

## Corporate Characteristics Motivating Standardization: The Case of Accounting Convergence in European Union

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### Abstract

To identify how corporate characteristics impact the decision to converge, we tested three groups of European firms assigned into a group by the time of the IFRS adoption. Following the theory on network externalities, we hypothesize that companies with more business complexity and higher value benefit from a positive network effect and therefore, represent a driving force in accounting standardization. We provide evidence, that a firm's business complexity and valuation characteristics have a significant impact on IFRS adoption. We also document that the extenuating effects of jurisdictions and national levels of bureaucratic formalities in business are factors that affect firms' IFRS adoption decisions.

### JEL classification: M41

**Keywords:** Convergence; Business complexity; Corporate governance; International financial reporting standards (IFRS)

### Introduction

Historically, financial accounting standardization follows market integration. This is evidenced by the events in the United States in the early 20th century, when the move to uniform accounting followed legislation to regulate the national capital markets. Similarly, the present impetus for a single uniform set of global accounting standards follows the accelerating integration of the world economy, accompanied by the struggle for economic growth and more efficient capital markets [1-8]. The convergence process in accounting is part of a much larger global integration process, and during the last few decades harmonization or convergence has been pursued in a variety of political and economic settings, including constituent territories of a political unit (United Kingdom), nations creating agreements for common welfare (NAFTA), and a single economic unit with institutional structures such as the European Union (EU). Within the boundaries of the theory of comparative advantage, scholarly literature embraces the idea of convergence as the mechanism which eliminates differences in institutional regimes and levels the playing field. Thus, convergence can be viewed as removing an "artificial" source of comparative advantage enjoyed by domestic companies. Convergence is not an end in and of itself. Rather, it is perceived as the means by which the end is achieved with greater efficiency. We would like to note here that convergence is a wide-ranging integration process, and we use an example of accounting standardization by EU as a part of it [9,10].

Both the value of convergence and the effectiveness of its implementation should be judged in terms of an asserted objective. This objective determines the main benefits of convergence. It has been already reported in the literature that convergence reduces information processing costs, thus enhancing accounting conformity, the comparability and efficiency of financial statements, promoting integration of global market. The decision to adopt IFRS mainly involves a cost-benefit trade-off between (1) recurring comparability benefits for investors; (2) recurring future cost savings; and (3) one-time transition costs borne by all. Furthermore, mandatory IFRS adoption in the European Union reduces the cost of equity, especially for countries with strong legal enforcement. Overall there is an extensive literature already in existence on IFRS adoption, however this research is the first we are aware of that uses the theory of network externalities in explaining a

phenomenon of accounting standardization to be advantageous for a company. We conjecture that the companies with certain characteristics such as international exposure for example obtain additional value from employing the same financial reporting system as the rest of the network participants will continue to rise. To this end, these firms drive the standardization process by adopting the same set of standards rather early [11-16]. To this purpose, instead of examining gains and losses associated with IFRS adoption, we identify firm-specific characteristics that associate with the likelihood of the adoption.

This study has relevance as standardization of International Auditing Standards took place not long ago. In addition, in a period of globalization it is important to better understand firm-specific characteristics associated with companies' decisions to standardize their business practices, and financial reporting in particular [7-25]. For the purpose of our study, our sample of companies have been grouped into three categories (1) early adopters, (2) those that presumably lack the incentives to adopt early 2005 adopters; and (3) those that did not perceive IFRS adoption advantages, and thus postponed the adoption (2007 adopters).

The research on network externalities provides us with useful insights into the prerequisites for a single set of standards to be advantageous for a company. In particular, the firm's positive externality from one set of standards increases, when no economically justified market demand for their variety and network effects stays unbounded. Also, it should be no anti-competitive risk from using a common set of accounting standards [26-31]. Therefore, members of smaller economic networks with no immediate intent to enter a world-wide integrated market have fewer incentives to adopt IFRS unless, it is mandatory [32,33]. Moreover, if the law offers an option to postpone the adoption of common standards, companies more bounded by national and

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sector-related limits will most likely use this opportunity to delay adoption. To this end, high business complexity raises the odds of the firm becoming early IFRS adopter.

In addition to testing the impact of business complexity and firm-specific characteristics on the odds of earlier IFRS adoption, we also assess the extenuating effects of jurisdictions on the tested relationships [34]. The importance of the institutions has been extensively addressed in the literature earlier. Some studies, in particular they identified a set of institutional characteristics important in explaining imperative determinants of the actual implementation of accounting standards. These characteristics include legal origin, which is measured by a dichotomous variable that indicates whether a country's laws originated from the common-law or code-law tradition. Consistent with the latest developments in the corporate governance literature, we use more precise identification than just common-law vs. code-law legal traditions by identifying German, French and Scandinavian origins within code-law tradition. We also test the national levels of bureaucratic formalities in business as a differentiating factor that reduces the likelihood of a company entering an integrated market. To our best knowledge, this variable has never been tested before in this type of analysis [35-41].

Our data is collected from Thomson Financial-World scope, and Thomson Bank One databases. Our initial sample consisted of 3,196 firm-observations. After omitting companies with inconsistent or missing data, financial and utility companies, and companies where the state is the dominant owner, and cross-shareholdings limited by shares, our final sample is comprised of 1,676 firm-observations for the period 2005-2007 from fourteen EU countries, which makes us comfortable with the generalizability of our results [42-45].

Overall, the results of the regression analysis support our initial conjecture that certain firms' characteristics are strongly associated with the likelihood of IFRS adoption and suggest strong extenuating effects of jurisdictions on the tested relationships [46-52]. While the results for the overall sample of early (voluntary) adopters vs. non-adopters do not show the strong significant association for all tested regressions (only a number of foreign subsidiaries and a size have a significant impact on the odds of early adoption), after disaggregating the sample into four groups correlated with origins, the results become much stronger. In particular we report that for the British legal origin firms business complexity and Tobin Q have a significant impact on the odds of early IFRS adoption, whereas the size is significant for the French and German legal origin firms, which is consistent with the market oriented and government, tax and law-based economies respectively [11,53,54].

The results also indicate that administrative environment has a significant impact on the likelihood of becoming an early adopter. Additional test compares 2005- adopters vs. 2007- adopters after all voluntary adopters have been excluded. 2005- adopters have significantly higher company value, growth, and managerial efficiency in generating cash. The results of the logit regression for the sub-sample of 2005 -adopters vs. 2007- adopters suggest that the percentage of foreign sales, Tobin Q, and rate of growth have a significant impact on the likelihood of becoming a 2007-adopter [55-60].

The rest of the paper is structured as follows: Section 2 provides the analysis of prior literature and hypothesis development, Section 3 describes the research design and variables used in the test; Section 4 provides the descriptions and results of the statistical tests; and Section 5 gives our conclusions.

## Literature Review and Hypotheses

Scholarly literature identifies several main theoretical bases for common accounting standards to contribute to economic success. IFRS, as a set of common standards, helps to enable open markets and as a result increase competition by furnishing the user of financial information with an identical means of measurement, helping to identify the denotation of the information, improving the comparability of financial statements, and enhancing accounting quality. The adoption of IFRS produced a vast debate on its economic consequences and the loss of "custom-made" national standards. Some argue that distinctive characteristics of national economies create diverse financial reporting needs, and therefore it will take a long time to erode the importance of national standards [61-63]. There are several arguments supporting diversity in accounting standards. First among them is that historically most continental European economies have relied on means other than the US-UK arm's length stock market as their main source of financing, instead using such sources as bank debt. Second, financial standards suitable for developed economies may not be feasible in less-developed ones. On a related note, after examining the capital-market effects around IFRS adoption in 26 countries throughout the world, found that the capital-market benefit is more profound only in countries where firms have incentives to be transparent. Third, the poor quality of standard enforcement in some jurisdictions would make adoption and implementation of IFRS difficult [64]. Fourth, there is an audit problem linked to full implementation of IFRS that can be mitigated through market mechanisms by employing the services of Big Four auditors to verify the compliance with IFRS (just as private companies with local auditors sometimes turn to more prestigious auditors when going public). And finally, there are the problems associated with transplanting accounting standards from common-law to code-law, especially with regard to countries that have less respect for protecting shareholder value and minority rights [65].

On the other side of this debate, the main argument for common standards relates to the gains a company receives from integrating into a larger, more competitive market [66,67]. Theoretically, the more closely the world's stock market approaches a single market, the lower the transaction costs for investors and the cost of capital for firms in that market. All things being equal, a larger, competitive market is more closely associated with (1) more competition between buyers and sellers, (2) more division of labor, and (3) more opportunities for risk sharing and risk matching [68]. In particular, it is argued that companies switching to IFRS benefit from increased transparency, drop in earnings management, lower costs of financial statement reconciliation associated with multinational equity listings, enhanced comparability of financial reporting and therefore lower informational asymmetry, and private benefits of managerial discretion in comparison to local GAAP's [69,70]. However, there is mixed evidence for accounting quality improvements for firms that adopted IFRS as the result of a mandatory requirement. In related work Ball et al. [3] provide empirical evidence suggesting that accounting quality is being driven by incentives other than accounting standards, for example by the institutional setting. Furthermore, earnings quality is lower for private firms than for public firms, despite the fact that they are using common accounting standards. The benefits from having access to a larger pool of capital can be substantial for firms from underdeveloped economies, but the effect seems to diminish as national economic development increases [71-73]. Therefore, gain from the decreased costs of capital might not be a plausible explanation as to why some EU companies early adopted IFRS. Crucial to these calculations are the estimated cost of penalties from operating in markets smaller than a

single world market (unbounded network effect), or conversely benefits arising from operating in a market that is not divided by different accounting standards, after all costs of compliance have been covered. The importance of identifying these benefits is defined by the fact that they mostly outline the incentives (i.e., determinants) for convergence. Elusiveness of these unaccounted "benefits vs. costs" considerations contributes to the inconsistencies in measuring and identifying different explanatory variables when limited data is available, as well as an absence of consensus in the literature on the economic consequences of IFRS adoption.

While the results on economic benefits of the IFRS adoption remain inconclusive, a different way to detect the determinants of IFRS adoption is to identify firm-specific characteristics that increase the likelihood that a firm earlier adopts IFRS. Company benefits received from integrating into a larger, more competitive market come from the economic theory, which provides some assurances that the additional value companies obtain from employing the same accounting system as the rest of the network participants will continue to rise as the network of users grows. In particular, for a company with fewer geographical and/or sector-related limits, this effect comes from two sources: (1) internal, as common standards help to reduce the intra-company costs associated with diversification (i.e., enhance the cross-border monitoring of management and contracting) there are no extra costs associated with entering the integrated market, and the only costs counter-weighting the benefits of adopting IFRS relate to the costs of compliance with new sets of rules; and (2) external, as common standards furnish the users of financial information anywhere in the world, including potential investors, with the identical means of measurement, helping to identify the transparency of the information and improving comparability of financial statements, promoting trust. Following this line of reasoning, firms that benefit most from network effects probably operate in more complex business environment and employ distinct corporate governance practices to strengthen their competitive edge in the integrated market.

In other words, following the logic of the theory on network externalities, we argue that a company with higher business complexity associated with fewer geographical or sector-related limits more likely falls into the category of firms benefiting the most from using a common set of standards, and therefore derives additional benefits from becoming a member of the international network of companies with a comparable, less impartial and more open set of financial statements. This highly integrated company benefits from high synchronization value by doing business and raising capital far outside its national boundaries. Also, as it was already mentioned above, a company with fewer geographical or sector-related limits to its interests usually operates in more competitive environments and presumably has enhanced corporate transparency and auditing. Therefore, common accounting standards potentially assist those companies in sustaining cross-border portfolio and direct investments, contracting and monitoring of management by shareholders. Otherwise the cost of all these activities may be needlessly inflated by complex translations. Furthermore, these firms represent potential advocates for convergence in all areas of business activities since they see no economically justified demand for the variety of standards, as they perpetually benefit from harmonization and experience no anti-competitive risk from using common standards. In addition, the use of standardized financial reporting can help to reduce transaction costs, making it cost effective for companies to more extensively use the existing capital market, as well as extending the market geographically. Thus, a firm's complex business architecture and market value affect the likelihood of IFRS

adoption. We state our hypotheses in alternative form:

**H1:** The higher the business complexity, the higher the likelihood that a firm will adopt IFRS earlier.

**H2:** The higher the equity value, measured as Tobin Q, the higher the likelihood that a firm will adopt IFRS earlier.

## Research Design

### Data and sample

To test our hypotheses, we collect data available on Thomson Financial-World scope, and Thomson Bank One databases. Initially we had more than 3,000 observations- publicly-traded companies from 15 EU countries: Austria, Germany, UK, Greece, France, Ireland, Sweden, Netherland, Luxemburg, Belgium, Demark, Spain, Portugal, Sweden, and Finland. The decision to use only 15 developed countries in the test was instigated by the analysis originated in Ball, 2006, claiming that financial standards suitable for developed economies may not be feasible in less-developed ones. After omitting Luxemburg from the sample (only three companies were available for testing), as well as removing companies with incomplete data, financial and utility companies, companies with the state as dominant owner, and cross-listings, we ended-up with a sample of 1,884 firm-years observations of publicly-traded companies from 14 countries during 2005-2007. However, our final sample comprised only 1,676 firms, because we eliminated 159 firms with fewer than three board members and 49 other firms from regulated industries. The data-selection procedure is described in Table 1, Panel A.

Panel B of Table 1 gives the country, the legal origin and the distribution of firms in our sample. While the whole sample is comprised of 14 EU countries, almost 75 percent of it came from five Western European economies: approximately 27 percent British firms, about 34 percent either German or French (distributed almost equally), almost 8 percent Italian, and about 6 percent Swedish.

### Variables in the model

To test our hypotheses, we draw on three sets of variables. The first set of variables represents the dependent variables defined as voluntary early adopters (firms that adopted IFRS before 2005), 2005- adopters (firms that adopted IFRS in 2005), 2007 - adopters (firms that adopted IFRS after 2005).

The second set of independent variables comprises a variety of firm-specific characteristics, and the third is intended to control for national, institutional, industry and corporate governance effects.

**Dependent variables:** A voluntary early IFRS adopter (VOLUNTARY) is a company that filed its consolidated financial statement prepared according to IFRS before 2005 (i.e., in 2004). All companies that filed their financial statements prepared according to IFRS for the first time in 2005 are defined as 2005 adopters (2005), the companies that decided to postpone IFRS adoption are defined as 2007 - adopters (POSTPON). Our logit model uses binary dependent variables,  $Y_p$ , defined so that, for example, if a firm was a voluntary IFRS adopter  $Y_1 = 1$  and otherwise  $Y_1 = 0$ , if a firm was an 2005- adopter then  $Y_2 = 1$  and otherwise  $Y_2 = 0$ .

### Independent variables

**Business complexity:** We use two variables to measure the level of the geographic and sector-related limits to company interests: the number of foreign subsidiaries (SUBSIDIARY) and the percentage of

**Panel A. Data selection procedures.**

Initial sample	3,196
Minus financial and utility companies, companies with dominant state ownership, cross-shareholdings limited by share *	1,884
Minus companies with board size less than three members	159
Minus firms with missing financial data	1,725
Final sample	49
*All these companies are subjects for special regulatory environment	1,676

**Panel B. Country sample distribution.**

Country	Number of firms	Percentage	Legal Origin
Austria (AT)	53	3.2%	German
Belgium (BE)	38	2.3%	French
Germany (DE)	285	17.0%	German
Denmark (DK)	50	3.0%	Scandinavian
Spain (ES)	37	2.2%	French
Finland (FI)	68	4.0%	Scandinavian
France (FR)	277	16.5%	French
United Kingdom (UK)	457	27.3%	British
Greece (GR)	81	4.8%	French
Ireland (IE)	16	1.0%	British
Italy (IT)	132	7.9%	French
Netherlands (NL)	79	4.7%	French
Portugal (PT)	9	0.5%	French
Sweden (SE)	94	5.6%	Scandinavian

**Table 1:** Data selection procedures and country distribution.

foreign sales scaled by total sales (FRSALES).

**Tobin's Q and firm performance:** Tobin's Q (TOBINQ) estimates company value by comparing a firm's market value to the cost of replacing the firm. In doing so, it reflects various company characteristics including (1) growth opportunities, (2) market sentiment (the market views regarding the company's future prospects, or speculation such as bid rumors), and (3) the intellectual capital of the company [74-75]. A company's Tobin's Q decreases in the year when IFRS reporting becomes mandatory but it increases one year before the mandatory adoption date. Furthermore, they find that valuation effects for 2005-adopters are economically significant, but generally smaller than the corresponding capital-market effects of early adoption. In our study we use Tobin's Q to examine whether the firms with higher equity valuation (or growth opportunities) are more likely to become the earlier IFRS adopters.

Earnings under IFRS could be systematically smaller/larger than earnings under local standards, which lead to a higher/smaller Tobin's Q after the adoption of IFRS. Li [52] compares earnings under IFRS versus under local standards for mandatory adopters and finds that mean earnings are significantly smaller under IFRS but no difference in median earnings under two standards. Therefore, we include the percentage change of net income (CHGNI) as a control variable to examine whether the adoption of IFRS impacts companies reported earnings during the first adopting year.

**Control variables:** Various arguments related to the effectiveness of corporate governance mechanisms employed by a company have been identified in prior research [76]. In summation, there are two main lines of reasoning in analyzing the roles of external and internal corporate governance mechanisms. First, the external corporate governance

mechanisms are believed to have a strong association with early IFRS adoption. For example Ding [28] provides some evidence that countries with weaker investor protection are more likely to adopt IFRS. Ramanna & Sletten [66] using 102 non-EU countries, find that countries with moderate governance standards have higher IFRS adoption rate than those with advanced governance standards. Second, internal corporate governance mechanisms are more likely to be associated with high-quality governance. According to Verriest & Gaeremynck [75] better corporate governance is associated with early IFRS adoption and less earnings management. Therefore, we include corporate governance variables as control variables.

**Board size and composition:** The role and effectiveness of different internal corporate governance mechanisms remain inconclusive, in part because the debate on the effect of board size (BRDSZ) on governance effectiveness remains unresolved. First, some scholars suggest that larger boards are less effective than smaller ones due to difficulty of coordination and free-riding issues. Others provide evidence that smaller boards are associated with higher firm's value, as measured by Tobin's Q. Conversely, Coles et al. [22] indicate that, at the very least, larger boards and a higher fraction of insiders on the board do not necessarily reduce firm value, whereas others find that the previously-documented negative effect of board size on Tobin Q does not hold for diversified, large, and high-debt firms. Overall, inside and independent directors play valuable roles that may be lost in a single-minded drive for greater board independence.

Second, there is no consensus on the role outside (independent) and inside directors play on firm value. There is a whole spectrum of findings, from strongly positive, suggesting that outside (independent) directors represent a positive force in a company to weak, suggesting that there is no evidence on the relationship between the percentage of outside (independent) directors and Tobin's Q. To control for the impact of independent directors on the company's decisions, we use IND\_DIR% variable, measured as the proportion of independent directors on board.

The role of inside directors is also not completely clear. Although common wisdom is that a large number of inside directors deepens the agency problem, results of some studies suggest that in cases where firm-specific knowledge of insiders is relatively important, the addition of an insider on the board increases stock price, or the fraction of insiders on investment and finance committees is associated with an increase in various measures of firm performance. To control for the impact of the executive directors on the company's decisions, we use EXE\_DIR% variable, measured as the proportion of executive directors on board.

To control for other distinctive characteristics in corporate governance, we also use (1) the number of inside (executive) directors (EXDIR) with properly disclosed identity; (2) the number of independent directors (INDIR) with properly disclosed identity; and (3) the number (GRDIR) and the proportion (GREY\_DIR) of directors whose identity was not properly disclosed, and therefore remains questionable, referred to here as "grey" directors. This last variable is used as a proxy for the level of corporate governance disclosure; following previous findings that disclosure may reduce information asymmetry and therefore have a positive effect on firm value.

**Ownership concentration:** Concentration of ownership is an essential element of corporate governance. Concentrated shareholdings and predominance of controllership seem to be the norm in EU countries [77]. Following the argument that large owners may or may

not be good company stewards, we include the immediate largest owners (OWNERSHIP) to examine their association with a firm's decision to adopt IFRS earlier.

**Firm size and growth:** Fama and French document that on average small firms have lower earnings (scaled by book value of equity) than do large firms. In addition, the ICAEW finds that the costs of IFRS adoption is inversely correlated with firm size. To control for size effect, this study uses the natural logarithm of total assets (SIZE).

Previous studies indicate that fast-growing firms are more often subject to underinvestment and asset substitution, as they have more flexibility in their choice of investment. In this study we use the logarithm of the difference between year  $t$  and  $t-1$  (i.e., two subsequent years') sales to control for the short-term growth opportunities (GROWTH).

**Auditor:** To validate the financial information augment the trust of the users, and amplify market reaction, we control for the fact that these companies employ a Big Four auditor to authenticate their financial statements. Teoh and Wong [73] provide evidence that investors perceived (then) Big Eight auditing firms as those that provided better audit quality, and thereby ensured greater credibility (trust) in accounting information; and Chang and Sun support those findings. Therefore, we assume that Big Four services are instrumental in raising trust, i.e., lowering the cost of capital in different security markets. We use BIG4 variable to capture the choice of employing a Big Four auditor. BIG4 is a binary variable that has value of one if a company uses one of the Big Four firms and is zero otherwise.

**Leverage and cash turnover:** Two variables, leverage and cash-flow turnover, are used to address the facts that in Europe (1) reserves represent a considerable part of total shareholders' funds (total equity), and are an important source of investments (with various degrees of importance for different European countries), (2) bank debt remains a significant source of capital, and (3) liabilities include accounts payable and provisions arising from national labor-market contracts or specific regulations with no importance for financing decisions. To control for the level of bank debt, we define LEVERAGE as the ratio of total long-term bank debt scaled by net assets.

The significance of tax effects on all European companies' decisions stems from the fact that all financial statements filed for accounting purposes are simultaneously used by tax authorities to verify companies' tax liabilities. Previous studies find that the negative tax effect holds only for firms with low cash flow, which are more likely to be close to tax exhaustion. Tax effects and sales have been found to be negatively correlated with leverage. Following the above arguments, we use cash-flow turnover as an indicator of managerial operating efficiency to generate cash flows and capability to pay off debt and taxes. We define CFTURN as the ratio of annual end of cash balances to annual turnover (net sale).

**Industry:** The decision to control for industry is based on two reasons. First, firm value, growth, risk, and cash flow may be more or less severe in certain industries due to differences in competitive intensity and industry maturity. Second, Lang and Stulz showed that the Tobin's Q of diversified firms tends to be lower, and that industry effects account for a significant fraction of the diversification discount; i.e., after correcting for industry effects, the diversification discount was positive and significant every year in their sample. To control for possible differential industry effects, we use a variable (INDUSTRY) that follows Fama and French's industrial classifications.

**Classification of countries:** To validate the results of the tests performed for the whole sample, we also tested for the impact of the existing contextual diversities in the various nations within which accounting requirements operate. Jurisdiction and level of bureaucratic (administrative) formalities are ways to classify similar countries into groups. The first classifying measure is based on the hypothetical classification of financial-reporting measurement practices, which supposedly constitute the long-run fundamental differences between a country's business environment and the importance of the influence of law and economics. Following the logic of this classification, the decision making in the countries from British origin is mostly determined by the impact of those decisions on company market value. The decision making in the countries from government tax or law based groups are very much associated with quality of information provided to the government and/or governmental agencies. According to this classification, our sample consists of four distinct groups associated with the following origins: (1) British (pragmatic, business practice); (2) French (government, tax-based); (3) German (government, law-based); and (4) Scandinavian (governmental economics).

The second classifying measure we use to test the extenuating effect of institutions is a level of bureaucratic formalities. The theory/logic behind using it is very similar to any other argument regarding the palliative effects of institutions. Government as appose to market economy is associated with higher bureaucracy, and therefore makes market related measurements of less significance.

The national levels of bureaucratic (administrative) formalities, was identified and measured as a part of the research project conducted by the French Research Centre in International Economics in 2006. The indexes are available at Database of the Institutional Characteristics of 85 Developing and Developed Countries/2006. We expect that the higher the level of bureaucratic formalities in a country, the more the increase in the procedural complexity becomes an impediment to effective convergence. Indeed, within the European Union, economic and financial policy remains first and foremost a competency belonging to each of the member states; there is no centralized EU economic policy institution, or a common EU accounting or financial services regulator. Although some economic coordination takes place at the EU level, notably under the framework of the 'Stability and Growth Pact', unity of action is still dependent on agreement by the representatives of the member states who sit on the Economic and Financial Affairs Council.

Following the previous investigation on bureaucratic formalities, we identified three levels of administrative formalities. The bureaucratic (administrative) formalities level was assigned to each country based on the overall score, which in turn was measured as the aggregated score using sub-scores such as level of government involvement in businesses and in allocation of financial funds available for companies; existence and observance of business legislations and measures. Countries included in level 1 belong to the most rigid administrative environment with strong governmental involvement in business and capital allocation and strongly enforced national business legislatures. Level 3 countries, represent very relaxed business environment, mostly dependent on market for capital redistribution. The countries included in the level 2 were in the middle third of the score.

## Results

### Descriptive statistics

We examine differences in our key variables in two steps. First, we detected the voluntarily adopters in the overall sample (630 firms, almost 38 percent of the sample) in 2004 and ran the Wilcoxon non-

parametric median test to identify the significance of differences in firms characteristics between the voluntarily adopters and non-adopters, i.e., the rest of the sample (Panel A of Table 2). The general descriptive statistics presented in Panel A show that the early adopters, similarly to non-adopters, are highly-leveraged firms with high ownership concentration, one third of the boards comprising executive directors, and a low level of corporate disclosure (on average about 2/3 of directors identities have not been disclosed). Consistent with our hypotheses, the

results of the Wilcoxon test for the overall sample show a significantly higher (1) number of foreign subsidiaries (SUBSIDIARY), (2) percentage of foreign sales (FRSALES), (3) Tobin Q during the year t-1 (TOBINQ). As expected, we also report a significant difference in total assets (TA\$), rate of growth of sales, cash flow turnover (CFTURN), and Big 4 auditor (AUDITOR) for voluntarily adopters. No differences in board size were detected. The same test showed a significantly lower number of inside (executive) directors (EXEDIR/EXE\_DIR),

Panel A. Voluntarily adopters vs. non-adopters, 2004. n = 1,676

Variable	Early (voluntarily) Adopters n = 634			Non-adopters n = 1,042			Wilcoxon Test Pr.
	Mean	Median	Std Dev	Mean	Median	Std. Dev	
<b>Independent variables</b>							
SUBSIDIARY	145	45	372	82	29	295	0.01***
FRSALE (%)	33.78	26.52	32.99	30.12	19.49	33.2	0.02**
TOBINQ	1.36	0.57	2.56	0.79	0.43	1.65	0.01***
BIG4	83.12	100	37.48	70.83	100	45.48	0.01***
<b>Control variables</b>							
BRDSZ (#)	9.07	8	4.29	9.38	8	5.04	0.65
INDDIR(#)	0.55	0	1.5	0.57	0	1.43	0.07*(-)
IND_DIR(%)	6.36	0	15.9	6.93	0	15.58	0.07*(-)
EXEDIR (#)	3.12	3	2.26	3.3	3	2.42	0.07*(-)
EXE_DIR (%)	36.02	33.33	18.54	36.67	33.33	18.54	0.12
GRDIR (#)	5.4	5	3.61	5.51	4	4.16	0.19
GREY_DIR (%)	57.62	60	24.43	56.4	60	22.62	0.15
OWNERSHIP (%)	12.36	0	23.37	14.94	0	25.88	0.12
CHGNI (%)	-20.10	9.14	570.9	93.29	6.53	1170.2	0.42
SIZE (\$ mil)	12,446	645	52,156	4,475	265	29,716	0.01***
SALE (\$mil)	3,529	532	11,101	2,406	273	9,868	0.01***
LEVERAGE (%)	14.78	9.32	23.62	13.93	8.49	23.13	0.23
CFTURN	6.71	5.5	8.9	5.54	4.27	9.73	0.01***

Panel B: Voluntarily vs. non-adopters by legal origin, 2004. n = 1,676

Variable	GO			FO			BO			SO		
	Voluntarily Adopters n=38	Non-adopters n=300	Wicoxon Test Pr.	Voluntarily Adopters n=296	Non-adopters n=357	Wicoxon Test Pr.	Voluntarily Adopters n=153	Non-adopters n=320	Wicoxon Test Pr.	Voluntarily Adopters n=147	Non-adopters n=65	Wicoxon Test Pr.
	Mean	Mean		Mean	Mean		Mean	Mean		Mean	Mean	
<b>Independent variables</b>												
SUBSIDIARY	52	22	0.01***	34	29	0.2	78	39	0.01***	39	26	0.01***
FRSALE (%)	1.04	34.43	0.01***(-)	18.08	17.13	0.97	37.41	4.73	0.01***	48.33	30.24	0.18
TOBINQ	0	0.42	0.01***	0.49	0.46	0.73	0.56	0.38	0.04**	2.28	1.7	0.66
BIG4	100	100	0.04**	100	100	0.01***	100	100	0.01***	100	100	0.33
<b>Control variables</b>												
BRDSZ (#)	8	9	0.39	9	9	0.38	7	7	0.04**	8	8	0.58
IND_DIR(%)	0	0	0.03**	0	0	0.02**(-)	12.5	12.5	0.91	0	0	0.67
EXE_DIR (%)	28.57	30.38	0.73	33.33	37.5	0.22	28.57	34.85	0.01***(-)	37.5	37.5	0.49
EXEDIR (#)	3	3	0.63	3	3	0.05**(-)	2	2	0.17	3	3	0.28
INDDIR(#)	0	0	0.03**	0	0	0.02**(-)	1	1	0.6	0	0	0.67
GRDIR (#)	5.5	6	0.8	5	5	0.99	3	3	0.11	5	5	0.82
GREY_DIR (%)	667.71	68.59	0.99	64.29	61.11	0.24	50	50	0.12	62.5	60	0.32
OWNERSHIP (%)	0	0	0.29	0	0	0.02**(-)	0	0	0.09*(-)	0	0	0.13
CHGNI (%)	6.01	5.78	0.99	12.35	5.55	0.04**	2.75	10.32	0.10*	14.15	9.07	0.88
SIZE (\$ mil)	9,941	268	0.01***	704	347	0.01***	831	199	0.01***	413	230	0.01***
SALE (\$mil)	1,626	289	0.01***	502	296	0.01***	662	231	0.01***	401	213	0.3
LEVERAGE (%)	0	9.02	0.01***(-)	10.37	9.11	0.51	9.1	6.21	0.09*	11.94	8.6	0.3
CFTURN	0	4.88	0.01***	5.28	3.27	0.02***	6.93	4.27	0.01***	5.96	5.47	0.3

Panel C: 2005 adopters” vs. Postponers, 2005. n = 1,163

Variable	2005 adopters n = 657			2007 adopters n = 506			Wilcoxon median Pr.
	Mean	Median	Std Dev	Mean	Median	Std. Dev	
Independent variables							
SUBSIDIARY	79	33	144	85	25	393	0.01***
FRSALE (%)	36.79	34.37	32.3	25.58	2.53	33.38	0.01***
TOBINQ	1.2	0.62	2.2	0.63	0.44	0.89	0.01***
BIG4	71.53	100	45.16	73.91	100	43.95	0.37
Control variables							
BRDSZ (#)	10.08	8	5.55	8.04	7	3.51	0.01***
IND_DIR(%)	5.29	0	13.81	9.03	0	17.6	0.01***(-)
EXE_DIR (%)	36.81	33.33	18.69	36.55	33.33	19.23	0.63
EXEDIR (#)	3.54	3	2.63	2.8	2	1.81	0.01***
INDDIR(#)	0.46	0	1.37	0.71	0	1.46	0.01***(-)
GRDIR (#)	6.08	5	4.49	4.53	4	3.22	0.01***
GREY_DIR (%)	57.9	60	22.15	54.42	57.14	23.38	0.02***
OWNERSHIP (%)	16.88	0	27.06	11.33	0	22.96	0.01***
CHGNI (%)	52.02	11.11	1200.86	107.51	0.69	1871.4	0.01***(-)
SIZE (\$mil)	4,790	379	19,587	4,735	280	39,334	0.02**
SALE (\$mil)	3,110	385	11,769	1,836	273	8,100	0.01***
LEVERAGE (%)	17.07	11.66	27.14	14.99	8.16	31.3	0.01***
CFTURN	7.62	6.06	9.1	6.19	3.94	10.35	0.01***

Panel D: 2005 adopters vs. 2007 - adopters by legal origin, 2005. n = 1,163

Variable	GO			FO			BO			SO		
	Adopters n=226	Non-adopters n=74	Wilcoxon Test Pr.	Adopters n=253	Non-adopters n=189	Wilcoxon Test Pr.	Adopters n=130	Non-adopters n=225	Wilcoxon Test Pr.	Adopters n=48	Non-adopters n=18	Wilcoxon Test Pr.
	Median	Median		Median	Median		Median	Median		Median	Median	
Independent variables												
SUBSIDIARY	24	13	0.02**	41	18	0.01***	45	37	0.63	27	20	0.58
FRSALE (%)	39.16	13.42	0.02**	31.72	0	0.01***	20.6	6.5	0.07*	49.44	0	0.01***
TOBINQ	0.53	0.47	0.28	0.64	0.43	0.01***	0.58	0.48	0.07*	3.93	0	0.01***
BIG4	100	100	0.55	100	100	0.78	100	100	0.34	100	100	0.42
Control variables												
BRDSZ (#)	9	9	0.44	10	7	0.01***	7	7	0.96	9	8	0.36
IND_DIR(%)	0	0	0.62	0	0	0.44	14.28	10	0.05**	0	0	0.99
EXE_DIR (%)	33.33	26.14	0.11	36.36	38.46	0.42	33.33	33.33	0.57	37.98	37.5	0.74
EXEDIR (#)	3	2	0.01***	3	3	0.01***	2	2	0.81	3	3	0.89
INDDIR(#)	0	0	0.62	0	0	0.44	1	1	0.05**	0	0	0.92
GRDIR (#)	6	6	0.78	6	4	0.01***	3	3	0.79	5	5	0.85
GREY_DIR (%)	66.67	72.07	0.11	61.54	60	0.39	50	50	0.6	60	59.03	0.83
OWNERSHIP (%)	0	0	0.2	0	0	0.42	0	0	0.3	0	0	0.92
CHGNI (%)	12.17	0	0.01***	10.11	0.81	0.04**	12.93	4.23	0.11	4.98	7.18	0.28
SIZE (\$ mil)	357	148	0.11	482	316	0.01***	275	275	0.97	260	165	0.58
SALE (\$mil)	379	150	0.02**	492	290	0.01***	361	296	0.48	264	97	0.27
LEVERAGE (%)	11.97	4.08	0.11	13.11	9.33	0.07*	8.23	8.62	0.86	10.45	0	0.03**
CFTURN	6.04	5.4	0.59	5.08	3.74	0.15	7.64	4.47	0.01***	7.99	0	0.01***

\*, \*\*, and \*\*\* represent the traditional significance level of 10%, 5%, 1%, respectively.

Note that the voluntary adopters are excluded from Panel C and Panel D sub-samples.

Table 2: Descriptive statistics.

marginally significant difference for independent directors (INDDIR/IND\_DIR), and level of ownership concentration (OWNERSHIP) for voluntarily adopters. These results can be attributed to two possibilities. First, there can be unaccounted number of independent directors with undisclosed identity, which we identified as grey directors. Second, the board independency institution and defused ownership are less pronounced in the code law countries.

The same test performed for different legal origins (Panel B of Table 2) shows that British origin firms (BO) on average have the lowest ownership concentration, smallest board size, highest proportion of independent directors and level of corporate disclosure. The results from the British sub-sample consistently support our hypotheses, as voluntary adopters there have a significantly higher percentage of foreign sales, a Big Four auditor, smaller board size, fewer executives

on board, a higher percentage of independent directors on board, size, and rate of growth. Similarly, voluntary adopters of German origin (GO) also tend to have a higher number of foreign subsidiaries, size, and rate of growth, but unlike voluntary adopters of British origin, those of German origin have lower levels of foreign sales. This can be attributed to the strong position of unions and employees within German companies' corporate governance who tend to vote against outsourcing. There are no significant differences in the characteristics of voluntary adopters vs. non-adopters between the companies of Scandinavian origin (SO), except only one: voluntary adopters of SO have significantly larger number of foreign subsidiaries. Thus, in accord with others, SO firms are more likely to adopt IFRS when they have fewer geographical limits. The voluntary adopters of French origin (FO) are significantly larger in size measured as both sales and total assets. Second, (Panel C of Table 2), we tested differences between the 2005-adopters (657 firms) vs. 2007 - adopters (506 firms) in 2005. The Wilcoxon test showed that the 2005 adopters have a significantly higher (1) percentage of foreign sales (FRSALES), (2) number of foreign subsidiaries (SUBSIDIARY), (3) Tobin Q (TOBINQ), (4) total assets (SIZE), and (5) cash-flow turnovers (CFTURN) than postponers. 2005-adopters also have larger boards (BRDSZ), a higher number of inside directors (EXEDIR), a lower level of corporate disclosure (higher number and percentage of "grey" directors), and a higher level of ownership concentration (OWNERSHIP). There is no significant difference in BIG4 between 2005 adopters and postponers.

The descriptive statistics presented in Panel D of Table 2 suggest that, whereas 2005 adopters from all legal origins consistently show higher percentages of foreign sales, the results for Tobin Q are ambiguous, ranging from insignificant for the 2005 adopters of German origin to marginally significant for the 2005 adopters of British origin, and strongly significant for 2005 adopters of French (FO) and Scandinavian (SO) legal origins.

### Pearson correlation

In Table 3 we report the results of Pearson correlations among the variables used in the tests. Results presented in Panel A of Table 3 show that voluntary adopters have a significantly positive correlation with a higher number of foreign subsidiaries, percentage of foreign sales, Tobin Q, employment of a Big 4 auditing firm, size, rate of growth, and cash flow turnover, while significantly negatively correlating with ownership concentration. There is no significant correlation with board composition or level of corporate disclosure (inside, independent and grey directors).

Interestingly, highly diversified firms employ Big four auditor more often, have larger boards, less executives, more independent directors on board, and lower ownership concentration, but they have lower Tobin Q, which is consistent with the Lang and Stulz [49] findings.

Panel B of Table 3 presents Pearson correlation results for 2005- vs. 2007-adopters. It shows that 2005- adopters are associated with higher percentage of foreign sale, Tobin Q, ownership concentration, rate of growth, and cash flow turnover, but there were no significant associations with number of foreign subsidiaries or size. As far as corporate governance characteristics, 2005-adopters are significantly associated with larger boards (BRDSZ), lower level of corporate disclosure (higher proportion of grey directors on board (GREY\_DIR), and lower proportion of independent directors on their board (IND\_DIR).

### Logit test results

To test our hypotheses, we employ the logistic regression model and the results of our tests are presented in the panels of Table 4. In particular, the results of the logistic regression in Panel A of Table 4, consistent with the Wilcoxon test, show that number of foreign subsidiaries, the choice of auditor, and size have a significant effect on the odds of becoming a voluntary adopter, but significantly smaller reported earnings and no significant results for the value and the percentage of foreign sales were found after controlling for industry and country fixed effects. The results for corporate governance characteristics are not significant, except early adopters have smaller boards.

To check the results from Table 4, Panel A for the extenuating effects of national institutional environments on firm's characteristics, we have partitioned our sample and examined the differences in all tested firms' characteristics for different jurisdictions. When it comes to early adopters, we report the consistent significant support for our hypotheses only for British firms (Panel B of Table 4). The outcomes of the tests for voluntary adopters from other legal origins are conflicting. For example, for companies of Scandinavian origin, only number of foreign subsidiaries raises the odds of voluntary adoption, whereas for companies of French and German origins, the choice of auditor and size significantly affect the odds of voluntary adoption. French origin early adopters also have smaller board size. Contrary to the results

for companies of British origin, the Tobin Q measured a year prior to the adoption remains insignificant for all companies of continental European legal origins. These disparities are partly due to at least two factors. First, previously documented differences in how effectively national stock markets incorporate accounting information. Indeed, the findings reported by Morck et al. [62] and Jin and Myers [42] illustrate that stock markets around the world are not equally effective in incorporating firm-specific information. Second, as agency literature suggests, in a case of highly concentrated inside ownership and imperfect investor protection, managers have strong ex-ante incentives for self-dealing (assets stripping) and assign a lower value to stochastic profits because they discount for idiosyncratic risk.

The analyses of the incremental effects of company characteristics of early IFRS adopters from both panel A and panel B of Table 4 provide evidence that (1) adding one foreign subsidiary is positively associated with becoming an early IFRS adopter by 12.9 percent for the overall sample, from the highest percent for the firms of Scandinavians origin (46.21) to the lowest percent for the firms of French origin (4.81); (2) a one unit increase in the Tobin Q ratio increases the likelihood of early IFRS adoption by 17.2 percent for the overall sample, from the highest percent for the firms of British origin (about 55) to the lowest percent for the German-origin firms; and (3) using a Big Four auditor increases the likelihood of early IFRS adoption by 61.3 percent for the overall sample, with the highest percent for firms of German origin (115.11), and the lowest percent for firms of Scandinavian origin (46.96). The results of the logit regression for the 2005- vs. 2007- adopters provided in Panel C of Table 4 report that the coefficients of FRSALE, TOBINQ, and GROWTH are statistically significant, but we did not detect any significant effect of the number of foreign subsidiaries and firm size on the odds of becoming a 2005-adopter.

The results of the tests on the extenuating effects of jurisdictions, provided in Panel D, show that for companies of French origin higher business complexity, Tobin Q, board size, and growth increase the likelihood of becoming a 2005-adopter, in contrast to firms of German origin. Higher managerial operating efficiency in generating cash flow raises the odds of becoming a 2005-adopter in all legal origins except French.



Panel A. Voluntarily Adopters vs. Non-Adopters, 2004. n = 1,676

	Tobin	Leverage	Growth	Frsale	Cfturn	Chgni	Size	Subsidiary	Brdsz	Exe_Dir	Grey_Dir	Ind_Dir	Ownership	Auditor
Mandatory	0.158***	0.035	0.061**	0.167***	0.073***	-0.017	0.001	-0.012	0.207***	0.007	0.076***	-0.119†	0.108***	-0.026
Tobinq		0.212***	-0.029	0.122***	0.201***	-0.019	-0.041	-0.010	0.04	-0.035	0.026	0.004	0.005	0.04
Leverage			0.015	0.008	0.088***	0.213***	-0.015	0.028	0.092***	-0.077***	0.045	0.028	-0.002	0.025
Growth				0.152***	0.049*	-0.010	0.391***	0.28***	0.321***	-0.086***	0.064**	0.011	-0.012	0.098***
Frsale					0.094***	-0.036	0.036	0.064**	0.116***	-0.095***	0.047	0.047	-0.041	0.132***
Cfturn						0.001	0.034	0.016	0.076***	-0.093***	0.014	0.091***	-0.034	0.115***
Chgni							-0.007	-0.007	0.017	-0.050*	0.056*	-0.021	0.048*	-0.039
Size								0.803†	0.234***	-0.071	0.070*	-0.014	-0.021	0.077***
Subsidiary									0.246***	-0.115***	0.071**	0.036	-0.076***	0.089***
Brdsz										-0.164***	0.200***	-0.093***	0.050*	0.072***
Exe_Dir											-0.731***	-0.145***	0.081***	-0.159***
Grey_Dir												-0.568***	0.04	0.051*
Ind_Dir													-0.157***	0.118***
Ownership														-0.187***

Panel B. 2005 adopters vs. Postponers, 2005. n = 1,163

	Tobin	Leverage	Growth	Frsale	Cfturn	Chgni	Size	Subsidiary	Brdsz	Exe_Dir	Grey_Dir	Ind_Dir	Ownership	Auditor
Mandatory	0.158***	0.035	0.061**	0.167***	0.073***	-0.017	0.001	-0.012	0.207***	0.007	0.076***	-0.119†	0.108***	-0.026
Tobinq		0.212***	-0.029	0.122***	0.201***	-0.019	-0.041	-0.010	0.04	-0.035	0.026	0.004	0.005	0.04
Leverage			0.015	0.008	0.088***	0.213***	-0.015	0.028	0.092***	-0.077***	0.045	0.028	-0.002	0.025
Growth				0.152***	0.049*	-0.010	0.391***	0.28***	0.321***	-0.086***	0.064**	0.011	-0.012	0.098***
Frsale					0.094***	-0.036	0.036	0.064**	0.116***	-0.095***	0.047	0.047	-0.041	0.132***
Cfturn						0.001	0.034	0.016	0.076***	-0.093***	0.014	0.091***	-0.034	0.115***
Chgni							-0.007	-0.007	0.017	-0.050*	0.056*	-0.021	0.048*	-0.039
Size								0.803†	0.234***	-0.071	0.070*	-0.014	-0.021	0.077***
Subsidiary									0.246***	-0.115***	0.071**	0.036	-0.076***	0.089***
Brdsz										-0.164***	0.200***	-0.093***	0.050*	0.072***
Exe_Dir											-0.731***	-0.145***	0.081***	-0.159***
Grey_Dir												-0.568***	0.04	0.051*
Ind_Dir													-0.157***	0.118***
Ownership														-0.187***

\*, \*\*, and\*\*\* represent the traditional significance level of 10%, 5%, and 1%, respectively.

GROWTH is the log of the difference between net sales for two subsequent years (t-1 and t), SIZE03 and SIZE04 take natural log of the book value of total assets for 2003 and 2004, respectively. Other variables are defined as in Table 2.

Table 3: Pearson correlation.

The analyses of the incremental effects of company characteristics on the likelihood of being a 2005- vs. a 2007-adopter show that adding one foreign subsidiary raises the odds of becoming 2005-adopter by 8.2 percent for the overall sample, from the highest percent for the firms of French origin (61.1) to the lowest percent for the firms of Scandinavian origin (-1.65); one unit increase in the Tobin Q ratio raises the odds of 2005 adoption by 26.6 percent for the overall sample, from the highest percent for the Scandinavian origin firms (about 95) to the lowest percent for the German origin firms; using a Big Four auditor increases the likelihood of early IFRS adoption, from the highest percent for the firms of German origin (168.8), and the lowest percent for firms of Scandinavian origin (about 80).

### Additional tests

In the set of additional tests, we examined the effects on our results of the levels of bureaucratic formalities in a country (Table 5, Panels A and B). We divided our overall sample using the levels of bureaucratic (administrative) formalities in business, measured on a scale from one to three, as assigned by the Database of the Institutional Characteristics of 85 Developing and Developed Countries/2006. Following the grouping from this database, we assembled countries in the subsamples

by the levels of administrative formalities in business, where Level 3 includes countries with minimum or no formalities at all and minimum governmental involvement in business and capital allocation, and Level 1 includes countries on the other end of the continuum, with level two in the middle. The results of the tests performed after disaggregating the sample by the levels of bureaucratic formalities in a country suggest that in the countries with the least-rigid administrative environment (Level 3), a company with higher business complexity, Tobin Q, choice of auditor, and size is more likely to become a voluntary IFRS adopter (Table 5, Panel A). Adding one foreign subsidiary increases the odds of early IFRS adoption for the Level 1 and Level 3 firms by 138.7 and 22.0 percent, respectively; a one unit increase in the Tobin Q ratio increases the odds of early IFRS adoption by 586.2 percent for the Level 1 (highest level of bureaucratic formalities) firms and only by 25.86 percent for the Level 3 firms.

The results for the 2005 adopters vs. 2007 - adopters (Table 5, Panel B) suggest that the majority of firms operating in the most rigid administrative environment (Level 1) postponed IFRS adoption until 2007 (97 firms out 105). It caused a quasi-completion of the logistic regression, and thus the logit tests were performed only for Level 2 and Level 3 firms. Higher number of foreign subsidiaries, level of foreign

**Panel A. Voluntary Adopters vs. Non-adopters, 2004**

Dependent Variable: Voluntary Adopters: 634 and Non-adopters: 1,042. n = 1,676

Variable	Model 1	Model 2	Model 3	% change in the odds
1	2	3	4	5
INTERCEPT	0.061	0.163	0.133	
	-0.01	-0.06	-0.04	
SUBSIDIARY	0.188	0.187	0.187	12.9
	(9.49**)	(9.42**)	(9.43**)	
FRSALES	0.185	0.18	0.185	0.7
	-0.62	-0.63	-0.65	
TOBINQ	0.028	0.028	0.023	
	-0.54	-0.53	-0.56	17.2
BIG4	0.3	0.295	0.296	61.3
	(3.06**)	(2.98*)	(3.00*)	
BRDSZ	-0.627	-0.631	-0.632	-21.8
	(12.22***)	(12.40***)	(12.48***)	
EXE_DIR	0.135			47.7
	-0.16			
IND_DIR			-0.097	
			-0.05	
GREY_DIR		-0.050		7.1
		-0.03		
OWNERSHIP	-0.001	-0.001	-0.001	
	-0.01	-0.01	-0.01	
CHGNI	-0.027	-0.027	-0.027	
	(7.26**)	(7.22**)	(7.19**)	
SIZE	0.187	0.187	0.187	
	(10.26***)	(10.19***)	(10.20***)	27.1
GROWTH	-0.018	-0.019	-0.019	-9.3
	-0.17	-0.1	-0.1	
LEVERAGE	0.194	0.194	0.194	
	-0.6	-0.6	-0.6	
CFTURN	0.006	0.006	0.006	0.7
	-0.76	-0.75	-0.76	
INDUSTRY	Y	Y	Y	
COUNTRY	Y	Y	Y	
Wald Chi-Square	356.62***	356.73***	356.75***	

**Panel B. Voluntary Adopters vs. Non-adopters by Legal Origin, 2004**

Dependent Variable: Voluntary Adopters: 634 and Non-adopters: 1,042. n = 1,676

	German Origin	% change in the odds	French Origin	% change in the odds	British Origin	% change in the odds	Scandinavian Origin	% change in the odds
1	2	3	4	5	6	7	8	9
Voluntary Adopters (n)	38		296		153		147	
Non-adopters (n)	300		357		320		65	
INTERCEPT	-3.659		-0.070		-3.729		3.065	
	(7.59***)		-0.01		(11.86***)		-2.37	
SUBSIDIARY	0.375	35.1	0.051	4.8	0.241	24	0.394	46.8
	(2.92*)		-0.36		(4.97**)		(3.49*)	
FRSALE	-2.281	-66.2	-0.534	-42.3	0.852	145.2	1.016	66.2
	(5.56**)		-2.53		(4.20**)		-2.16	
TOBINQ	-1.233	-55.5	-0.134	-12.6	0.477	54.7	0.012	16.1
	(2.96*)		-1.69		(6.45***)		-0.06	
BIG4	0.936	115.11	0.477	62.9	0.376	48.6	0.46	47
	(2.64*)		(5.80**)		-0.74		-0.44	
BRDSZ	-0.294	-22.7	-1.003	-63.3	-0.529	-36.8	-1.943	-82.0
	-0.4		(21.56***)		-1.62		(4.77**)	
IND_DIR	-4.464x	2358	-1.080	-64.6	-0.016	-5.4	-2.076	-86.5
	-0.22		-1.37		-0.01		-1.67	
OWNERSHIP	0.011	0.7	-0.005	0.6	-0.014	-1.5	0.021	0.2
	-2.46		-2.51		-1.67		(3.82**)	
CHGNI	-0.019		-0.016		-0.059		-0.092	

	-0.66		-1.2		(3.39*)		-1.2	
<b>SIZE</b>	0.232		0.262		0.165		0.295	
	(2.96*)		(8.44***)		-1.91		-2.12	
<b>GROWTH</b>	0.062		-0.069		-0.042		-0.220	
	-0.17		-0.58		-0.13		-1.52	
<b>LEVERAGE</b>	-8.459		0.783		0.063		1.039	
	(6.31**)		(3.63*)		-0.01		-0.42	
<b>CFTURN</b>	-0.026	1.4	0.016	1.6	0.006	0.1	0.004	0.6
	-0.68		-2.24		-0.24		-0.02	
<b>INDUSTRY</b>	Y		Y		Y		Y	
<b>Wald Chi-Square</b>	49.36***		89.95***		76.54***		32.05	

**Panel C. 2005 adopters vs. Postponers, 2005**

Dependent Variable: 2005 adopters: 657 Postponers: 506. n = 1,163

Variable	Model 1	Model 2	Model 3	% change in the odds
1	2	3	4	5
<b>INTERCEPT</b>	-1.273	-1.094	-1.244	
	(3.95**)	-1.74	-2.3	
<b>SUBSIDIARY</b>	0.082	0.078	0.072	8.2
	-1.21	-1.09	-0.95	
<b>FRSALE</b>	0.521	0.48	0.502	148.4
	(3.23*)	(2.77*)	(3.00*)	
<b>TOBINQ</b>	0.297	0.293	0.293	26.6
	(14.03***)	(13.83***)	(13.79***)	
<b>BIG4</b>	0.117	0.096	0.09	-25.6
	-0.34	-0.23	-0.2	
<b>BRDSZ</b>	0.177	0.18	-0.196	142.8
	-0.63	-0.66	-0.78	
<b>EXE_DIR</b>	0.751			64.5
	(2.79*)			
<b>IND_DIR</b>			-0.270	-80.5
			-0.26	
<b>GREY_DIR</b>		-0.387		53
		-1.07		
<b>OWNERSHIP</b>	0.004	0.004	0.004	
	-1.11	-1.27	-1.28	
<b>CHGNI</b>	-0.005	-0.005	-0.006	
	-0.92	-0.99	-1.1	
<b>SIZE</b>	-0.114	-0.115	-0.112	
	-2.36	-2.41	-2.28	
<b>GROWTH</b>	0.22	0.215	0.214	
	(8.58***)	(8.32***)	(8.26***)	
<b>LEVERAGE</b>	-0.081	-0.087	-0.086	
	-0.07	-0.08	-0.08	
<b>CFTURN</b>	0.023	0.023	0.023	9.4
	(6.70***)	(6.56***)	(6.61***)	
<b>INDUSTRY</b>	Y	Y	Y	
<b>COUNTRY</b>	Y	Y	Y	
<b>Wald Chi-Square</b>	280.28***	280.60***	280.57***	

**Panel D. 2005 adopters vs. 2007 - adopters by Legal Origin, 2005**

n=1,163

Dependent Variable: 2005 adopters: 657 Postponers: 506. n = 1,163

	German Origin	% change in the odds	French Origin	% change in the odds	British Origin	% change in the odds	Scandinavian Origin	% change in the odds
1	2	3	4	5	6	7	8	9
<b>Mandatory Adopters (N)</b>	226		253		130		48	
<b>2007 - adopters (N)</b>	74		189		225		18	
<b>Intercept</b>	0.093		-2.241		-2.342		3.375	
	-0.01		(3.12*)		(5.17**)		-0.25	
<b>SUBSIDIARY</b>	0.131	15.3	0.493	61.1	0.082	5.2	-0.275	-1.7
	-0.64		(16.95***)		-0.57		-0.15	

<b>FRSALES</b>	0.749	84.2	0.883	41.3	0.141	42.5	-1.262	-6.3
	-1.59		(4.07**)		-0.08		-0.42	
<b>TOBINQ</b>	-0.032	-139.0	0.247	28.4	0.001	89.6	0.745	95
	-0.03		(3.31*)		-0.01		(3.57*)	
<b>BIG4</b>	-0.172	168.8	-0.496	-38.9	0.121	16.8	-1.067	-80.0
	-0.24		(3.51*)		-0.1		-0.27	
<b>BRDSZ</b>	-0.343	-30.9	1.33		-0.155	-25.69	-2.744	-8.92
	-0.84		(20.95***)		-0.13		-0.54	
<b>IND_DIR</b>	-3.388	-9.7	-1.912	-85.1	0.067	-6.6	-3.078x	-96.1
	-2.25		-2.34		-0.01		-0.98	
<b>OWNERSHIP</b>	0.005	4.1	0.008	0.8	0.005	6.18	-0.013	-5.8
	-0.81		(3.62*)		-0.21		-0.16	
<b>CHGNI</b>	-0.009		0.01		-0.014		0.068	
	-0.95		-0.1		-0.58		-0.26	
<b>SIZE</b>	-0.117		-0.286		-0.093		0.84	
	-0.67		(4.86**)		-0.4		-2.08	
<b>GROWTH</b>	0.35		0.254		0.116		-0.168	
	(6.11***)		(4.00**)		-0.67		-0.08	
<b>LEVERAGE</b>	1.101		-0.434		-0.467		5.711	
	-0.2		-1.11		-0.34		-1.83	
<b>CFTURN</b>	0.044	4.7	0.001	0.1	0.026	2.6	0.351	42.3
	(4.45**)		-0.01		(3.39*)		(4.86**)	
<b>INDUSTRY</b>	Y		Y		Y		Y	
<b>Wald Chi-Square</b>	40.10*		81.35***		34.39		10.37	

Upper number in each panel represents the coefficient estimate while the parenthetic number represents the statistic significance of the chi-squared test. \*, \*\*, \*\*\* represent traditionally statistic significance levels of 10%, 5%, 1%, respectively.

**Table 4:** Logistic regressions results.

**Panel A. Voluntary adopters vs. non-adopters by 2004. n = 1,676**

	LEVEL 1	% change in the odds	LEVEL 2	% change in the odds	LEVEL3	% change in the odds
1	2	3	4	5	6	7
<b>Voluntary Adopters (n)</b>	140		231		263	
<b>Non-adopters (n)</b>	29		580		433	
<b>INTERCEPT</b>	-1.916		-0.714		-3.414	
	-1.33		-1.42		(16.99***)	
<b>SUBSIDIARY</b>	0.87	138.7	0.129	13.7	0.214	22
	(7.40***)		-2.37		(6.22***)	
<b>FRSALE</b>	-1.895	-84.5	0.094	-	0.342	33.8
	-1.99		-0.09		-1.16	
<b>TOBINQ</b>	1.928	586.2	-0.061	-5.9	0.229	25.9
	(3.61*)		-0.43		(29.65***)	
<b>BIG4</b>	-0.605	-45.8	0.312	36.2	0.847	136.6
	-0.64		(2.78*)		(5.37**)	
<b>BRDSZ</b>	1.256	251.1	-0.836	-56.7	-0.425	-35.1
	-2.21		(16.59***)		-1.8	
<b>IND_DIR</b>	-2.617x	-92.6	0.192	21.3	-0.036	-7.9
	(2.96*)		-0.05		-0.01	
<b>OWNERSHIP</b>	-0.002	-2.0	-0.003	-3.0	0.001	-1.0
	-0.02		-0.69		-0.02	
<b>CHGNI</b>	0.007		-0.003		-0.055	
	-0.01		-0.05		(4.41**)	
<b>SIZE</b>	-0.060	-43.4	0.119	12.7	0.214	23.9
	-0.11		-2.1		(6.69***)	
<b>GROWTH</b>	0.322		-0.017		-0.089	
	(3.08*)		-0.04		-1.28	
<b>LEVERAGE</b>	8.596		0.313		0.164	
	(3.63*)		-0.83		-0.08	
<b>CFTURN</b>	-0.011	-1.1	0.009	9.4	0.002	1
	-0.06		-0.69		-0.04	
<b>INDUSTRY</b>	Y		Y		Y	
<b>Wald Chi-Square</b>	24.38		81.54***		111.07***	

Panel B. 2005 adopters vs. Postponers, 2005, n = 1,163.

	LEVEL 1	LEVEL 2	% change in the odds	LEVEL3	% change in the odds
1	2	4	5	6	7
2005 adopters (N)	8 <sup>x</sup>	436		213	
2007 - adopters (N)	97	154		255	
Intercept		-0.461		-1.206	
		-0.39		-1.73	
SUBSIDIARY		0.361	42.3	0.097	9.6
		(10.94***)		-0.97	
FRSALES		1.439	357.2	0.299	36.2
		(9.91***)		-0.61	
TOBINQ		0.35	46.5	0.451	57.5
		(4.68**)		(14.69***)	
BIG4		0.125	15.6	0.084	9.5
		-0.3		-0.06	
BRDSZ		0.166	16.4	-0.358	-135.5
		-0.4		-0.94	
IND_DIR		-4.288	-97.9	-1.009	-62.7
		(13.59***)		(3.26*)	
OWNERSHIP		0.004	4.1	0.009	0.9
		-1.1		-1.54	
CHGNI		-0.001		-0.010	
		-0.03		-0.45	
SIZE		-0.168		-0.007	
		(2.63*)		-0.01	
GROWTH		0.28		0.084	
		(6.68***)		-0.53	
LEVERAGE		-0.410		-0.536	
		-1.18		-0.6	
CFTURN		0.014		0.011	
		-1.1		-0.93	
INDUSTRY		Y		Y	
Wald Chi-Square		94.00***		54.26*	

Upper number in each panel represents the coefficient estimate while the parenthetic number represents the statistic significance of the chi-squared test. \*, \*\*, and \*\*\* represent statistic significance levels of 10%, 5%, and 1%, respectively.

Table 5: Level of bureaucratic formality.

sales, Tobin Q, smaller size, and lower level of corporate disclosure significantly increase the probability of becoming an 2005-adopter for Level 2 firms. Only higher Tobin Q was significant for 2005-adoption for Level 3 firms.

Other robustness tests not tabulated here include (1) the test without UK and (2) the test without UK, Germany and France, as they represent the three largest sub-samples in the test. The results of all additional tests are consistent with those in the Table 4.

## Conclusions

In this study we examined the effects of corporate characteristics of firms in 14 EU countries on the timing of IFRS adoption. In accordance with the economic theory, we identified three main purposes of accounting convergence: compatibility, interoperability, and promotion of economies of scale by efficient variety reduction. With these purposes in mind, we identified the main characteristics of firms which would benefit from accounting standardization, that is adopting a single set of accounting standards, such as IFRS, as (1) firms with fewer geographic or sector-related limits; (2) firms that do business everywhere in the world, raise capital from multiple stock exchanges, have higher Tobin Q, and (3) have better corporate governance practices. We hypothesize that the environment the firms operate in has an impact the firm's decision to adopt IFRS vs. deferring the adoption. The results of our

investigation support our initial conjecture. The number of foreign subsidiaries and Tobin Q increase the likelihood of early IFRS adoption. In addition to the main findings, several additional findings related to the extenuating effects of jurisdictions and the levels of administrative formalities hold special importance. First, the results of the tests for the firms of British origin consistently support our hypotheses, which are mostly derived from theories emphasizing the decision-making needs of capital market shareholders. British origin early adopters have more foreign subsidiaries, larger proportion of foreign sales, and larger Tobin Q. Also, the level of corporate disclosure is the highest for firms of British origin (the proportion of grey directors is the lowest).

Results for Continental European firm origins are diverse. Among all variables tested, the following three appear to have a consistently positive effect on chance of IFRS adoption in the manner and degree outlined: (1) adding a foreign subsidiary increases the likelihood of early IFRS adoption by 35, 4.8 and 46.8 percent for German, French and Scandinavian-origin firms, respectively; (2) a Big Four auditor increases the likelihood of early IFRS adoption by 115, 62.9 and 47 percent for German, French and Scandinavian-origin firms, respectively; and (3) increase in ownership concentration raises the likelihood of early adoption for the firms of a shared origin. There are mixed results for firm value as measured by Tobin's Q: higher Tobin's Q decreases the likelihood of early IFRS adoption for firms of German

origin. Contrastingly, higher Tobin's Q has no impact on the likelihood of early IFRS adoption by firms of Scandinavian or French legal origin.

The analysis of the effects of bureaucratic formality levels on companies' choices regarding early IFRS adoption indicates that in countries with the strongest bureaucratic rules (Level 1), no explanatory variables have a positive effect on the odds of early adoption, except for the number of foreign subsidiaries and the Tobin Q. It is consistent with previous findings suggesting that heavier regulatory environments are negatively correlated with firms' business decisions to enter global market. The strong effect of Tobin Q ratio on the odds of early IFRS adoption is consistent with the notion that Level 1 countries predominantly represent regulated markets with less competition, division of labor, and opportunities for risk sharing and risk matching, and therefore higher costs of financial statement reconciliation associated with multinational equity listings. As a result, potential benefits from enhanced comparability of financial statements, and therefore incentives for convergence, are stronger.

In addition to the findings for early adopters, we also provide evidence that firm characteristics also play a role in determining whether firms adopt IFRS in 2005, or delay the adoption. The results suggest that 2005- adopters have higher percentage of foreign sales, Tobin Q, and have larger amount of total assets (Wilcoxon Median Pr. are significant on 0.01, 0.01, and 0.02 risk levels respectively). For 2005- vs. 2007-adopters, a higher percentage of foreign sales, Tobin Q, and rate of growth have statistically significant effects on the likelihood of adopting IFRS on time. Furthermore, higher managerial efficiency to generate cash increases the likelihood of 2005- IFRS adoption vs. postponing it. It is consistent with our initial prediction that a firm's business complexity and higher value positively impact the likelihood of IFRS adoption.

In conclusion, this study provides evidence that increases our understanding of a wide range of firm and environmental characteristics affecting accounting standardization. With these results in mind, policymakers can now better understand what companies benefit most from a positive network effect. And, thus, these findings should be helpful for regulators, exchanges, and jurisdictions to prepare for the increasing global convergence.

Early (voluntary) adopters are defined as the firms that have already adopted IFRS in 2004 before the mandatory date. 2005 adopters are defined as the firms that have adopted IFRS under mandatory requirement 1606/2002 in 2005. Non-adopters are those companies, which were not using IFRS in 2004. 2007 - adopters are those companies, which postponed the date of adoption. TOBINQ is a firm's [(long-term debt + market value of equity- book value of common equity)/total assets] in t-1. LEVERAGE is a firm's long-term debt scaled by total assets in t-1. SALE is the firm's sale in the year t-1, and TA is total assets in the year t-1. CFTURN is the cash flow turnover rate that is year-end cash balance scaled by net sales in the year t-1. CHGNI is the percentage change of net income before taxes (IBT) of in the year of adopting IFRS minus the net income before taxes of last year of adopting local GAAP (i.e.,  $(NI_{IFRS_t} - NI_{oldGAAP,t-1}) / NI_{oldGAAP,t-1}$ ). SUBSIDIARY is a number of operating foreign subsidiaries of a firm. BRDSZ is the board size of the firm. EXEDIR is the number of executive directors - insiders. GREYDIR is the number of directors who are not identified as an insider or an independent director in the ORBIS database. INDDIR is the number of independent outsiders. EXE\_DIR is the percentage of EXEDIR scaled by BRDSZ. GREY\_DIR is the percentage of GREYDIR scaled by BRDSZ. IND\_DIR is the percentage of INDDIR scaled by BRDSZ. OWNERSHIP is a percentage of a firm's shares owned by the

immediate owners. BIG4 is a dummy equal to 1 if a firm's auditor is Big 4 accounting firm during the year prior to the adoption.

Dependent Variable is a dummy variable as value one if a firm was an early or 2005 adopter and zero otherwise. Voluntary adopters are defined as the firms that have already adopted IFRS in 2004 before the mandatory date. Non-adopters are those companies that were not using IFRS in 2004. 2005 adopters are defined as the firms that have adopted IFRS under mandatory requirement 1606/2002 in 2005. 2007 - adopters are those companies, which postponed the date of adoption until 2007 (Article 9, regulation (EC) 1606/2002).

Note that voluntary and 2005 adopters can be considered early in comparison with non-adopters and 2007 - adopters respectively.

TOBINQ is a firm's [(long-term debt + market value of equity- book value of common equity)/total assets] in t-1. LEVERAGE is a firm's long-term debt scaled by total assets in t-1. GROWTH is the log of the difference between net sales for two subsequent years (t-1 and t), SIZE03 and SIZE04 take natural log of the book value of total assets for 2003 and 2004, respectively. CFTURN is the cash flow turnover rate that is year-end cash balance scaled by net sales in the year t-1, SUBSIDIARY is a number of operating foreign subsidiaries of a firm. BRDSZ is the board size of the firm. EXEDIR is the number of directors - insiders. GREYDIR is the number of directors who are not identified as an insider or an independent director in the ORBIS database. INDDIR is the number of independent outsiders. EXE\_DIR is the percentage of EXEDIR scaled by BRDSZ. GREY\_DIR is the percentage of GREYDIR scaled by BRDSZ. IND\_DIR is the percentage of INDDIR scaled by BRDSZ. OWNERSHIP is a percentage of a firm's shares owned by the immediate owners. BIG4 is a dummy equal to 1 if a firm's auditor is Big 4 accounting firm during a year prior to the adoption.

We replace IND\_DIR with GREY\_DIR because annual reports of "postponers" identify no independent directors for the binary logistic model.

To identify the incremental quantitative effects of the one unit increase in independent variables on the odds of becoming an early /2005 adopter, we used the following algorithm:

The odds of early adoption (EA) = Probability of EA/ 1- Probability of EA

The Odds Ratio=  $e^{\text{coeff.}}$

The percentage of increase in the odds of EA =  $(\text{Odds ratio} - 1) \times 100$

For example, adding one foreign subsidiary will increase the logit of EA by .159 (Panel A), therefore Odds ratio=  $e^{.159} = 1.172$ , thus the percent of increase in the odds of early adoption by adding one foreign subsidiary is  $= (1.172-1) \times 100 = 17.2\%$ . The results of this exercise are summarized in the columns of Table 4 identified as "% increase in odds".

The classification is based on the level of bureaucratic (administrative) formalities and by the number of entry barriers and labor market regulations that affect a company's decisions to enter into an integrated market. Level of bureaucratic formalities is measured on a scale from 1 to 4. We used these scores in grouping countries by the level of administrative formality, Level 4 being countries with minimum or no formalities at all. Initially all scores are assigned by the Database of the Institutional Characteristics of 85 Developing and Developed Countries/2006. Profiles "Institutionnels-database - <http://www.cepii.fr/ProfilsInstitutionnels Database.htm>". In our tests Level 1 consists of Spain and Italy, Level 2 includes Austria, Belgium, Finland, France,

German, Greece, and Portugal, and Level 3 is comprised of Denmark, Ireland, UK, Netherlands, and Sweden.

Dependent Variable is a dichotomous variable with value one if a firm was an early or 2005 adopter or zero otherwise. Independent variables are previously defined in Table 4.

Level 1 has only 8 2005 adopters vs. 97 postponers; it caused a quasi-completion in logistic regression, when many variables have no matched pair.

To identify the incremental quantitative effects of the one unit increase in independent variables on the odds of becoming an early adopter, we used the following algorithm:

The odds of early adoption (EA) = Probability of EA / 1 - Probability of EA

The Odds Ratio =  $e^{\text{coeff}}$

The percentage of increase in the odds of EA =  $(\text{Odds ratio} - 1) \times 100$

For example, adding one foreign subsidiary will increase the logit of EA by 0.159 (Panel A), therefore

Odds ratio =  $e^{0.159} = 1.172$ , thus the percent of increase in the odds of early adoption by adding one foreign subsidiary is  $= (1.172 - 1) \times 100 = 17.2\%$ . The results of this exercise are summarized in the columns of Table 4 identified as “% change in the odds”.

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