient on the interaction between $IFRSAdopt^0$ and enforcement shows that after the introduction of the standards, enforcement counteracts the effect of incentives, causing companies with a given level of incentives to be more likely to delist in countries with higher enforcement.

None of the models in panel A of table 6 includes a three-way interaction between incentives, origin, and the IFRS adoption dummy. I do not include such interaction in order to avoid the complexity of interpretation of the coefficient. As an alternative, I run model (1) separately for the common- and code-law countries in my sample. The marginal effects of the probit models calculated at the mean and adjusted for the non-linearity of the probit regression are included in Panel B of table 6. The results show that the IFRS adoption has a positive and significant effect on the probability of delisting and

the interaction of IFRS adoption and incentives has a negative and significant effect on the probability of delisting only in the common-law jurisdictions (i.e. the UK and Ireland). Furthermore, the increase in delisting caused by IFRS adoption in those jurisdictions is much larger (4%) compared to the marginal effect of the interaction between incentives and the IFRS adoption dummy (-1%). I interpret these findings as indicating that the mandatory IFRS adoption has impact only on companies from common-law countries, but not on those from code-law countries, once again emphasizing the importance of incentives, enforcement and their interaction.

6. ADDITIONAL ANALYSIS

6.1. Interaction between IFRS adoption and the firm characteristics included in the Incentives variable

My main analysis uses a summary Incentives variable to facilitate the calculation and presentation of its interaction with the IFRS adoption dummy. However, to be able to determine which of the firm characteristics drive the delisting pattern of my sample firms, in an untabulated analysis I replace this Incentives variable with the separate firm characteristics included in it and interact each of them with the IFRS dummy. I find that four out of the seven characteristics I use have the expected sign and are statistically significant. These characteristics are SIZE, FEXCH, FSALES, and OWN. From the remaining three variables both GROW and LEV have the expected sign but are not statistically significant, while the coefficient of USList has both the wrong sign and lacks statistical significance. While several firm characteristics determine the delisting decisions of the companies in my sample over the entire sample period, only the interactions between SIZE, Bankind and the IFRS dummy are statistically significant,

showing that IFRS increases the cost and therefore the delisting likelihood for smaller firms and firms that belong to the banking and financial industries.

6.2. Controlling for voluntary IFRS adopters

As mentioned earlier, a major concern in the analysis is that code-law countries (particularly Germany) have a large number of voluntary adopters, which might affect the delisting trends uncovered by the analysis. To address this concern, I rerun regression (1) and regression (2) and include the variable Voluntary, which equals one if the company has adopted IFRS prior to 2005 and zero otherwise. The results of this analysis are included in table 7. As expected, voluntary adoption has a negative and significant effect on the probability of delisting. The rest of the variables retain the direction and significance obtained from the main analysis.

6.3. Alternative enforcement and institutional measures

To address possible concerns regarding the validity of my institutional proxy (Origin), I rerun regression (2) using a number of different measures that prior literature has used as a proxy of institutional environment and enforcement at the country level. The interaction between enforcement (institutions) and the IFRS adoption dummy remains significant and positive for all measures but JREnf2 and Rule-of-law (Kauf). For these measures, the interaction has the expected positive sign but lacks statistical significance. Depending on the measure used, the marginal effect of this interaction with all other variables at mean is between 0.2% and 6%. The incentives variable remains negative but lacks statistical significance for all measures, but JREnf2. For JREnf2 it is negative and significant at the 0.1 level. The results of this analysis increase my confidence in the validity of my findings.

6.4. Delisting behavior of companies on London's Main Market and the AIM

Because the effect of the 2005 IFRS introduction is most markedly related to the UK, concerns might arise that instead of enforcement, country- and exchange-specific factors might be driving the delisting behavior of UK firms on the country's Main Market. In an attempt to address such concerns in this section I compare the delisting behavior of two groups of UK domestic companies, one listed on the Main Market and mandated to adopt IFRS in 2005 and the other one on the Alternative Investments Market (AIM), and not required to use the international standards until 2007.

The AIM market is a segment of the London Stock Exchange catering to smaller, faster growing, and less profitable companies with a need for equity financing, which are still unable to meet the stricter standards of the Main Market. As reflected in the descriptive statistics in table 8 panel A, compared to my Main Market sample, the AIM companies have lower international presence and more concentrated ownership.

Given the characteristics of its target firms, the AIM has established low admission criteria and subsequent lax disclosure and reporting requirements, including the postponement of the adoption of IFRS for AIM companies to 2007. Thus, while firms on the Main Market and the AIM are affected by the same economic factors and national regulations, they differ in terms of the exchange enforcement and the IFRS requirements to which they are subject. This makes the AIM firms a good control group for the ones listed on the Main Market, since any difference in the listing and delisting behavior between the two groups around the introduction of IFRS will be more likely attributable to the new standards and their enforcement.

As shown in panel B of table 8, such difference in listing and delisting behavior does exist in the two markets around the IFRS introduction. As mentioned earlier, 2005 is the year with the highest percentage of delistings for the Main Market. The proportion of Main Market delistings in 2005 is significantly higher than the average proportion of delistings for the rest of the period. However, this is the year with the lowest percentage of delisting for the AIM since 1998. The two-sample test of proportions indicates that the proportion of AIM delistings during 2005 is significantly lower than the average proportion for the rest of the period. Following the 2005 introduction of IFRS for the companies on the Main Market, the percentage of delistings in this market goes down in 2006 and 2007. At the same time, in anticipation of the 2007 IFRS introduction for the companies in the AIM market, the AIM percentage of delistings grows in 2006 and 2007. On the other hand, listings remain comparatively stable on the Main Market over the period 2005–2007. However, the percentage of companies joining the AIM starts falling in 2006, to reach its minimum for the entire sample period in 2007, the year when the IFRS standards begin applying for the AIM companies as well.

A further indication of the difference in listing and delisting behavior between the companies in the Main Market and the AIM is their pattern of switching between the two markets. Panel C of table 8 shows the number of companies that switched from and to the Main Market and the AIM as a percentage of the companies present on their initial market at the beginning of the year of the switch. As can be seen, the percentage of switching companies transferring to the Main Market from the AIM reaches its minimum in 2005, the year of IFRS introduction. The proportion of switching firms in this year is significantly lower than the average proportion of switching firms over the rest of the

sample period. This is also the year with the second highest value of switches from the Main Market to the AIM and the proportion of switching firms is significantly higher than the average proportion of switching firms over the rest of the sample period. I interpret the switching behavior of UK companies as additional evidence of the costs related to the 2005 introduction of IFRS in the highly regulated Main Market.

Finally, a probit regression of the probability of delisting on the adoption of IFRS, incentives, and the type of market (see table 9), indicates that the effect of the 2005 adoption of the international standards is not significant. However, both the market indicator variable and the interaction between the type of market and IFRS adoption have the expected positive effect on the probability of delisting, showing that companies listed on the Main Market are more likely to delist during the sample period, and this probability goes up even further in 2005, with the introduction of IFRS. These results, as well as the overall delisting trends on the two markets, increase my confidence that the findings obtained from the UK part of the sample in my main analysis are enforcement-driven and are not induced by other country- or exchange-specific factors.

7. CONCLUSION AND LIMITATIONS

The study examines a possible cost of international accounting harmonization, the higher delisting of companies from adopting jurisdictions with stronger enforcement and institutional characteristics. To do so, I examine the delisting behavior of public firms following the 2005 mandatory shift to IFRS in the European Union. I hypothesize and find that there is an overall increase in delisting probability in the year of the adoption of the new standards. This increase is most substantial for low-incentive public companies,

and for companies that operate in the two common-law countries in my sample, the UK and Ireland.

The study has two major limitations. First, two of the measures in it, ownership concentration and the number of foreign exchanges are assumed constant due to the lack of data on the change in these variables in Worldscope. Despite certain noise in the analysis that this simplification might produce, I consider these two variables as ones that change slowly and generally do not undergo abrupt variations. For this reason, I believe that their measurement at a single point in time will not confound my conclusions.

A second limitation of my study is the inclusion in the analysis of companies domiciled in only four of the member states of the European Union. The reason for this limitation is twofold. First, I was unable to find information on the populations of other European exchanges and on the changes in these populations for the entire period of the study. Second, due to dynamic changes in the European stock markets during the sample period such as the formation in 2000 of Euronext and its merger with the NYSE at the beginning of 2007, the inclusion of some of these markets in the analysis might have increased the noise and the possibility that the delisting trends I observe are due to the changes in the structure of the exchanges, rather than to the new accounting requirements.

Despite these limitations, the findings of the study contribute to the accounting literature by laying the foundation for a more empirically-based dialogue about the advantages and disadvantages of international accounting standardization. This dialogue is timely, given the possible adoption of IFRS by the United States, and the transition from international to global standardization. The findings speak to the possibility for

IFRS to be efficiently implemented given the ongoing institutional differences between the countries in Europe. Finally, the study contributes to a better understanding of the changes that the introduction of IFRS might bring to the competitive landscape of the European stock exchanges.

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Table 1. Descriptive statistics for the firm characteristics included in the Incentives variable

Panel A: Firm characteristics for entire sample

Variable	N	Mean	Q1	Median	Q3	StDev
SIZE	16,556	5.55	-0.71	5.26	14.48	2.09
LEV	16,556	0.21	0.00	0.17	4.26	1.00
GROW	16,556	0.40	-7.61	0.09	311.00	7.25
FExch	16,556	0.21	0.00	0.00	9.00	0.58
FSales	16,556	0.27	0.00	0.00	6.24	5.50
OWN	16,556	0.12	0.00	0.03	1.00	0.21
USList	16,556	0.03	0.00	0.00	1.00	0.16
ROA	16,556	-0.02	-6.05	0.02	0.89	0.31

Table 1 (continued)
Panel B: Differences in firm characteristics for firms that delisted/remain listed

	Listed			Delisted			Mean differences	Median Differences
Variable	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**(Delisted-Listed)**	**(Delisted-Listed)**
SIZE	12,067	5.70	5.42	4,489	5.12	4.84	-0.58***	-0.58***
LEV	12,067	0.21	0.16	4,489	0.22	0.18	0.01	0.02***
GROW	12,067	0.43	0.11	4,489	0.31	0.04	-0.12	-0.07***
FExch	12,067	0.27	0.00	4,489	0.06	0.00	-0.21***	0.00***
FSales	12,067	0.26	0.00	4,489	0.31	0.00	0.05	0.00***
OWN	12,067	0.11	0.03	4,489	0.15	0.04	0.04***	0.01***
USList	12,067	0.03	0.00	4,489	0.00	0.00	-0.03***	0.00***
ROA	12,067	-0.01	0.02	4,489	-0.04	0.02	-0.03***	0.00***

Table 1 (continued)
Panel C: Difference in firm characteristics pre-/post-mandatory IFRS adoption

	Before Adoption			After Adoption			Mean differences	Median Differences
Variable	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**(After–Before)**	**(After–Before)**
SIZE	11,729	5.41	5.14	4,827	5.87	5.60	0.46***	0.46***
LEV	11,729	0.22	0.17	4,827	0.20	0.15	-0.02**	-0.02***
GROW	11,729	0.41	0.08	4,827	0.36	0.12	-0.05	0.04***
FExch	11,729	0.21	0.00	4,827	0.23	0.00	0.02***	0.00***
FSales	11,729	0.29	0.00	4,827	0.23	0.00	-0.06	0.00***
OWN	11,729	0.12	0.03	4,827	0.10	0.03	-0.02	0.00***
USList	11,729	0.02	0.00	4,827	0.03	0.00	0.01**	0.00***
ROA	11,729	-0.02	0.02	4,827	0.01	0.03	0.03***	0.01***

Table 1 (continued)
Panel D: Difference in firm characteristics between common- and code-law groups

	Common-law			Code-law			Mean differences	Median Differences
Variable	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**(Code–Common)**	**(Code–Common)**
SIZE	10,755	5.59	5.34	5,801	5.46	5.15	-0.13***	-0.19***
LEV	10,755	0.21	0.15	5,801	0.23	0.20	0.02**	0.05***
GROW	10,755	0.29	0.08	5,801	0.60	0.10	0.31**	0.02***
FExch	10,755	0.12	0.00	5,801	0.38	0.00	0.26***	0.00***
FSales	10,755	0.30	0.00	5,801	0.22	0.00	-0.08	0.00***
OWN	10,755	0.05	0.03	5,801	0.23	0.07	0.18***	0.04***
USList	10,755	0.03	0.00	5,801	0.01	0.00	-0.02***	0.00***
ROA	10,755	0.00	0.03	5,801	-0.04	0.01	-0.04***	-0.02***

The table shows descriptive statistics for the firm characteristics included in the estimation of the reporting incentives variable (INCENT). These characteristics are size (SIZE) equal to the logarithm of total assets, leverage (LEV) equal to the ratio of total debt to total assets, growth (GROW) measuring the percentage change in sales over the previous period, FEXCH as the number of foreign exchanges a company is listed on and FSALES as the percentage of company sales realized abroad, Ownership (OWN) equals the Herfindahl index of the three largest shareholdings, and USList is a dummy variable that equals one if the company is listed on the NYSE or NASDAQ and zero otherwise. The table also includes descriptive statistics on firm profitability (ROA), which is used as a separate control variable in the model, and equals the ratio of Net Income to Total Assets. Panel A of the table provides a comprehensive set of descriptive statistics for the entire sample and sample period, Panel B compares the differences in mean and median values of these characteristics for the subsamples of firms that remained listed throughout the sample period and those that delisted at some point during the period. Panel C compares the means and medians of the firm characteristics for the period before and after the mandatory adoption of IFRS by the European Union (i.e. pre- and post-2005). Finally, Panel D compares the mean and median firm characteristics for firms domiciled in code- vs. common-law jurisdictions. The comparison between medians and means is done based on a Wilkoxon rank-sum test and t-test with unequal variances, respectively. ***, **, * indicate statistical significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 2. Country-level variables

Panel A. Economic, political, and financial conditions by country – PRS Index

	UK	Ireland	Germany	Italy
Mean	82.39	86.53	83.11	79.14
Median	82.71	86.77	83.24	78.91
StDev	1.55	1.43	1.11	2.01
Q1	80.89	85.08	81.89	77.57
Q3	83.73	87.23	84.01	80.41

Panel B. Economic, political, and financial conditions (PRS Index) – correlation

	Germany	Ireland	Italy	UK
Germany	1	-0.359	-0.212	-0.236
Ireland	-0.201	1	0.809***	0.559*
Italy	-0.087	0.758**	1	0.661**
UK	-0.289	0.507	0.631**	1

Table 2 (continued)
Panel C. Measures of reporting and institutional differences by country

	Common-law		Code-law	
	UK	**Ireland**	**Germany**	**Italy**
CIFAR	85.00	81.00	67.00	66.00
LNW	0.13	0.20	0.62	0.83
ExAnte	1.00	0.78	0.14	0.17
ExPost	0.90	0.80	0.43	0.68
AntiSelf	0.95	0.79	0.28	0.42
AntiDir	5.00	5.00	3.50	2.00
AntiDir1	5.00	4.00	1.00	1.00
Public	0.68	0.37	0.22	0.48
Discl	0.83	0.67	0.42	0.67
Liab	0.66	0.44	0.42	0.22
EnfJR1	19.04	23.32	4.43	7.25
EnfJR2	80,902	72,639	12,903	61,239
BP	0.82	0.36	0.18	0.27
Kauf (average 1998 – 2008)	1.69	1.62	1.69	0.62

Table 2 (continued)
Panel D. Correlation of enforcement and institutional measures

	Origin	CIFAR	LNW	ExAnte	ExPost	AntiSelf	AntiDir	AntiDir1	Public	Discl	Liab	EnfJR1	EnfJR2	BP	Kauf
Origin	1	0.89	0.89	0.89	0.89	0.89	0.94	0.94	0.45	0.71	0.89	0.89	0.89	0.89	0.24
CIFAR	0.98	1	1.00	0.80	0.80	0.80	0.95	0.95	0.40	0.63	1.00	0.60	0.80	0.80	0.63
LNW	0.96	0.97	1	0.80	0.80	0.80	0.95	0.95	0.40	0.63	1.00	0.60	0.80	0.80	0.63
ExAnte	0.98	1.00	0.95	1	1.00	1.00	0.74	0.95	0.80	0.95	0.80	0.80	1.00	1.00	0.11
ExPost	0.84	0.84	0.70	0.88	1	1.00	0.74	0.95	0.80	0.95	0.80	0.80	1.00	1.00	0.11
AntiSelf	0.96	0.97	0.90	0.99	0.94	1	0.74	0.95	0.80	0.95	0.80	0.80	1.00	1.00	0.11
AntiDir	0.90	0.91	0.98	0.87	0.55	0.79	1	0.89	0.21	0.50	0.95	0.74	0.74	0.74	0.50
AntiDir1	0.98	1.00	0.96	1.00	0.86	0.98	0.89	1	0.63	0.83	0.95	0.74	0.95	0.95	0.39
Public	0.52	0.60	0.42	0.66	0.85	0.74	0.24	0.64	1	0.95	0.40	0.40	0.80	0.80	-0.11
Discl	0.70	0.73	0.55	0.78	0.97	0.86	0.38	0.76	0.95	1	0.63	0.63	0.95	0.95	0.00
Liab	0.74	0.83	0.87	0.81	0.49	0.73	0.86	0.82	0.46	0.43	1	0.60	0.80	0.80	0.63
EnfJR1	0.97	0.92	0.89	0.92	0.84	0.92	0.83	0.92	0.45	0.68	0.57	1	0.80	0.80	-0.21
EnfJR2	0.75	0.73	0.57	0.78	0.98	0.87	0.40	0.76	0.82	0.96	0.32	0.79	1	1.00	0.11
BP	0.74	0.84	0.74	0.86	0.82	0.87	0.61	0.86	0.89	0.85	0.82	0.61	0.71	1	0.11
Kauf	0.55	0.59	0.75	0.53	0.05	0.39	0.85	0.55	-0.13	-0.10	0.81	0.42	-0.12	0.34	1

Table 2 (continued)

This table includes descriptive statistics for the country-level variables used in the analysis. Panel A shows the mean, median, standard deviation, and first and third quartile of the PRSIndex. The PRSIndex is a measure of the economic, political and financial conditions in a country, and its value is calculated on a monthly basis by the PRS Group Inc. (for a detailed description of its components see Appendix 2). The annual values of the index are calculated as an average of its monthly values for each of the sample years. Panel B shows the Pearson (below the diagonal) and Spearman (above the diagonal) correlations between the annual values of the index for the UK, Italy, Germany, and Ireland. Panel C includes the values of various measures of enforcement and quality of financial reporting used in prior literature as proxies for institutional environment in the sample countries. A detailed definition of each of these measures and the source of their values are included in Appendix 1. Finally, Panel D shows Pearson (below diagonal) and Spearman (above diagonal) correlations between the enforcement and institutional measures.

Table 3. Total number of listed companies, listings, and delistings as a percentage of beginning-of-the-year total listed shares for Milan, Frankfurt, Dublin, and London Stock Exchanges

	Milan			Frankfurt			Dublin			London			Total		
Year	**N**	**List**	**Delist**	**N**	**List**	**Delist**	**N**	**List**	**Delist**	**N**	**List**	**Delist**	**N**	**List**	**Delist**
1997	209			306			63			1,821			2,399		
1998	219	0.11	0.06	460	0.53	0.03	60	0.05	0.10	1,933	0.07	0.01	2,672	0.13	0.02
1999	247	0.15	0.02	612	0.35	0.02	64	0.15	0.08	1,796	0.05	0.12	2,719	0.11	0.09
2000	276	0.19	0.07	738	0.24	0.03	63	0.06	0.08	1,734	0.08	0.12	2,811	0.13	0.09
2001	276	0.07	0.07	745	0.04	0.03	56	0.00	0.11	1,623	0.04	0.11	2,700	0.04	0.08
2002	272	0.04	0.05	711	0.02	0.06	51	0.00	0.09	1,524	0.03	0.09	2,558	0.02	0.08
2003	260	0.04	0.08	682	0.01	0.05	46	0.00	0.10	1,392	0.02	0.10	2,380	0.02	0.08
2004	257	0.03	0.04	658	0.01	0.05	44	0.04	0.09	1,309	0.04	0.10	2,268	0.03	0.08
2005	258	0.05	0.04	647	0.03	0.05	41	0.02	0.09	1,211	0.06	0.13	2,157	0.05	0.09
2006	259	0.06	0.05	655	0.06	0.05	37	0.02	0.12	1,145	0.06	0.11	2,096	0.06	0.08
2007	264	0.07	0.05	649	0.04	0.05	35	0.03	0.08	1,120	0.06	0.08	2,068	0.05	0.07
Avg%		0.08	0.05		0.13	0.04		0.04	0.09		0.05	0.10		0.06	0.08
Min%		0.03	0.02		0.01	0.02		0.00	0.08		0.02	0.01		0.02	0.02
Max%		0.19	0.08		0.53	0.06		0.15	0.12		0.08	0.13		0.13	0.10
Δ (2005–rest)		**-0.03***	**-0.02**		**-0.11*****	**0.01**		**-0.02**	**0.00**		**0.01**	**0.04*****		**-0.01***	**0.03*****

Table 3 (continued)

The table shows the total annual number of domestic companies that have their stock listed on the Frankfurt, Milan, Dublin, and London Stock Exchanges, separately and in total. It also contains the number of companies that listed on, and delisted from these exchanges as a percentage of the beginning-of-year listings. The table includes the average, minimum, and maximum percentage of listings and delistings during the period. Finally, the table shows the difference between the proportion of firms listed and delisted from each of the exchanges and in total in 2005 and the proportion of firms listed and delisted from each of the exchanges during the rest of the sample period. The statistical significance of the differences is based on a two-sample test of proportions and two-sided tests. ***, **, * indicate statistical significance at the 0.01, 0.05, and 0.1 level, respectively.

Table 4: Correlation coefficients for the probability of delisting, incentives, origin and country-level economic, political, and financial conditions

	Delistprob	IFRSAdopt^{0}	IFRSAdopt^{1}	INCENT$_{t-1}$	Origin	PRSIndex	ROA $_{t-1}$
Delistprob	1	-0.09*	-0.29*	-0.13*	0.19*	0.24*	0.00
IFRSAdopt^{0}	-0.11*	1	0.52*	0.00	-0.02	-0.28*	-0.01
IFRSAdopt^{1}	-0.30*	0.53*	1	-0.00	-0.04*	-0.46*	0.05*
INCENT$_{t-1}$	-0.13*	0.00	-0.00	1	-0.11*	-0.03*	0.14*
Origin	0.20*	-0.02†	-0.04*	-0.11*	1	0.20*	0.15*
PRSIndex	0.18*	-0.26*	-0.46*	-0.03*	0.25*	1	0.08*
ROA $_{t-1}$	-0.02†	0.01	0.05*	0.08*	0.07*	-0.03*	1

The table presents the pairwise Pearson (below the diagonal) and Spearman (above the diagonal) correlations between the probability that a company in the sample delist during the period (Delistprob), IFRSAdopt^{0}, which equals one in 2005 and zero otherwise, IFRSAdopt^{1}, which equals one in 2005 and all years thereafter, and zero otherwise. INCENT$_{t-1}$ is a variable of lagged reporting incentives, which as described in the paper are size (SIZE) equal to the logarithm of total assets, leverage (LEV) equal to the ratio of total debt to total assets, growth (GROW) measuring the percentage change in sales over the previous period, FEXCH as the number of foreign exchanges a company is listed on and FSALES as the percentage of company sales realized abroad, Ownership (OWN) equals the Herfindahl index of the three largest shareholdings, and USList is a dummy variable that equals one if the company is listed on the NYSE or NASDAQ and zero otherwise. Finally, Bankind equals one if the company operates in the banking and finance industries and zero otherwise. Origin is one for the UK and Ireland (as common-law jurisdictions) and zero for Italy and Germany (as code-law jurisdictions). The PRSIndex is a measure of the economic, political and financial conditions in a country, and its value is calculated on a monthly basis by the PRS Group Inc. (for a detailed description of its components and their weights see Appendix 2). ROA$_{t-1}$ is a lagged measure of return on assets, used to control for the financial performance of the firms in my sample and equals net income divided by total assets. * and † indicate statistical significance at the 0.01 and 0.05 levels, respectively.

Table 5. Effect of incentives on the probability of delisting

Variable	Expected Sign	Model_1	Model_2	Model_3	Model_4
$IFRSAdopt^0$	+	0.0224**	0.0184**		
$IFRSAdopt^1$	+			0.0113*	0.0074
$INCENT_{t-1}$	–	-0.0156***	-0.0153***	-0.0159***	-0.0156***
$IFRSAdopt^0$*$INCENT_{t-1}$	–	-0.0069**	-0.0057*		
$IFRSAdopt^1$*$INCENT_{t-1}$	–			-0.0029	-0.0019
ROA_{t-1}	+/–		-0.0176***		-0.0177***
PRSIndex	–		-0.0024**		-0.0017
Const	+/–	-1.2772***	0.5768	-1.2856***	0.0571
Industry FE		Yes	Yes	Yes	Yes
Exchange FE		Yes	Yes	Yes	Yes
#Observations		15,030	15,027	15,030	15,027
Prob > chi2		0.0000	0.0000	0.0000	0.0000
Pseudo R^2		0.0526	0.0554	0.0526	0.0550

Table 5 (continued)

This table shows marginal effects from probit regression: $Pr(Delisting_t) = ß_0 + ß_1 IFRSAdopt^{\gamma} + ß_2 INCENT_{t-1} + ß_3 IFRSAdopt^{\gamma} * INCENT_{t-1} + \Sigma ß_i Contorls_{t-1} + \varepsilon$, which tests for an association between delisting probability, IFRS adoption and incentives. Model_1 and Model_3 include only the variables of interest without any additional controls. Model_2 and Model_4 include control variables as well. $IFRSAdopt^0$ equals one in 2005 and zero otherwise. $IFRSAdopt^1$ equals one in 2005 and all years thereafter, and zero otherwise. $INCENT_{t-1}$ is a variable of lagged reporting incentives, which includes size (SIZE) equal to the logarithm of total assets, leverage (LEV) equal to the ratio of total debt to total assets, growth (GROW) measuring the percentage change in sales over the previous period, FEXCH as the number of foreign exchanges on which the company is listed and FSALES as the percentage of company sales realized abroad, Ownership (OWN) equals the Herfindahl index of the three largest shareholdings, and USList is a dummy variable that equals one if the company is listed on the NYSE or NASDAQ and zero otherwise. Finally, Bankind equals one if the firm belongs to the financial and banking industry and zero otherwise. Origin is one for the UK and Ireland (as common-law jurisdictions) and zero for Italy and Germany (as code-law jurisdictions). The PRSIndex is a measure of the economic, political and financial conditions in a country, and its value is calculated on a monthly basis by the PRS Group Inc. (for a detailed description of its components see Appendix 2). ROA_{t-1} is a lagged measure of return on assets, used to control for the financial performance of the firms in my sample and equals net income divided by total assets. All models include industry and exchange fixed effects. The coefficients are adjusted for the non-linearity of the probit model, and are based on robust regression, clustered by entity. ***, **, * indicate statistical significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 6. Effect of incentives and origin on the delisting probability

Panel A. Effect of incentives and origin on the delisting probability

Variable	Expected Sign	Model_1	Model_2
IFRSAdopt^{0}	+	-0.0021	-0.0049
INCENT$_{t-1}$	–	-0.0157***	-0.0154***
IFRSAdopt^{0}*INCENT$_{t-1}$	–	-0.0054*	-0.0043
Origin	+	0.0425***	0.0515***
Origin*IFRSAdopt^{0}	+	0.0333***	0.0289***
ROA$_{t-1}$	+/–		-0.0175***
PRSIndex	–		-0.0024**
Const	+/–	-1.6804***	0.0358
Industry FE		Yes	Yes
Exchange FE		Yes	Yes
#Observations		15,031	15,027
Prob > chi2		0.0000	0.0000
Pseudo R^{2}		0.0535	0.0561

Table 6 (continued)
Panel B. Effect of incentives on delisting probability by jurisdiction

Variable	Expected Sign	Code-law_1	Code-law_2	Common-law_1	Common-law_2
$IFRSAdopt^0$	+	-0.0109	-0.0105	0.0464***	0.0390***
$INCENT_{t-1}$	–	-0.0108***	-0.0107***	-0.0196***	-0.0195***
$IFRSAdopt^0 * INCENT_{t-1}$	–	0.0034	0.0033	-0.0148**	-0.0125**
ROA_{t-1}	+/–		-0.0068*		-0.0254***
PRSIndex	–		0.0000		-0.0042**
Const	+/–	-1.1769***	-1.2298	-1.3738***	1.1424
Industry FE		Yes	Yes	Yes	Yes
Exchange FE		Yes	Yes	Yes	Yes
#Observations		5,192	5,191	9,820	9,818
Prob > chi2		0.0000	0.0000	0.0000	0.0000
Pseudo R^2		0.0410	0.0424	0.0346	0.0382

Table 6 (continued)

This table shows the association between delisting probability, IFRS adoption, Incentives and origin. Panel A of the table shows the marginal effects of the change in each regression coefficient from a probit regression $Pr(Delisting_t) = ß_0 + ß_1 IFRSAdopt^{\gamma} + ß_2 INCENT_{t-1} + ß_3 IFRSAdopt^{\gamma} * INCENT_{t-1} + ß_4 Origin + ß_5 IFRSAdopt^{\gamma} * Origin + \Sigma ß_i Contorls_{t-1} + \varepsilon$. Panel B of the table shows the marginal effects of regression $Pr(Delisting_t) = ß_0 + ß_1 IFRSAdopt^{\gamma} + ß_2 INCENT_{t-1} + ß_3 IFRSAdopt^{\gamma} * INCENT_{t-1} + \Sigma ß_i Contorls_{t-1} + \varepsilon$, run separately for common- and code-law jurisdictions. In both panels the dependent variable is the probability of delisting of company i at time t from its domestic exchange. $INCENT_{t-1}$ is a variable of lagged reporting incentives, which as described in the paper are size (SIZE) equal to the logarithm of total assets, leverage (LEV) equal to the ratio of total debt to total assets, growth (GROW) measuring the percentage change in sales over the previous period, FEXCH as the number of foreign exchanges a company is listed on and FSALES as the percentage of company sales realized abroad, Ownership (OWN) equals the Herfindahl index of the three largest shareholdings, and USList is a dummy variable that equals one if the company is listed on the NYSE or NASDAQ and zero otherwise. Bankind equals one if the firm belongs to the financial and bank industries and zero otherwise. Origin is one for the UK and Ireland (as common-law jurisdictions) and zero for Italy and Germany (as code-law jurisdictions). The PRSIndex is a measure of the economic, political and financial conditions in a country, and its value is calculated on a monthly basis by the PRS Group Inc. (for a detailed description of its components see Appendix 2). ROA_{t-1} is a lagged measure of return on assets, used to control for the financial performance of the firms in my sample and equals net income divided by total assets. All models include industry and exchange fixed effects. The coefficients are adjusted for the non-linearity of the probit model, and are based on robust regression, clustered by entity. ***, **, * indicate statistical significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 7. Origin and incentive effects including control for voluntary adopters

Variable	Expected Sign	Model_1	Model_2
IFRSAdopt^{0}	+	0.0196**	-0.0023
INCENT$_{t-1}$	–	-0.0150***	-0.0150***
IFRSAdopt^{0}*INCENT$_{t-1}$	–	-0.0060*	-0.0026
Voluntary	–	-0.0502***	-0.0495***
Origin	+		0.0515***
Origin*IFRSAdopt^{0}	+		0.0280***
ROA$_{t-1}$	+/–	-0.0180***	-0.0179***
PRSIndex	–	-0.0024**	-0.0023**
Const	+/–	0.5993	0.0221
Industry FE		Yes	Yes
Exchange FE		Yes	Yes
#Observations		15,027	15,027
Prob > chi2		0.0000	0.0000
Pseudo R^2		0.0584	0.0589

Table 7 (continued)

This table shows the association between delisting probability, IFRS adoption, Incentives and institutional characteristics, while explicitly controlling for the presence of voluntary adopters. Model_1 contains the marginal effects from a probit model $Pr(Delisting_t) = ß_0 + ß_1IFRSAdopt^{\gamma} + ß_2INCENT_{t-1} + ß_3IFRSAdopt^{\gamma}*INCENT_{t-1} + ß_6Voluntary + \Sigma ßiContorls_{t-1} + \varepsilon$, while Model_2 contains the marginal effects from a probit model: $(Delisting_t) = ß_0 + ß_1IFRSAdopt^{\gamma} + ß_2INCENT_{t-1} + ß_3IFRSAdopt^{\gamma}*INCENT_{t-1} + ß_4Origin + ß_5IFRSAdopt^{\gamma}*Origin + ß_6Voluntary + \Sigma ßiContorls_{t-1} + \varepsilon$. In the models, the dependent variable is the probability of delisting of company i at time t from its domestic exchange. $INCENT_{t-1}$ is a variable of lagged reporting incentives, which as described in the paper are size (SIZE) equal to the logarithm of total assets, leverage (LEV) equal to the ratio of total debt to total assets, growth (GROW) measuring the percentage change in sales over the previous period, FEXCH as the number of foreign exchanges a company is listed on and FSALES as the percentage of company sales realized abroad, Ownership (OWN) equals the Herfindahl index of the three largest shareholdings, and USList is a dummy variable that equals one if the company is listed on the NYSE or NASDAQ and zero otherwise. Bankind equals one if the firm belongs to the financial and bank industry and zero otherwise. Origin is one for the UK and Ireland (as common-law jurisdictions) and zero for Italy and Germany (as code-law jurisdictions). Voluntary equals one for firms in the sample, which adopted IFRS prior to 2005 and zero otherwise. The PRSIndex is a measure of the economic, political and financial conditions in a country, and its value is calculated on a monthly basis by the PRS Group Inc. (for a detailed description of its components see Appendix 2). ROA_{t-1} is a lagged measure of return on assets, used to control for the financial performance of the firms in my sample and equals net income divided by total assets. All models include industry and exchange fixed effects. The coefficients are adjusted for the non-linearity of the probit model, and are based on robust regression, clustered by entity. ***, **, * indicate statistical significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 8. Companies on the Main and AIM markets – descriptive statistics, listing trends and migration behavior

Panel A. Descriptive statistics

	AIM			Main			Mean difference (Main – AIM)	Median difference (Main – AIM)
	N	Mean	Median	N	Mean	Median		
SIZE	4,214	2.9389	2.9473	10,383	5.5659	5.3190	2.6270***	2.3717***
LEV	4,214	0.2165	0.0860	10,383	0.2037	0.1497	-0.0128	0.0637***
GROW	4,214	3.2258	0.2189	10,383	0.2918	0.0805	-2.9340***	-0.1384***
FExch	4,214	0.0261	0.0000	10,383	0.0852	0.0000	0.0591***	0.0000***
FSales	4,214	0.1715	0.0000	10,383	0.2931	0.0000	0.1216*	0.0000***
OWN	4,214	0.0687	0.0300	10,383	0.0529	0.0282	-0.0158***	-0.0018**
USlist	4,214	0.0002	0.0000	10,383	0.0293	0.0000	0.0291***	0.0000***
ROA	4,214	-0.4299	-0.0140	10,383	-0.0001	0.0268	0.4298***	0.0408***

Table 8 (continued)
Panel B. Listing and delisting trends

	UK Main Domestic			AIM Domestic		
	Total	**Listed%**	**Delisted%**	**Total**	**Listed%**	**Delisted%**
1997	1821			222		
1998	1933	0.0703	0.0009	286	0.2883	0.000
1999	1796	0.0460	0.1169	324	0.2797	0.1469
2000	1734	0.0802	0.1147	492	0.6605	0.1420
2001	1623	0.0444	0.1078	584	0.2683	0.0813
2002	1524	0.0265	0.0875	652	0.1849	0.0684
2003	1392	0.0157	0.1024	692	0.1810	0.1196
2004	1309	0.0359	0.0955	902	0.3598	0.0564
2005	1211	0.0550	0.1299	1175	0.3592	0.0565
2006	1145	0.0545	0.1090	1326	0.2187	0.0902
2007	1120	0.0559	0.0777	1345	0.1094	0.0950
Avg%		0.0484	0.0951		0.2910	0.0856
Min%		0.0157	0.009		0.1094	0.0000
Max%		0.0802	0.1299		0.6605	0.1469
Δ (2005–rest)		**0.0073**	**0.0396*** **		**0.0758*** **	**-0.0324*** **

Table 8 (continued)
Panel C. Migration behavior

	AIMtoUK	AIMtotal	AIMtoUK%	UKtoAIM	UKtotal	UKtoAIM%
1998		286			1933	
1999	12	324	0.0420	9	1796	0.0047
2000	17	492	0.0525	18	1734	0.0100
2001	7	585	0.0142	33	1622	0.0190
2002	4	652	0.0068	41	1524	0.0253
2003	3	692	0.0046	47	1392	0.0308
2004	4	902	0.0058	20	1309	0.0144
2005	2	1175	0.0022	39	1211	0.0298
2006	3	1326	0.0026	29	1145	0.0239
2007	9	1345	0.0068	7	1120	0.0061
Average	7		0.0153	27		0.0182
Min	2		0.0022	7		0.0047
Max	17		0.0525	47		0.0308
Δ (2005–rest)			**-0.0124*** **			**0.0149*** **

Table 8 (continued)

Panel A of the table shows descriptive statistics for the firm characteristics included in the estimation of the reporting incentives variable (INCENT) for the companies listed on the AIM and Main Market. These characteristics are size (SIZE) equal to the logarithm of total assets, leverage (LEV) equal to the ratio of total debt to total assets, growth (GROW) measuring the percentage change in sales over the previous period, FEXCH as the number of foreign exchanges a company is listed on and FSALES as the percentage of company sales realized abroad, Ownership (OWN) equals the Herfindahl index of the three largest shareholdings, and USList is a dummy variable that equals one if the company is listed on the NYSE or NASDAQ and zero otherwise. The table also includes descriptive statistics for the Return-on-Assets variable (ROA), which equals the ratio to net income to total assets and is used as a separate control variable in the regression. The comparison between the means and the medians for the two samples is made based on t-statistics with unequal variances and Wilcoxon rank-sum test, respectively. Panel B of the table shows the total annual number of domestic companies that have their stock listed on the Main Market and the Alternative Investments Market (AIM) of the London Stock Exchange. It also contains the number of companies that listed on, and delisted from these exchanges as a percentage of the beginning-of-year listings. The table includes the average, minimum, and maximum percentage of listings and delistings during the sample period 1998–2007. Finally, the table shows the difference between the proportion of firms listed and delisted from each of the exchanges and in total for 2005 and the proportion of firms listed and delisted from each of the exchanges during the rest of the sample period. Panel C of the table shows the total annual number of domestic companies that transferred from and to the Main Market and the AIM of the London Stock Exchange. It also contains the percentage that these companies represent from the total beginning-of-year listings on their original market. The table further indicates the average, minimum, and maximum percentage of transfers from and to each market during the period 1998–2007 and the difference in these percentages for 2005 and the percentage of firms transferring to and from each of the markets during the rest of the sample period. The statistical significance of the differences is based on a two-sample test of proportions and two-sided tests. ***, **, * indicate statistical significance at the 0.01, 0.05, and 0.1 level, respectively.

Table 9. Results from probit model of delisting probability on firm incentives and market listing

Variable	Expected Sign	Coefficient (p-value)
$IFRSAdopt^0$	+	-0.0018
$INCENT_{t-1}$	–	-0.0106***
Mkt	+	0.0198***
$IFRSAdopt^0$*$INCENT_{t-1}$	–	-0.0141***
$IFRSAdopt^0$*Mkt	+	0.0427***
ROA_{t-1}	+/–	0.0005
Intercept	+/–	-1.5925***
Industry FE		Yes
#Observations		11,859
Prob > chi2		0.0000
pseudo R^2		0.0185

Table 9 (continued)

The table shows the results for a probit model $Pr(Delisting_t) = ß_0 + ß_1INCENT_{t-1} + ß_2INCENT_{t-1}*IFRSAdopt^0 + ß_3IFRSAdopt^0 + ß_4Mkt + ß_5IFRSAdopt^0*Mkt + \Sigma ßi*Controls + \varepsilon$, where the dependent variable is the probability of delisting of company i at time t from the AIM or Main Market. $INCENT_{t-1}$ is the lagged incentives variable summarizing a number of firm characteristics. These characteristics are size (SIZE) equal to the logarithm of total assets, leverage (LEV) equal to the ratio of total debt to total assets, growth (GROW) measuring the percentage change in sales over the previous period, FEXCH as the number of foreign exchanges a company is listed on and FSALES as the percentage of company sales realized abroad, Ownership (OWN) equals the Herfindahl index of the three largest shareholdings, and USList is a dummy variable that equals one if the company is listed on the NYSE or NASDAQ and zero otherwise. Bankind equals one if the company operates in the banking and financial industries and zero otherwise. ROA_{t-1} is a lagged measure of firm profitability, which equals the ratio to net income to total assets and is used as a separate control variable in the regression. $IFRSAdopt^0$ is a dummy variable equal to one in 2005, the year of IFRS adoption and zero otherwise. Mkt is a dummy variable equal to one if the company is listed on the Main Market and zero otherwise. The model includes industry fixed effects. The coefficients are adjusted for the non-linearity of the probit model, and are based on robust regression, clustered by entity. ***, **, * indicate statistical significance at the 0.01, 0.05, and 0.1 levels, respectively.

Appendix 1. Variable definitions and data sources

Variable	Definition	Source
	IFRS adoption and general controls	
IFRSAdopt$^{\gamma}$	1 for 2005 and zero otherwise if γ=0 and 1 for 2005 and all years thereafter and zero otherwise if γ = 1	NA
ROA	Net Income/Total Assets	Worldscope
Industry	Indicator variables based on 1-digit SIC classification, and excluding the banking and financial industries (SIC 60–67)	Worldscope
Exchange	Indicator variables equal to 1 for a given exchange and zero otherwise	NA
PRSindex	Weighted average of a number of economic, financial, and political risk factors	PRS Group‡
Voluntary	Indicator variable equal to 1 if a company has adopted IFRS prior to 2005 and zero otherwise	Worldscope
	Incentive variables	
INCENT	Summary expression of the firm characteristics indicated below, formed following the procedure of Wintoki (2007)	Worldscope
SIZE	Natural logarithm of Total Assets	Worldscope
LEV	Total Debt/Total Assets	Worldscope
GROW	$(Sales_t - Sales_{t-1})/Sales_{t-1}$	Worldscope
FExch	Number of foreign exchange listings of firm i in year t	Worldscope

Variable	Definition	Source
FSales	Foreign Sales/Total Sales	Worldscope
OWN	Herfindahl index equal to the sum of squares of the percentage stock ownership for the three largest shareholders of the firm	Worldscope
Bankind	1 if the company is in the banking or financial industries and zero otherwise	Worldscope
USList	1 if the company is listed on the NYSE or NASDAQ and 0 otherwise	ADR databases##
	Enforcement and institutional variables	
Origin	1 for UK and Irish companies and zero otherwise	NA
EnfJR1	Staff of securities-market regulator per million population	Jackson & Roe (2007)
EnfJR2	Budget of securities-market regulator per million dollars of GDP	Jackson & Roe (2007)
CIFAR	An index that counts the inclusion or omission of 90 reporting items from 7 disclosure categories, is calculated by the Center for Financial Analysis and Research, and is based on annual reports for 1995	Leuz (2010)
LNW	An estimate of the degree to which firms use reported earnings to misreport their actual performance by means of earnings smoothing and reporting discretion calculated for the period 1999–2005	Leuz (2010)
ExAnte	First principal component of: (1) approval by disinterested shareholders; (2) disclosures by buyer; (3) disclosures by selling majority owner; and (4) independent review	Djankov et al. (2008)

Variable	Definition	Source
ExPost	First principal component of : (1) each of the elements in the index of disclosure in periodic filings; (2) standing to sue; (3) rescission; ease of holding selling majority owner liable; (4) ease of holding the approving body liable; and (5) access to evidence	Djankov et al. (2008)
AntiSelf	Anti-self dealing index, which is a first principal component of: (1) approval by disinterested shareholders; (2) disclosures by buyer; (3) disclosures by selling majority owner; (4) independent review; (5) each of the elements in the index of disclosure in periodic filings; (6) standing to sue; (7) rescission; ease of holding majority owner liable; (8) ease of holding the approving body liable; and (9) access to evidence	Djankov et al. (2008)
AntiDir	Index of anti-director rights formed by adding one when: (1) the country allows shareholders to mail their proxy vote; (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting; (3) cumulative voting or proportional representation of minorities on the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is <= 10%; or (6) when shareholders have preemptive rights that can only be waived by a shareholders meeting	La Porta et al. (2006)
AntiDir1	Revised anti-director rights index	Djankov et al. (2008)
Public	The index of public enforcement equals the arithmetic mean of: (1) Index measuring whether the supervisor is unilaterally appointed by the executive branch, cannot be dismissed at will by the appointing authority and there is a separation in the supervision of banks and the stock exchange; (2) Index measuring the power of the Supervisor to issue regulation on primary offerings and listings; (3) Index measuring the power of the Supervisor to require documents and subpoena witnesses when investigating violations of securities laws; (4) Index that measures the possibility to direct stop and do orders at the issuer, distributer, or accountant in case of defective prospectus; and (5) an index of criminal sanctions to the issuer, distributor, or accountant if the prospectus omits material information	La Porta et al. (2006)

Variable	Definition	Source
Discl	Average of (1) Requirement to issue a prospect if selling securities on the largest exchange of a country; (2) Requirement for the compensation of officers and directors to be included in the prospectus; (3) Requirement to disclose the ownership stake and name of each shareholder controlling directly or indirectly 10% or more of the stock; (4) Requirement for ownership of the stock by each director and officer to be disclosed in the prospectus; (5) Requirement of the terms of a contract made outside of the ordinary course of business to be disclosed in the prospectus; (6) Requirements that deals with related parties be disclosed in the prospectus	La Porta et al. (2006)
Liab	An Index of liability standards equal to the mean of (1) Liability standard for the issuer and its directors; (2) Liability standard for the distributor; and (3) Liability standard for the accountant	La Porta et al. (2006)
BP	A measure of institutional characteristics, which averages the values for the following institutional characteristics (1) judicial impartiality; (2) securities law (3) public enforcement of securities law; (4) public enforcement of securities laws; (5) risk of expropriation; (6) state-owned enterprises; (7) tax burden; (8) banks vs. markets; (9) private bonds; (10) ownership concentration; (11) insider trading enforced. Bushman and Piortoski (2008) give each of these measures values of high and law, and provide the year in which insider trading laws were enforced. I replace the value of these measures with 1 when they correspond to strong institutional environment, and zero otherwise and calculate the average of these values	Bushman and Piotroski (2008)
Kauf	Rule-of-Law index, which measures the perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence	Kaufmann et al. (2008)
Mkt	1 if firm is listed on the UK Main Market and zero if it is listed on the Alternative Investments Market	www.londonstockexchange.com

‡The PRS Group: International Country Risk Guide for the month of January from 1999 to 2008
† Central Banking Publications: "How Countries Supervise Their Banks, Insurers and Securities Markets 2008"
**World Bank is the World Bank's Development Indicators Database*
#WGI is the Worldwide Governance Indicators Database (available online at: http://info.worldbank.org/governance/wgi/index.asp)
##ADR databases are the databases of Bank of New York Mellon, Citigroup, and JP Morgan

Appendix 2. The PRS composite risk rating and its components[16]

The composite risk rating is published by the PRS Group. It is updated on a monthly basis and consists of three components: political, financial and economic risk ratings, with a weight of 50%, 25%, and 25% respectively. The rating has a minimum value of 0.00 and a maximum value of 100.00 and is calculated so that its higher values correspond to lower risk and vice versa. In particular, the PRS Group interprets the rating as indicating very high risk for values between 0.00 and 49.5, high risk for values between 50.0 and 59.5, moderate risks for values between 60.0 and 69.5, low risk for values between 70.0 and 79.5, and very low risk for values between 80.0 and 100. The three components of the composite risk rating in turn represent a weighted sum of components that characterize the political, financial, and economic health of the studied countries.

Political risk rating

The political risk rating gives an assessment of the political stability in a country. It measures this stability through 12 elements each of which carries a possible minimum value of zero and the following maximum values:

Element	Definition	Points (max)
Government Stability	Ability of the government to carry out its program and stay in office	**12**
Socioeconomic Conditions	General satisfaction of the population with the government's economic policy	**12**
Investment Profile	The government's attitude to inward investments, as evidenced by: risk to operations, taxation, repatriation, labor costs	**12**
Internal Conflict	Assessment of political violence	**12**
External Conflict	Risk to the incumbent government and inward investments	**12**
Corruption	Corruption within the political system (e.g. excessive patronage, nepotism, job reservation, secret party funding, close ties of politics with business)	**6**
Military in Politics	Participation of military in government	**6**
Religion in politics	Attempt by a single religious group to dominate governance	**6**
Law and Order	Law - strength and impartiality of the legal system; Order - popular observance of law. Law and Order are estimated separately and worth between 0 and 3 points each	**6**
Ethnic Tension	Tension within a country attributable to race, nationality, and language	**6**
Democratic Accountability	Responsiveness of the government to its people	**6**
Bureaucracy Quality	Institutional strength and quality of the bureaucracy	**4**
Total		**100**

[16] The PRS Group: International Country Risk Guide, December 1999

The values of these elements depend on the answers to a set of questions chosen based on the classification of a given country in one of the following governance regimes: alternative democracy, dominated democracy, de-facto one party state, de jure one-party state, and autarchy.

Financial risk rating

The financial risk rating measures the ability of a given country to finance its official, commercial, and trade debt obligations. For comparability purposes its components are presented in the form of ratios. These ratios and the maximum number of points attributed to each of them are as follows:

Ratio	Points (max)
Foreign Debt/GDP (%)	**10**
Foreign Debt Service/Exports of Goods & Services (%)	**10**
Current Account/Exports of Goods & Services (%)	**15**
Net International Liquidity/Months of Import	**5**
Exchange Rate Stability (appreciation/depreciation of the local currency against the US dollar over the past 12 months)	**10**
Total	**50**

Economic risk rating

The economic risk rating evaluates the current economic weaknesses and strengths of a given country. It also consists of ratios, whose maximum number of points within the rating is as follows:

Ratio	Points (max)
GDP per capita/Total GDP for all countries covered	**5**
Real GDP Growth (%)	**10**
Annual Inflation Rate change (%)	**10**
Budget Balance/GDP (%)	**10**
Current Account/GDP (%)	**15**
Total	**50**

Appendix 3. Stock exchanges – structure and requirements[17]

	Segment	General Description and Listing Requirements	IFRS-related Requirements
London	**Main Market (Includes International Main Market)**	• Minimum 25% shares in public hands; • Three year trading record; • Prior shareholder approval for substantial acquisitions and disposal; • Pre-vetting of admission documents by exchange authority; • Sponsors needed for certain transactions; • Minimum market capitalization required (£ 700 K)	• IFRS only applies to the group accounts of companies; • Does not apply to their subsidiaries or non-listed entities
	techMARK/techMARK mediscience (part of Main Market launched Nov. 1999/Nov. 2001, respectively)	• Dedicated to dynamic and healthcare sectors	
	landMARK (part of Main Market)	• Geographic grouping, highlighting companies by region in every area of the UK and Ireland	
	AIM (launched 1995)	• No minimum shares to be in public hands; • No trading record required; • No prior shareholder approval of transactions; • Admission documents not pre-vetted by the exchange or listing authority; • Nominated adviser required at all times; • No minimum market capitalization	• Companies need to switch from UK GAAP to IFRS for accounting periods after 1 January 2007
	landMARK (part of AIM)	• Geographic grouping, highlighting companies by region in every area of the UK and Ireland	

[17] Based on information on the websites of the four exchanges (www.londonstockexchange.com; www.ise.ie; www.borsaitaliana.it and www.frankfurtstockexchange.de)

Appendix 3 (continued)

	Segment	General Description and Listing Requirements	IFRS-related Requirements
Dublin	**Official List**	• Minimum 25% shares in public hands; • Three year trading record; • Prior shareholder approval for substantial acquisitions and disposal; • Pre-vetting of admission documents by exchange authority; • Sponsors needed for certain transactions; • Minimum market capitalization required (€1 million for shares, € 2 million for debt securities)	• IFRS only applies to the group accounts of companies; • Does not apply to their subsidiaries or non-listed entities
	ITEQ Market (part of Official List launched Sept. 2000)	• Technology market of the Irish Stock Exchange	
	Irish Enterprise Exchange (launched April, 2005) **Developing Companies Market (from 1995 to Apr/2005 when replaced by the Irish Enterprise Exchange)** **Exploration Securities Market (from 1995 to Apr/2005 when replaced by the Irish Enterprise Exchange)**	• No specific admission criteria other than the requirement for an applicant to have a minimum market capitalization of €5 million; • No trading record required; • No minimum number of shares to be held in public hands; • No pre-vetting of IEX admission documents by the Exchange; • In most instances, no prior shareholder approval of substantial acquisitions and disposals.	

Appendix 3 (continued)

	Segment	General Description and Listing Requirements	IFRS-related Requirements
Milan	**Blue Chip**	• Capitalization above € 1000 million	• (Legislative Decree n. 38/2005) : listed companies, banks, supervised financial companies and companies with financial instruments widely distributed among the public are required to apply IFRS in their consolidated accounts since 2005 onwards and their individuals accounts from 2006
	STAR	• Companies € 40 - € 1000 million • Commitment to higher information, corporate governance and liquidity requirements	
	MTA & MTAX Standard segment, Class 1	• Capitalization less than €40 million; • When first admitted to trading, companies shall be admitted to Trading in class 1. Subsequently, on the occasion of ordinary revisions of the MIB index, the Italian Exchange may change a security's trading class on the basis of the frequency of trades and their average daily value in the six preceding months	
	MTA & MTAX Standard segment, Class 2	• MTA (electronic share market) • Auction-only model	
	Expandi Market	• Illiquid Stocks • Auction-only model	
Frankfurt	**General Standard** **• Prime Segment**	• Minimum nominal capital requirement €1.5million • Publication of annual and quarterly financial statements in German and English • Use of International Standards • Issuer has to hold at least once a year an analyst meeting to discuss the annual results of the firm	• IFRS only applies to the group accounts of companies
	Unregulated (Open) Market **• Entry Standard Segment**	• Minimum nominal capital €250,000 - caters to small and medium companies • Publication of annual and quarterly financial statements in German and English • Few other formal requirements • Entry standard has stricter requirements than the overall Unregulated market, however compared to the General Standard these requirements are still lax	• Does not apply to their subsidiaries or non-listed entities