

Why do countries adopt International Financial Reporting Standards?*

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Abstract

In a sample of 102 non-European Union countries, we study variations in the decision to adopt International Financial Reporting Standards (IFRS). There is evidence that more powerful countries are less likely to adopt IFRS, consistent with more powerful countries being less willing to surrender standard-setting authority to an international body. There is also some evidence that the likelihood of IFRS adoption at first increases and then decreases in the quality of countries' domestic governance, consistent with IFRS being adopted when governments are capable of timely decision making and when the opportunity cost of domestic standards is relatively low. We do not find evidence of the level of foreign trade and investment in a country affecting its adoption decision: thus, we cannot confirm that IFRS lowers information costs in more globalized economies. Consistent with the presence of network effects in IFRS adoption, we find that a country is more likely to adopt IFRS if other countries in its geographical region are IFRS adopters.

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1. Introduction

The International Accounting Standards Board (IASB) was established in 2001 to develop International Financial Reporting Standards (IFRS). A year later, European Union (EU) member states committed to requiring IFRS for all listed corporations in their jurisdictions effective year 2005 (EC, 2002). The first IFRS was issued in 2003, by which time at least 19 countries required compliance with the international standards. Since then, nearly 70 countries (including EU countries) have mandated IFRS for all listed companies. Further, about 23 countries have either mandated IFRS for some listed companies or allow listed companies to voluntarily adopt IFRS. Notably, however, as of 2007, at least 40 countries continue to require domestically developed accounting standards over IFRS, and this list includes some large economies like Brazil, Canada, China, Japan, India, and the US.¹ We investigate why there is heterogeneity in countries' decisions to adopt IFRS; in other words, why some countries adopt IFRS while others do not. Understanding countries' adoption decisions can provide insights into the perceived benefits and costs of international harmonization.

We focus our analysis on a sample of 102 non-EU countries and examine IFRS adoption over the period 2002 through 2007.² We exclude the EU member states from our tests because their decision to adopt IFRS was closely tied to the establishment of the IASB itself (EC, 2000). Moreover, the EU member states committed jointly to adopting IFRS (EC, 2002) making an analysis of their individual adoption decisions infeasible.

We use the economic theory of networks to develop our hypotheses since a standard like IFRS is likely to be more appealing to a country if other countries adopt it as well (in this sense, IFRS is a product with "network effects"). We focus our analysis of network effects at the regional level. Accordingly, we test whether the likelihood of IFRS adoption for a given country increases with the number of IFRS adopters in its geographical region.

¹ Several of these countries have committed to adopting ("converging with") IFRS at some future date. For the purpose of our analyses, we do not consider a country to have adopted IFRS until listed companies in its jurisdiction are in fact required to report under IFRS. For example, in 2004, Albania committed itself to requiring IFRS effective January 1, 2006; the adoption date was subsequently moved to January 1, 2008.

² We begin our analysis in 2002 because this was the first full year of the IASB's existence. We restrict our sample to the period ending 2007 because we require macroeconomic data for the countries in our sample (to construct independent variables) and these data are not available for years later than 2007.

Economic network theory predicts that in addition to network benefits (synchronization value), a product with network effects can be adopted due to its direct benefits (autarky value) (Katz and Shapiro, 1985; Liebowitz and Margolis, 1994). In the case of the IFRS adoption decision by a country, we argue the direct benefits are represented by both the net economic and net political value of IFRS over local standards.

The net economic value of IFRS is intended to capture direct pecuniary benefits as they are usually conceived in economic models of networks. Proponents of IFRS argue that the standards reduce information costs to an economy, particularly as capital flows and trade become more globalized: it is cheaper for capital market participants to become familiar with one set of global standards than with several local standards (Barth, 2008; Márquez-Ramos, 2008). Accordingly, we test whether economies that are more reliant on foreign investment and trade are more likely to adopt IFRS. The benefits from adopting IFRS, however, are likely to diminish with the relative quality of local governance standards, including the quality of local GAAP (high quality local governance standards represent past and expected future innovations in local governance processes). Thus, we also examine whether the likelihood of IFRS adoption decreases with the opportunity cost of domestic governance standards.

The net political value of IFRS is the benefit arising from the potential political nature of international accounting standard setting: if IFRS standard setting can be influenced by political lobbying, more powerful countries are more likely to be able to shape IFRS.³ The prevailing position of the EU in IFRS standard setting, however, can override this argument. If countries expect the EU to have a dominant role in IASB affairs (Brackney and Witmer, 2005), they are likely to have to cede some authority over standard setting to EU interests. Ceding authority over local standards is, in turn, likely to be less palatable to more powerful countries, which leads to the prediction that more powerful countries are less likely to embrace IFRS. In addition to standard-setting power, cultural sensitivities can also affect the net political value of IFRS to a country. If the IASB is perceived as a European institution, countries that are culturally more

³ Powerful countries can influence IFRS by directly lobbying the IASB; alternately, their influence can be more indirect if the IASB implicitly caters to their interests when developing IFRS.

distant from Europe are likely to be less accepting of IFRS (Ding *et al.*, 2005; Ciesielski, 2007; Norris, 2007). Thus, we also test whether cultural differences can explain cross-sectional variation in IFRS adoption.

On network effects, the data reveal evidence of regional trends in IFRS adoption, i.e., a country is more likely to implement IFRS if other countries in its geographical region are IFRS adopters. This result is significant for at least two reasons: (1) it suggests countries internalize the network effects of IFRS in their adoption decisions; and (2) it suggests that as the network benefits from IFRS get large, countries may adopt the international standards even if the direct economic benefits from such standards are inferior to those from locally developed standards.

On economic determinants of IFRS adoption, we find no evidence that foreign trade and investment affect the likelihood of adoption. Thus, we cannot confirm that IFRS lowers information costs in more globalized economies. We do find, however, some evidence that the likelihood of IFRS adoption at first increases and then decreases in the quality of countries' domestic governance standards. Country-level governance quality is measured using a factor that extracts common variation from a set of proxies measuring the process and output of countries' governance systems (including, a democracy index and citizen wealth). The result on governance quality can be interpreted as consistent with both the most poorly governed countries being less responsive to international standards, and all other countries conditioning their IFRS adoption decisions on the opportunity cost of domestic governance standards. Poorly governed countries are unlikely to respond to harmonization due to entrenched interests and slow-moving bureaucracies (La Porta *et al.*, 1999). The result on opportunity costs influencing IFRS adoption among all other countries is consistent with economic considerations influencing country-level decision making.

There is also evidence that political considerations affect IFRS adoption decisions. We find that more powerful countries are less likely to adopt IFRS, consistent with more powerful countries being less willing to surrender standard-setting authority to the IASB. Country-level power is measured as the first principal component of a set of proxies for countries' abilities to influence international decision making (including their size and popularity within the United Nations). In

contrast to the results on power, we do not find evidence of countries' cultural closeness to Europe influencing their IFRS adoption decisions, where more Christian countries are considered culturally closer to Europe.

Academic theories yield mixed predictions on whether the adoption of IFRS is beneficial to a country. Some scholars have argued that international harmonization in accounting can improve capital-market efficiency: a common set of international accounting standards can reduce the information processing and auditing costs to market participants (Barth, 2007; 2008). Other academics argue that accounting standards evolve in the context of domestic cultural, legal, and other institutional features (including auditing): international harmonization in accounting, if it is not accompanied by changes to related capital market institutions, can be costly (Ball *et al.*, 2000; Ball *et al.*, 2003; Ball, 2006). Our analysis of the cross-sectional variation in country-level IFRS adoption decisions suggests there is evidence consistent with both sets of arguments. The evidence of a higher IFRS adoption rate among countries with moderate governance standards is consistent with IFRS being adopted for reasons that can be beneficial to a country. At the same time, the evidence that the best governed and most powerful non-EU countries were, as of 2007, less likely to adopt IFRS, suggests that several countries still perceived IFRS as being costly.

The existing empirical literature on IFRS has focused largely on the determinants and consequences of IFRS adoption at the firm level.⁴ Firm-level studies of IFRS adoption are conditional on countries' decisions to allow or mandate IFRS, suggesting that firm-level studies examine the second stage in what is at least a two-stage process. Our study of IFRS adoption at the country-level can thus complement the firm-level studies. Further, since firm-level studies require significant amounts of cross-company data, they have been limited to firms in a few (mostly developed) countries where corporate financial reports are available in machine-readable format. By examining IFRS adoption across 102 different (non-EU) countries, we expand our understanding of the determinants and consequences of IFRS adoption to a more global sample.

We caution against a broad interpretation of the results in this paper in the context of any ongoing policy debate on IFRS adoption. There are two reasons for this caveat and they are

⁴ Examples include Barth *et al.* (2008), Armstrong *et al.* (2008), Daske *et al.* (2008), and Christensen *et al.* (2008).

outlined more thoroughly in the conclusion. In brief, the caveat is associated with: (1) concerns over “modifications” to IFRS at the country level (countries claim to have adopted IFRS, but in practice adopt the standards with restrictions); and (2) the likely increasing importance of network benefits (over direct economic and political factors) in determining IFRS adoption as more countries adopt the international standards.

In addition to the macro-level economic and political factors discussed earlier, it is likely that a country’s decision to adopt IFRS is influenced by its internal politics: e.g., the actions of special-interest lobbyists and ideology-driven regulators. It is very difficult to specify the nature of such within-country politics in a large sample of countries, let alone measure it with a reasonable degree of accuracy: only in very transparent societies like the United States is such an exercise possible. To the extent that the effects of internal politics on IFRS adoption are systematically associated to those of the macro-level determinants we study, the associations documented in our empirical tests can have alternate interpretations. However, we are not aware of any theory that predicts such a systematic association.

The rest of this paper is organized as follows. Starting from the economic theory of networks, section two develops hypotheses on why countries choose to adopt IFRS. Section three describes our data and develops proxies for the IFRS-adoption determinants discussed in section two. Section four provides descriptive statistics and univariate evidence on the determinants of IFRS adoption. Section five develops multivariate regression-based models for country-level IFRS adoption and presents results of the multivariate tests. Section six concludes.

2. Theory and hypothesis development

2.1. The economic theory of networks

The decision to adopt IFRS can be analyzed as a decision to adopt a product with network effects. To see this, note that a standard like IFRS is likely to be more appealing to a country if other countries choose to adopt it as well. This suggests we can use insights from the economic theory of networks to develop hypotheses on why countries choose to adopt IFRS.

Network theory suggests that there are generally two factors to consider in adopting network-dependent products: the intrinsic value of the product and the value of the product's network (Katz and Shapiro, 1985). To illustrate, consider a decision to buy a Mac computer (Liebowitz and Margolis, 1998). The value to a user from buying a Mac can be analyzed as:

1. The direct value from using the Mac: this can include the computer's processing speed, memory, graphical card, user friendliness, etc.
2. The value from other people using Macs: this can include value derived from being able to easily share files, obtaining technical service, using a product that is popular with one's peers, etc.

The direct value is sometimes referred to in the literature as the autarky value of the product, while the network-related value is called the synchronization value (Liebowitz and Margolis, 1996). The existence of the synchronization value of a product suggests that the product can be adopted even if its autarky value is inferior to that of a substitute product (some frustrated Windows users can testify to this). The synchronization value of a product is also known as the value from network effects.

The economics literature on networks also makes the distinction between direct and indirect network effects (Katz and Shapiro, 1985). Direct network effects are what we will refer to as synchronization value in this paper. It refers to network effects that are truly endogenous to the product. In the case of Mac computers, an example of direct network effects is the value derived from being able to easily share files as the number of Mac users grows. Indirect network effects refer to the value derived from having lower prices on complementary goods as the number of adopters of a network-dependent product increases. An example of indirect network effects in the case of buying a Mac is the value derived from having lower prices on application software for Macs as the number of Mac users increases. Indirect network effects are truly pecuniary in nature and so should not be internalized in the consideration of synchronization value of a product (Knight, 1924; Liebowitz and Margolis, 1994).

A final distinction to make in discussing the economic theory of networks is that between network effects and network externalities (Liebowitz and Margolis, 1994). Network externalities arise when direct network effects are not internalized in the decision to buy a network-dependent product. In the Mac example, this would result if a user purchased a Mac computer solely for its autarky value, only to later discover the added benefits from having easy file-sharing capabilities due to the high rate of Mac adoption among her friends.

2.2. Applying the economic theory of networks to country-level IFRS adoption

If IFRS is considered a network-dependent product, then a country's decision to adopt IFRS can be viewed through the lens of autarky and synchronization values. The autarky value of IFRS is the direct value to the adopting country from using the IASB-developed accounting standards. The synchronization value is the value derived from adopting a body of accounting standards that is widely used by other countries.

Given the network-theoretic framework, a country's decision to adopt IFRS can be expressed as follows.

Adopt IFRS if and only if:

$$\text{Autarky Value of IFRS} + \text{Synchronization Value of IFRS} > \text{Value of Local GAAP} \dots (1)$$

In our analysis of the autarky value of IFRS, we classify the potential direct benefit as arising from economic and political factors. The economic determinants of autarky value are intended to capture direct pecuniary benefits as they are usually conceived in economic models of networks. The political determinants are included to test whether adopters consider the benefits arising from the potential political nature of international accounting standard setting.

Just as the non-network (autarky) value of IFRS can be classified into economic and political benefits, the value of local GAAP can be so classified. The economic value of local GAAP refers explicitly to the quality of local GAAP. The political value of local GAAP refers to political

benefits from having local authority over standard setting. Grouping together the economic (political) benefits of IFRS with the economic (political) benefits of local GAAP, we can rewrite equation (1) as follows.

Adopt IFRS if and only if:

$$\text{Net Economic Value of IFRS} + \text{Net Political Value of IFRS} + \text{Synchronization Value of IFRS} > 0 \dots (2)$$

We discuss the terms in equation (2) in greater detail in section 2.3.

The inclusion of political determinants in the equation above is distinct to our setting. In all theoretical models of network-dependent products we are aware of, the product is usually a consumer good where political lobbying for product specification is unlikely to be a major issue. For example, in the earlier case of a user's decision to buy a Mac, the political determinants of autarky would capture the potential benefit to a user from being able to lobby for future features on Macs. Unless the user is a consumer with substantial market power (e.g., the federal government), such political benefits are unlikely to be of concern.

In the context of equation (2) and our earlier discussion on network theory, it is useful to note the following two points. First, a country can adopt IFRS even if the economic benefits from such standards are inferior to those from locally developed GAAP. Second, evidence that synchronization-value proxies explain the IFRS adoption decision is consistent with countries internalizing the network effects of IFRS (i.e., network-effects in IFRS adoption are not network externalities). Both points above have implications for whether IFRS is being adopted for its innate quality or for potential network effects.

2.3. Why do countries adopt IFRS?

In this sub-section, we develop the arguments for and against IFRS adoption in the context of the framework in equation (2). Our analysis focuses on IFRS as developed and sponsored by the IASB starting 2002, and specifically excludes international accounting standards promulgated by

the IASB's predecessor, the International Accounting Standards Committee (IASC). This is because there is evidence to suggest that IASC standards are culturally quite different from IFRS. In particular, while the IASB's standards are influenced by pan-European accounting traditions (as discussed shortly), the IASC's work was perceived as more Anglo-centric. The IASC was established in 1973, the year the UK joined the European Community. Benston *et al.* (2006, p. 229) argue that by this time, existing European Community countries had made significant progress towards accounting harmonization, and the IASC was created to help the UK have a voice in future cross-country standardization.

As noted in the introduction, we develop our hypotheses around the IFRS adoption decisions of non-EU countries. We exclude the EU member states from our tests because their decision to adopt IFRS was closely tied to the establishment of the IASB itself (EC, 2000).⁵ Moreover, the EU member states committed jointly to adopting IFRS (EC, 2002) making an analysis of their individual adoption decisions infeasible. Finally, there is evidence that the development of institutions and practices of the IASB are made in consultation with the EU.⁶ In subsequent univariate tests, we provide evidence on the differences between EU countries and the rest of our sample along adoption determinants identified below.

2.3.1. Net economic value of IFRS

We describe the net economic value of IFRS to a country as arising out of two factors: (1) the value from having a shared body of accounting standards; and (2) the relative quality of IFRS over local GAAP. We discuss these two factors in greater detail below.

⁵ Camfferman and Zeff (2007, p. 431) describe the European Commission's approval of the reorganization of the IASC into the IASB: they quote the Commission as saying that the reorganization was "a vote of confidence" (IASB, 2000, p. 9) and "driven by a clear determination to make [international accounting standards] of the highest quality (EC, 2000, ¶ 9)."

⁶ For example, the IASB, in the wake of declining financial markets in 2008, allowed financial institutions to opt for a one-time reclassification of available-for-sale and trading securities as held-to-maturity (HTM). With the HTM classification, financial institutions could reduce the amount of impairment loss to be recognized (by arguing that not all of the extant decline in the market value of a security would be realized at maturity). It has been suggested in the financial press that the IASB made this decision in response to pressure from the EU (e.g., Leone, 2008).

The value from having a shared body of accounting standards: IFRS are developed specifically for wide international use. Proponents of IFRS argue that by adopting a common body of international standards, countries can expect to lower the cost of information processing and auditing to capital market participants (Barth, 2007; 2008). More preparers, users, and auditors of financial reports can be expected to become familiar with one common set of international accounting standards than with various local accounting standards. If the adoption of IFRS is expected to lower information costs to capital markets, we expect countries more dependent on foreign investment and trade to value these economic benefits more. Absent international accounting standards, foreign investors must incur costs of becoming familiar with domestic accounting practices. These costs are likely to be passed on (at least in part) to the investment-destination country. If adopting IFRS is expected to lower such costs, then we can expect countries that are dependent on foreign investment to do so. Similarly, countries where foreign trade is an important part of the economy can be expected to adopt IFRS.

Related to the point above, it can be argued that countries choose to adopt IFRS because they want to increase the share of foreign investment and trade in their economy. In this sense, even countries with low foreign investment and trade are likely to adopt IFRS (and our cross-sectional prediction is confounded). We acknowledge this as a possibility, but note that adopting a new body of accounting standards is in itself unlikely to generate major changes in an economy. Unless the countries in our sample with low foreign investment and trade are systematically both adopting IFRS and making other changes to attract foreign capital and trade, we do not expect this argument to affect our stated prediction. We address this issue further when discussing our empirical results.

The relative quality of IFRS over local GAAP: The prediction on how the relative quality of IFRS affects its value to a country is straightforward: the higher the quality of local GAAP, the less the incentive to adopt IFRS. High quality local GAAP represents a high opportunity cost to adopting international accounting standards. The opportunity costs arise because in adopting IFRS, countries forgo the benefits of any past and potential future innovations in local reporting standards that are specific to their natural

endowments and human institutions (including enforcement institutions). IFRS, by definition, are the result of an international political economy equilibrium, and thus cannot be expected to provide reporting standards that are uniquely suited to a given country's circumstances. For countries where domestic accounting standards are poorly developed, opportunity costs are low, and the chance to adopt an externally developed body of accounting standards presents an advantage. Such countries will choose to adopt IFRS if they feel they can benefit from the perceived quality of an international body of accounting standards.

2.3.2. *Net political value of IFRS*

The adoption of IFRS by a country involves trading off the potential to gain from the political process of international standard setting and value lost from surrendering local authority over GAAP. We describe the tradeoffs between these political benefits and costs as constituting the net political value of IFRS to a country. We classify the net political value as arising from two factors: (1) power politics; and (2) culture politics.

Power politics: Ceteris paribus, we would expect more powerful countries to have a larger positive political value since more powerful countries are more likely to be able to influence the nature of international standards. The influence of powerful countries can be the result of explicit lobbying and pressure tactics or the result of the IASB implicitly catering to powerful interests when developing standards. However, the dominant position of the EU in IFRS standard setting presents an important constraint that is likely to alter the prediction above. As noted earlier, the development of IFRS is strongly linked to support from the EU. The IASB is physically situated within the EU, and to date, the EU remains the IASB's largest sponsor (IASB, 2008a). Given the important role of the EU in the IASB, and the joint action of EU countries in IFRS standard setting, one can generate the prediction that more powerful non-EU countries will refrain from adopting IFRS.

If a country chooses to adopt IFRS, it must either engage in the political process to try shape the nature of the international standards, or cede the standard setting role to other political players. It is unlikely that more powerful countries will adopt the latter route; however, if they choose to engage in the political process, they will likely have to enter into costly political wrangling with the EU (given the EU's expected and observed control over IFRS standard setting). Faced with this choice, it is reasonable to expect that more powerful countries are less likely to adopt IFRS. Note that this argument is not dependent on the quality of local GAAP in a country. To a powerful country, the importance of not ceding accounting standard setting to a foreign body is likely to hold regardless of the quality of local GAAP. On the other hand, for less powerful countries, there is little political face lost in adopting EU-centric standards. Thus, we can predict that less powerful countries are more likely to adopt IFRS.

Culture politics: In addition to country-level power politics, the perception of IFRS as a European institution is likely to affect the international standards' acceptance in a country (Ding *et al.*, 2005; Ciesielski, 2007; Norris, 2007). In countries that are culturally more accepting of European institutions, international accounting standards can be more politically feasible. In countries where European institutions are non-native, adoption of IFRS can be viewed as abrogating authority to a European standard-setter. Thus, we predict countries that are culturally closer to Europe are more likely to adopt IFRS.

2.3.3. Synchronization value of IFRS

The synchronization value of IFRS refers to the key idea in network theory: that a network-dependent product becomes more appealing as more countries adopt it. In particular, we test for the effects of regional trends in IFRS adoption. We define regions around continental and sub-continental geographies (Appendix A). If countries within a region are influenced by each others' actions, we can expect the likelihood of IFRS adoption for a given country to increase as the number of IFRS adopters in that region increases.

2.4. Country-level decision making

The decision framework described in equations (1) and (2) assumes that countries act rationally in their decision to adopt IFRS. In other words, for the factors identified in the previous subsection to affect the likelihood of IFRS adoption, one must rely on the ability of countries to make decisions that are in their economic and political interest. We argue that countries with weak governance systems are less likely to do so. In such countries, it is likely then that the status-quo will prevail. Since the status quo represents non-adoption of IFRS (adoption of IFRS requires an affirmative commitment on part of a country), we expect that countries with less developed governance systems are less likely to adopt IFRS.

2.5. Summary of hypotheses

The preceding discussion identifies numerous forces that are likely to explain the adoption of IFRS by a country. Some of these forces make competing directional predictions on similar determinants. In this sub-section, we synthesize the discussion above into testable hypotheses where an observed directional association of a determinant with IFRS adoption can be consistent with only one of the forces identified. This exercise facilitates the interpretation of results.

Economic globalization: In section 2.3.1., we argue that countries whose economies are more dependent on foreign investment and trade are more likely to value the economic benefits that can accrue from adopting IFRS. Thus, we predict that IFRS adoption is more likely as the share of foreign investment and trade in a country's GDP increases.

Quality of local governance: Also in section 2.3.1., we propose that the lower the quality of local GAAP, the greater the incentive to adopt IFRS (due to lower opportunity costs). Some scholars have argued that GAAP is just one component in a complex interacting system of controls that constitute local governance standards (e.g., Ball *et al.*, 2000; Watts, 2003; and Ball, 2006). Accordingly, we examine whether countries with low quality governance systems are more likely to adopt IFRS. However, in section 2.4, we argue that countries with low quality governance systems are less likely to adopt IFRS because the bureaucratic apparatus in such countries is less likely to react to changing

trends like international harmonization. Combining the two competing predictions we can restate our hypotheses on governance quality as follows. If low quality governance systems are more reflective of the lower opportunity costs of domestic governance standards, countries with low quality governance systems are more likely to adopt IFRS. If, on the other hand, low quality governance systems are more reflective of less timely action on international harmonization, countries with low quality governance systems are less likely to adopt IFRS.

Power: In section 2.3.2., we present two opposing predictions on the relation between power and IFRS adoption. Combining the two arguments on power, we can state the following. If countries expect the EU to have a dominant role in IFRS standard setting, more powerful countries are less likely to adopt IFRS. If, on the other hand, countries expect the EU to have no special role in IFRS standard setting, more powerful countries are more likely to adopt IFRS.

Culture: Also in section 2.3.2., we predict that countries that are culturally closer to Europe are more likely to adopt IFRS.

Network effects: From our arguments in section 2.3.3., we predict: if countries within a region are influenced by each others' actions, the likelihood of IFRS adoption for a given country will increase as the number of IFRS adopters in that region increases.

3. Data and proxies

3.1. Developing the dataset

In this sub-section, we describe the construction of our database of non-EU countries and their IFRS adoption status. Our data selection procedures are aimed at generating the widest possible coverage of countries and their adoption status given data requirements for dependent and independent variables. Our dependent variables are the IFRS adoption decision and, where appropriate, the year of adoption. These data are collected from numerous sources including,

Deloitte's IASplus.com website, correspondence with country managing partners of big-4 audit firms, web searches of newswire archives, and World Bank country reports. Our independent variables are the proxies for the various IFRS adoption determinants described in the previous section. The proxies are described in the following sub-section.

To construct our database of non-EU countries and their IFRS adoption status, we start with Deloitte's IASplus.com website (accessed July 3, 2008). The website lists IFRS adoption information for 162 legal jurisdictions. Since we are interested in the financial reporting requirements for listed companies in various countries, we first exclude IASplus.com jurisdictions that do not have stock exchanges (15 jurisdictions). Next, we exclude the 30 IASplus.com jurisdictions that compose the member states of the EU/ European Economic Area (EEA). Our reasons for excluding EU countries are discussed earlier. We exclude EEA member states since they adopted IFRS in conjunction with the EU (EC, 2008). Finally, we also exclude those IASplus.com jurisdictions for which the World Bank does not report gross domestic product (GDP) data (15 jurisdictions) in 2001. The World Bank's World Development Indicators (WDI) database is our source for GDP data.

The data selection procedure described above yields a final sample of 102 countries. The countries are listed in Appendix A. As discussed, we obtain the IFRS adoption decision from Deloitte's IASplus.com website. This website does not, however, report the year of IFRS adoption. To obtain adoption-year data, we rely on three different methods: correspondence with country managing partners of big-4 audit firms, web searches of newswire archives, and World Bank country reports. For every country listed as having adopted IFRS on IASplus.com, we contact the country managing partner of a big 4 audit firm with an office in that country requesting data on the date of IFRS adoption. Additionally, we conduct electronic searches of newswire archives for press articles describing a country's adoption of IFRS. Finally, we reference the World Bank's country reports on observance of standards and codes: these reports occasionally detail IFRS adoption dates.

The three auxiliary sources described above jointly yield adoption-year data for every country listed by IASplus.com as having adopted IFRS. In a few cases, data from a country managing

partner of a big 4 audit firm or data from the World Bank country reports disagree with the IASplus.com data on the country's adoption status itself. For example, Egypt and Peru were listed on IASplus.com as requiring IFRS for all listed companies, but at least one (non Deloitte) big 4 audit partner in each country disagreed: the partners argued that IFRS was not permitted in those countries. In these circumstances, we err in favor of the big 4 audit partner/ World Bank country report. The disagreement between even big 4 audit firms on the nature of IFRS adoption in some countries suggests that even if a country is formally listed as having adopted IFRS, the adoption may be a token gesture. This is an important caveat to our analysis.⁷

The earliest possible year of adoption in our sample is 2002 (the first year after the formation of the IASB). Since macroeconomic data that compose our independent variables are not available for years beyond 2007, we censor adoption information in 2007. In other words, we record the IFRS adoption status and the year of adoption (if applicable) between the years 2002 and 2007. Even if a country has adopted IFRS since 2007, they are classified as non-adopters for the purposes of our empirical tests. There are four such countries in our sample effective July 3, 2008. If the determinants of IFRS are dynamic, then our results are only valid in sample. Thus, the results, in the context of any ongoing policy debate, should be interpreted with caution.

Country-level adoption decisions on the IASplus.com website are categorized into four groups: IFRS required for listed companies; IFRS required for some listed companies; IFRS permitted for listed companies; and IFRS not permitted for listed companies. For the purposes of our empirical analyses, we reclassify these four categories into three: adopters; partial adopters; and non-adopters. The “adopters” in our dataset are those classified by IASplus.com as having “IFRS required for listed companies.” The “non-adopters” are those classified as having “IFRS not permitted for listed companies.” The “partial adopters” in our dataset are a combination of the second and third IASplus.com categories. We combine these two categories into “partial adopters” since only four countries in our sample of 102 can be classified as having “IFRS required for some listed companies.”

3.2. Developing proxies for the IFRS-adoption determinants

⁷ Reassuringly, the IASB itself relies on IASplus.com as a data source (IASB, 2008a, b).

In this sub-section, we describe our proxies for the determinants of IFRS adoption identified in section 2.5. The data for these proxies are collected from numerous data sources including, the World Bank's WDI database, Andrei Shleifer's website, the Economist magazine's data archives, the United Nations website; and data reported by Kuziemko and Werker (2006).

Economic globalization: Our proxy for foreign investment is the ratio of net foreign direct investment (FDI) inflows to GDP as identified by the WDI database. We collect values for these variables for all years from 2001 through 2006. The independent variables lag the dependent variables by one year since contemporaneous macroeconomic data are unlikely to be available when a country is considering IFRS adoption. Our proxy for foreign trade is the ratio of exports of goods and services to GDP as identified by the WDI database. As with foreign investment, data are collected for the 2001 through 2006 period.

Quality of local governance: Obtaining good proxies for the quality of local governance is particularly difficult for at least two reasons. First, the governance system in a country is likely to be influenced by its natural endowment and endogenous to its human institutions: thus, a governance system that is "good" (high quality) for one economy can be ineffective in others. A cross-country metric of governance quality must account for this potential variation in governance systems. Second, data to construct meaningful cross-country metrics are limited to a few, mostly large economies. For example, McKinsey & Company puts out the results of an annual CEO survey of governance factors like the quality of auditing and accounting, but these data are only available for about 25 non-EU countries. The WDI database reports data on stock market size and turnover for some countries. The relative size and activity of stock markets can be a reasonable (output-based) indicator of the quality of capital market governance, but coverage of these variables is also poor. Accordingly, our proxies for the quality of governance systems in a country are admittedly indirect.

Our first proxy is the number of rules to start up a business in a country. More start-up rules can proxy for poor government facilitation of business (bureaucratic red tape), or entrenched business interests (oligopolists who have created barriers to entry), or both. Thus, countries with more start-up rules are less likely to have good governance systems. Data on the number of rules to start up a business are available for 92 of the 102 sample countries for the year 2005 from the WDI database.

Our second proxy for governance quality is the GDP per capita adjusted for purchasing power parity (PPP). Countries with higher per capita GDP are richer. The underlying assumption to using this as a proxy for governance is that richer countries are more likely to have better developed institutions (including capital market institutions). Time series data for this variable are available for the years 2001 through 2006 on the WDI database.

Our final proxy for governance quality is the Economist magazine's democracy score. The score (scaled from 1 to 10) is intended to capture the extent and quality of democratic institutions in a country: more democratic countries receive higher scores. To construct the score, countries are ranked on factors like the quality of the electoral process, the function of government, diversity in political participation, and extent of civil liberties. The assumption to using this proxy is that more democratic countries are more likely to have good capital market governance systems.

Of the three quality proxies discussed above, startup rules and democracy score are governance-process measures, while GDP per capita is a governance-output measure. The problem with process-based measures is that different processes are likely to be optimal for different economies, depending on their natural endowments and human institutions. The problem with output-based measures is that natural endowments and human institutions can influence outputs independently of governance systems. Our joint use of process and output based measures (through factor analysis, discussed shortly) is an attempt to mitigate these problems.

Power: We use a host of proxies to identify cross-sectional variation in countries' power status. First, we use the number of years a country has been elected to the United Nations Security Council (UNSC). Being elected to the UNSC requires political influence since countries must gain the support of a plurality of the United Nations General Assembly. We argue that the political influence necessary of a country to secure a UNSC seat can be a reasonable proxy for the ability of a country to advance its interests with an international body like the IASB. UNSC membership data are aggregated by year from the inception of the UNSC in 1946. As before, data for the years 2001 through 2006 are collected. Data for all countries up to year 2001 are available in Kuziemko and Werker (2006). Subsequent data are collected from the United Nations website. The five permanent members of the UNSC (China, France, Russia, the United Kingdom, and the US) are coded as being members in every year since 1946 (and thus are represented by this measure as being very powerful).

In addition to years on the Security Council, we also represent a country's power by its GDP (in current US dollars), its population, and its geographic area. The rationale for GDP is that larger economies are more likely to have bargaining power on the international stage than smaller ones. Population is used as a proxy for the size of a country's market. Countries with larger markets are more attractive destinations for investors are thus also more likely to have political bargaining power. Area can also be a proxy for power since larger countries are historically more powerful (they require larger militaries to establish and maintain their territories). Data on GDP and population are collected from the WDI database on a yearly basis for the years 2001 through 2006. Area data are collected from the website worldatlas.com and are static over the years 2001 through 2006.

Culture: To proxy for countries that are culturally closer to Europe, we use the proportion of a country's population that is Christian. We argue that more Christian nations are more likely to be comfortable with European institutions like IFRS since Christianity in these countries is likely to have spread through colonization by European powers. Data on the

proportion of Christians in a population are based on 1980 census reports as provided on Andrei Shleifer's website at Harvard University.⁸

Network effects: To construct our measure of the number of countries in a region that have adopted IFRS at a given time, we use the information in our dependent variables. The regional adoption measure enters the analysis in subsequent hazard-model-based multivariate tests.

On economic globalization, governance quality, and power, we have identified numerous individual proxies. Since these proxies collectively address the determinants we are interested in measuring, we extract common factors from the proxies using principal component analysis. Specifically, we identify the first principal component of the proxies for globalization, governance quality, and power respectively. In subsequent multivariate tests, we use these common factors in lieu of the individual proxies themselves.

We refer to the common factor for economic globalization as “economic,” for governance quality as “governance,” and for power as “power.” On the last two determinants, we identify two additional proxies called “governance1” and “power1,” respectively. In estimating “governance1,” we exclude the number of rules to start a business because this data is not available for about 10% of the sample. In estimating “power1,” we exclude geographical area because unlike the other determinants of power, area is not dynamic

Appendix B summarizes definitions of all proxies and factors. Appendix C reports Eigen values for the factors. The Eigen values for all factors used in the analysis are above one.

4. Descriptive statistics and univariate evidence

4.1. Sample composition

⁸ <http://www.economics.harvard.edu/faculty/shleifer/dataset>; accessed July 3, 2008.

Our data sources and sample construction process are described in section 3.1. Table 1 reports the number of countries classified as adopters, partial adopters, and non-adopters. The numbers of adopters and non-adopters are roughly similar at 39 and 40, respectively; while partial adopters include 23 countries. Panel B describes adoption frequency by year. The normal annual adoption rate does not exceed 4 countries per year. Nevertheless, 10 countries from our sample adopted in 2005, the year in which EU member countries adopted.

4.2. Descriptive statistics and univariate evidence on autarky value

We compare EU member states and our sample countries in Table 2, Panel A. The two groups are significantly different on all dimensions except for population. The EU countries are characterized by greater exports and greater foreign direct investment. They tend to have higher quality of local governance as measured by higher democracy index, greater GDP per capita adjusted for purchasing power (GDP_PPP), a smaller number of rules to register a business (StartupRules), a greater value of stocks traded as % of GDP (StockGDP), and a higher turnover ratio of traded stocks (although mean differences in this last variable are not statistically significant). In terms of political power, they have higher representation on the United Nations Security Council (although mean differences in this variables are not statistically significant) and larger GDP. Finally, EU countries are significantly more likely to be Christian. Overall, there is some evidence that EU countries are more powerful, with more international economic links and better governance than non EU countries. All these differences as well as the joint IFRS adoption by all EU countries motivate our decision to exclude EU countries from further analysis.

Table 2 also provides descriptive statistics that compare full and partial adopters to non-adopters. Panel B compares the variables themselves, while Panel C focuses on principle component factors derived from the variables. Both the variables and factors are described in section 3.2., and are also defined in Appendix B. Partial adopters generally do not differ significantly from non-adopters. The only exception is the size of GDP (GDPrank), which is significantly lower for partial adopters than for non-adopters. A similar result can be found in Panel C, where the mean and median value of “power” is significantly lower for partial adopters implying that partial adopters tend to be less powerful than non-adopters.

Among full adopters, we find some preliminary evidence that more powerful countries are less likely to adopt IFRS. Both mean and median factors “power” and “power1” are significantly smaller for full adopters than for non-adopters. Moreover, means and medians of all variables that comprise these factors (UNSC, GDPrank, population, and area) are also significantly smaller for full adopters. There is little consistent univariate evidence, however, that adopters and non-adopters differ with respect to our proxies for the economic globalization (exports, NetFDI, and the principal component factor “economic”). In particular, while median economic factor and median exports are greater for adopters, means are not significantly different from each other. Evidence is similarly mixed for the quality of local governance. Mean “governance” and mean/median “governance1” of full adopters and non-adopters are not significantly different. However, median “governance” is greater for full adopters. Closer analysis of variables that make up the governance factors (Panel B) shows that the statistical significance is likely driven by the number of procedures required to register a business (StartupRules), which is lower for full adopters.

Overall, the univariate tests reported in Table 2 provide evidence that full adopters are less powerful than non-adopters. The two sets of countries do not differ significantly culturally. Evidence on differences in the economic globalization and the quality of local governance proxies is mixed. We treat this evidence as preliminary and further explore the autarky value of IFRS in our multivariate tests described in section 5.

Table 3 reports correlations among the principal component factors that are used in our multivariate tests. The highest correlation is that between “power” and “governance1” (0.374). However, other correlations generally do not exceed 0.3. This suggests that our factors capture theoretically autonomous constructs.

4.3. Univariate evidence on synchronization value

We provide some univariate evidence on the role of synchronization value in IFRS adoption decisions in Table 4. Specifically, in Panel A, we use Chi-Square tests to examine whether IFRS

adoption by over 50% of countries in a region increases the likelihood of a country adopting IFRS. The Chi-Squared statistic for a comparison of full adopters, partial adopters, and non-adopters across the 50% threshold has a p-value of 0.053. Thirty-six percent (14 of 39) of full adopters are from regions with a >50% adoption rate, compared to 26% of partial adopters and 13% of non-adopters.

We also explore the notion of regional leaders in Table 4. Specifically, in Panel B, we examine if the adoption of IFRS by the leading economy (largest GDP) in a region has an impact on other countries in that region. We find some weak evidence that full adopters are more likely (than partial or non-adopters) to be in regions where the largest economy had adopted. The Chi-Squared statistic has a p-value of 0.099.

5. Multivariate models and evidence

5.1. Multinomial logit analysis

In this sub-section, we report on tests of how the decision to adopt IFRS varies with economic globalization, quality of local governance, power, and culture in a multivariate setting. As described in section 3, we classify sample countries into three categories: adopters; partial adopters, and non-adopters. Multinomial logit analysis described in this section allows us to compare each of the two adoption levels (full and partial adopters) to non-adoption.

Note that the multinomial logit model does not assume any ordering of partial and full adopters. Instead, it compares each one of these categories to the base-line decision: non-adoption. This is important because “partial adopters” consist of heterogeneous adoption cases, but also because partial adoptions are likely to reflect special circumstances. Our hypotheses are developed primarily for full adopters and we do not expect our determinants to have a strictly stronger or weaker effect on partial adopters.

The dependent variable in our multinomial logit model is adoption level. Adoption level assumes three different values: zero for countries that chose not to adopt IFRS as of 2007, one for these

countries that adopted IFRS fully, and two for countries which adopted partially. Our independent variables include factors described in section 3.2. and Appendix B: “economic,” “governance,” “power,” and a variable: “culture” (Table 5, Panel A). We also estimate and report alternative specifications including modified factors: “governance1” and “power1” (Table 5, Panels B, C, and D). “Governance1” and “power1” are based on the same variables as “governance” and “power” except they exclude the number of business startup rules and geographic area, respectively.

We estimate the model at a country level, and measure all independent variables as of 2001, before any country makes an adoption decision.⁹ One caveat of such static multinomial logit model is that it does not allow us to examine the impact of synchronization value on adoption decisions. We address this caveat by pursuing hazard model analysis (described in section 5.2). Although we are not able to test synchronization value directly in the multinomial logit model, we acknowledge that adoption decisions within regions are likely correlated, and consequently, we cluster standard errors at the region level.

The results in all panels of Table 5 lead to similar conclusions. While there is no evidence that economic globalization and culture affect either full or partial adoption decisions, power and governance are consistently significant determinants of full adoptions (with p-values less than 0.05 in all specifications). We analyze the economic significance of these constructs using marginal effects reported in the last column of Table 5. In our primary specification (Panel A), one standard deviation increase in the power factor is associated with a 35.25% decrease in the conditional probability of full IFRS adoption. Panel B through Panel E report marginal effects of similar magnitudes (ranging from -32.07% to -36.85%). These results suggest more powerful countries choose not to adopt IFRS, consistent with their unwillingness to engage in a process that is likely to be dominated by the EU countries.¹⁰

⁹ The only exception is StartupRules included in the factor “governance.” StartupRules are measured as of 2005 because of data availability.

¹⁰ As noted earlier, we use the number of years a country has served on the UNSC as an input in constructing our measure of power. China, Russia, and the US, as permanent members of the UNSC, are thus assigned relatively high scores on power. None of these three countries have adopted IFRS fully. To ensure that the results on power are not driven by the permanent UNSC members, we repeat the analysis in Table 5 after excluding these countries. The results are substantively unchanged from those reported.

As far as governance quality is concerned, we find that governance factors are positively associated with the likelihood of full IFRS adoption (marginal effects 14.20% to 20.86%). The result is consistent with poor governance impeding international standard adoptions. It is, however, inconsistent with the idea that countries with poor governance are more likely to embrace IFRS because of the lower opportunity costs of their domestic governance standards.

In Panel E, we investigate this result further by including the squared value of governance quality as an additional independent variable in the multinomial logit analysis. We expect that after controlling for the effect among the most poorly governed countries, the squared governance factor will capture the lower opportunity cost of domestic governance standards for other countries with intermediate governance quality. Table 5, Panel E reports our primary specification with the squared value of governance term included. For full adopters, “governance” remains positive and significant, while governance squared is negative but insignificant (with p-value 0.448). We also estimate other specifications with “governance1” and “power1” in place of “governance” and “power” (untabulated). Only one of these specifications (including “governance1” squared, with “power1”) yields a significantly negative coefficient on the squared quality of local governance (with p-value 0.076). Overall, the multinomial logit model provides only very weak evidence that countries adopt IFRS because the opportunity cost of their local governance standards is low.

The primary findings from our multinomial logit model analysis are that full adoption of IFRS is less likely for more powerful countries and for countries with poorer governance quality. The multinomial logit tests find no evidence of differences between non-adopters and partial adopters along any of the economic and political determinants identified.

5.2. Hazard model analysis

The multinomial logit analysis is useful for investigating how the decision to adopt IFRS either fully or partially varies with the determinants identified in section two. However, the multinomial dependent variable does not account for the richness in the data about the year of adoption. In this section, we describe and report on hazard model analyses that account for the

timing of adoption. The hazard model also allows us to investigate how regional trends in IFRS adoption affect a country's adoption decision.

In the hazard analysis, full adoption of IFRS is modeled as the “failure” event, i.e., the dependent variable is the time to full IFRS adoption. Let “T” be the “survival” time, i.e., the number of years till full IFRS adoption. Then, T=1 if a country adopts IFRS in 2002, T=2 if a country adopts IFRS in 2003, and so on. Since the data are censored in 2007, the highest possible value for T is six. For countries that do not adopt by 2007 or countries that adopt only partially, T is set to six, and the dependent variable is treated as censored.¹¹ In subsequent analysis, we estimate how the hazard rate, $h(t)$, and survival probability, $S(t)$, vary as a function of determinants of IFRS adoption. $h(t)$ and $S(t)$ are defined below.

$$h(t) = f(t) / S(t) \dots (3)$$

$$S(t) = 1 - F(t) \dots (4)$$

Where $f(t)$ is the probability density function of T and $F(t)$ is the cumulative probability density function of T.

We estimate two different versions of the hazard model: the more-familiar Cox proportional hazard model and the counting process hazard model. The two models and their relative advantages are described below.

5.2.1. Cox proportional hazard model

The Cox proportional hazard model is a semi-parametric model. The model is widely used in multivariate analysis where the dependent variable is an event count. The advantages of the model are that it does not impose any parametric form on the distribution of the event count and that its wide use in economics facilitates easy interpretation.

¹¹ We include partial adopters with non-adopters because adoption dates for these countries are not available. This treatment of partial adopters is consistent with results in Tables 2 and 5, where there is little evidence of differences between partial and non- adopters along the economic and political determinants identified.

A positive coefficient on a covariate in the hazard model implies that the hazard rate is increasing (survival time is decreasing) in that covariate. In other words, a positive coefficient on a covariate implies that the likelihood of IFRS adoption is increasing in the covariate. To provide an estimate of the economic significance of a coefficient, we also report the % change in the hazard rate in our results. The % change in the hazard rate is the % change in $h(t)$ when the value of a covariate in question is changed from one standard deviation below its mean to one standard deviation above its mean.

Since the range of the dependent variable “T” is relatively low (T can take only one of six values), we have a large number of “ties” in the data (a tie occurs when two or more observations in the sample have the same value). Effectively resolving these ties is crucial to estimating $h(t)$ in the Cox model. Box-Steffensmeier and Jones (2004, p. 55) argue that in the presence of a large number of ties, commonly used methods to resolve ties like Breslow and Efron are less reliable than the “average” or “exact” method. Accordingly, we use the exact method (Kalbfleisch and Prentice, 1980; Therneau and Grambsch, 2000).

The independent variables in our hazard analysis are time-varying covariates (TVCs). TVCs are appropriate for our setting since many of our covariates are based on macroeconomic variables that change over the event measurement period (i.e., 2002 through 2007). As discussed earlier, the TVCs are lagged values, i.e., covariates for 2002 are actually macroeconomic data from 2001 and so on. Lagged TVCs are recommended by Petersen (1995) to avoid the event simultaneity problem in hazard modeling.

If, as we argue, adoption decisions within regions are correlated, then the data are serially dependent and we have less information than will be assumed in computing ordinary standard errors. In other words, if adoption decisions within regions are correlated, ordinary standard errors will be understated. Accordingly, in all our hazard analyses, we cluster standard errors at the region level. The clustering is done using the process described in Lin and Wei (1989) and is likely to be particularly important when evaluating the statistical significance of the proxy for synchronization effects (i.e., the proportion of countries within region that have adopted).

Table 6 reports the results of the Cox proportional hazard analysis. There are five panels to Table 6. In Panel A, the five IFRS determinants from section 2.5. are represented using the covariates “economic,” “governance,” “power,” “culture,” and “PctAdopt,” respectively. The covariates are defined in Appendix B. In Panel B, “power” is replaced by “power1,” i.e., geographical area is excluded in the computation of the power factor. All other covariates are similar to those in Panel A. Panel C is similar to Panel A, except that “governance” is replaced by “governance1,” i.e., data on the number of rules to start a business are excluded in computing the factor for quality of local governance. The use of “governance1” yields a larger sample size for the regression. In Panel D, we estimate the hazard model using both “power1” and “governance1” as the respective proxies for power and quality of local governance. Panel E of Table 6 is discussed later.

Across all of the first four panels of Table 6, the coefficients on proxies for power, synchronization effects, and governance quality are statistically significant at the 90% confidence level or greater, while the coefficients on proxies for economic globalization and culture are not. The statistically insignificant coefficients on the economic globalization factor are in contrast to univariate results. The evidence is inconsistent with countries adopting IFRS to derive economic benefits from the globalization of accounting standards. The result can be due to the endogeneity of the economic globalization variables, i.e., countries with low foreign investment and trade are just as likely to adopt IFRS because they want to globalize their economies.

The coefficients on the proxies for power are negative and statistically significant at the 99% confidence level across the first four panels of Table 6, implying that IFRS adoption is less likely among more powerful countries. This relation is consistent with the proposition that more powerful countries are more weary of losing domestic authority over accounting standard setting. The dominance of the EU in IFRS standard setting and uncertainties in the political process of international standard setting are likely to be associated with the reluctance of more powerful countries to adopt IFRS. The change in hazard statistic for power in panel A is -92.14% indicating that a two-standard-deviation increase in the power covariate is associated with a 92%

decrease in the hazard ratio (intuitively, the hazard measures the conditional probability of IFRS adoption).¹²

The coefficient on the proxy for synchronization effects (PctAdopt) is positive and statistically significant at the 99% confidence level in Panels A through D of Table 6, consistent with the proposition that IFRS adoption is more likely as the proportion of regional adopters increases. The result indicates that countries do account for the network effects of IFRS when considering whether to adopt the international standards: in other words, the network benefits of IFRS cannot be considered externalities. The magnitude of the synchronization proxy in Panel A suggests that when the proportion of IFRS adopters in a region increases from 8.4% to 44%, the hazard of IFRS adoption for a country in that region increases by 160%.

The quality of local governance is positively associated with IFRS adoption at the 90% confidence level in the first four panels of Table 6. The result is consistent with the proposition that countries with poor governance are less likely to respond to changing trends like international harmonization because poor governance can be associated with slow government action. From Panel A, we can say that as governance quality decreases two standard deviations around its mean, the hazard of IFRS adoption decreases by 124%.

The positive coefficient on the governance proxies is inconsistent with the idea that countries with poor governance will embrace IFRS because of the lower opportunity costs of their domestic governance standards. This latter result is counterintuitive. To investigate this result further, we consider adding the squared value of governance quality as an additional covariate in the Cox hazard analysis. It is possible that the first order effect of governance quality on IFRS adoption is positive because slow government action among the most poorly governed countries is a dominant feature of the data set. After controlling for the effect of the most poorly governed countries, the squared governance factor can capture the impact of the lower opportunity cost of domestic governance standards among countries with intermediate values of governance quality.

¹² As with the multinomial logit analysis, we rerun the hazard analysis after excluding the permanent UNSC members in the sample (China, Russia, and the US). The results are substantively unchanged, suggesting that the sign and significance on power in our multivariate analyses are not driven by the disproportionate influence of permanent membership in the UNSC on this measure.

The results of including a squared governance term are presented in Panel E of Table 6. When the factor labeled “governance” is used, the first order relation between governance quality and IFRS adoption remains positive, while the second order relation is negative. The negative association in Panel E is not statistically significant (p-value is 0.109). Statistical significance on the negative coefficient for the squared governance term is achieved, however, when the “governance1” factor is used instead (results untabulated, p-value is 0.019). Overall, there is some weak evidence of IFRS adoption among countries with intermediate values of governance quality, consistent with the idea that such countries adopt IFRS because the opportunity cost of their local governance standards is low. In the regressions specifications that include the squared governance terms, all previously discussed results remain unchanged.

5.2.2. Counting process hazard model

In addition to the Cox proportional hazard analysis, we conduct a hazard analysis using the counting-process method (Therneau and Grambsch, 2000). The counting-process method is based on a discrete formulation of the dependent variable (i.e., survival time T), which is likely to be more appropriate for our data since we measure T in years (note, the Cox model assumes T is continuous). Moreover, in situations where the range of possible values for T is low (as in the case of our data where T varies between 1 and 6), Box-Steffensmeier and Jones (2004) argue counting-process method is likely to be more appropriate for hazard analyses. On average, however, the two methods (Cox and counting-process) are expected to yield similar results (which is the case with the results in this paper).

The interpretation of coefficients in the counting-process model is similar to that in the Cox proportional hazard model. As in the Cox model, we cluster standard errors at the region level when calculating statistical significance in the counting-process model. Economic significance is interpreted through the % change in hazard rate, which is defined as before.

Table 7 reports the results of the counting-process hazard analysis. There are five panels to Table 7 and these mirror those in Table 6. As with the Cox analysis, the coefficients on proxies for

power, synchronization effects, and governance quality are statistically significant (at the 95% confidence level or greater), while the coefficients on proxies for economic globalization and culture are not. In Panel E of Table 7, when we include the square of the governance quality covariate, the coefficient is statistically significant at the 95% confidence level. The statistical significance contrasts with the result in Table 6.

Overall, from Table 7 we can conclude the following: (1) more powerful countries are less likely to adopt IFRS; (2) a country is more likely to adopt IFRS as the proportion of IFRS adopters in its region increases; and (3) there is a quadratic relation between the quality of local governance and IFRS adoption, where adoption at first increases and then decreases with governance quality.

5.3. Caveats in multivariate analyses

Earlier, we noted that the advantage of the hazard models over the multinomial logit models was that the former could account for the richness in the data about the year of adoption. The hazard models, however, have their drawbacks as well. Since the dependent variable in the hazard models is the adoption year, countries that do not adopt or that adopt partially are considered censored observations. This means that only data from adopting countries are used to estimate $f(t)$, the distribution function of the failure time “T.” Data from the censored observations are only used to estimate the “risk set” at a given time T (intuitively, the risk set is an estimate of $S(t)$, the survival probability at T). This feature of the hazard models suggests the need to use in conjunction results from the multinomial logit analyses and the hazard analyses.

5.4. Additional analyses

In testing the hypothesis that IFRS adoption is more likely among countries that are culturally closer to Europe, we use the proportion of Christians in a population as the proxy. We deliberately avoid using legal origin to proxy for cultural closeness because legal origin is associated with a colonial relationship and it is not clear, *ex ante*, that all former colonies share close cultural ties with their erstwhile rulers. Moreover, given that European countries once

colonized most of the globe, a measure of closeness based on former colonial relationships would likely identify most countries in the world as culturally close to Europe.

Notwithstanding the argument above, given that the IASB is the successor body to the Anglo-centric IASC (which was popular within the Commonwealth), it is possible that current IASB adopters are more likely to be former British colonies. In other words, it is possible that a substantial fraction of current IASB adopters are carryovers from the IASC regime. We test this conjecture by repeating our multivariate tests upon including a dummy to indicate whether a country has a British-style common law system. The coefficient on this dummy is not statistically significant and already discussed results are unchanged (results unreported).

6. Conclusion

We investigate why there is heterogeneity in countries' decisions to adopt IFRS; in other words, why some countries adopt IFRS while others do not. We focus our analysis on a sample of 102 non-EU countries, excluding the EU because of its closeness to the IASB.¹³ We examine IFRS adoption over the period 2002 (the first full year of the IASB's existence) through 2007.

We use the economic theory of networks to develop our hypotheses since a standard like IFRS is likely to be more appealing to a country if other countries adopt it as well. We focus our analysis of network effects at the regional level. Accordingly, we test for and find evidence consistent with the likelihood of IFRS adoption for a given country increasing with the number of IFRS adopters in its geographical region. This result is significant for at least two reasons: (1) it suggests countries internalize the network effects of IFRS in their adoption decisions; and (2) it suggests that as the network benefits from IFRS get large, countries may adopt the international standards even if the direct economic benefits from such standards are inferior to those from locally developed standards.

¹³ See for example, Brackney and Witmer (2005), Ding *et al.* (2005), Benston *et al.* (2006), Camfferman and Zeff (2007), Ciesielski (2007), Norris (2007), Leone (2008), and evidence implicit in EC (2000) and IASC (2000).

Economic network theory predicts that in addition to network benefits (synchronization value), a product with network effects can be adopted due to its direct benefits (autarky value) (Katz and Shapiro, 1985; Liebowitz and Margolis, 1996). In the case of the IFRS adoption decision by a country, we argue the direct benefits are represented by both the net economic and net political value of IFRS over local standards.

The net economic value of IFRS is intended to capture direct pecuniary benefits as they are usually conceived in economic models of networks. Accordingly, we test whether economies that are more reliant on foreign investment and trade are more likely to adopt IFRS and whether the likelihood of IFRS adoption decreases with the opportunity cost of domestic governance standards. We find no evidence that foreign trade and investment affect the likelihood of adoption. Thus, we cannot confirm that IFRS lowers information costs in more globalized economies. We do find some evidence that the likelihood of IFRS adoption at first increases and then decreases in the quality of countries' domestic governance standards. This result can be interpreted as consistent with both the most poorly governed countries being less responsive to international standards, and all other countries conditioning their IFRS adoption decisions on the opportunity cost of domestic governance standards.

The net political value of IFRS is the benefit arising from the potential political nature of international accounting standard setting. If countries expect the EU to have a dominant role in IASB affairs (Brackney and Witmer, 2005), they are likely to have to cede some authority over standard setting to EU interests. Ceding authority over local standards is, in turn, likely to be less palatable to more powerful countries, which leads to the prediction that more powerful countries are less likely to embrace IFRS. There is evidence in the data consistent with this proposition. In addition to standard-setting power, cultural sensitivities can also affect the net political value of IFRS to a country. If the IASB is perceived as a European institution, countries that are culturally more distant from Europe are likely to be less accepting of IFRS (Ding *et al.*, 2005; Ciesielski, 2007; Norris, 2007). However, we do not find evidence of cultural differences between adopters and non-adopters.

Our study of IFRS adoption at the country-level can complement existing firm-level studies on IFRS. The results of these firm-level studies are mixed. Barth *et al.* (2008) conclude that “firms applying [IFRS] from 21 countries generally evidence less earnings management, more timely loss recognition, and more value relevance of accounting amounts than do a matched sample of firms applying non-US domestic standards.” Armstrong *et al.* (2008) in studying the stock market reaction in European companies to events associated with the adoption of IFRS in the EU also find evidence “consistent with investors expecting net information quality benefits from IFRS adoption.” In contrast, Daske *et al.* (2008) are cautious “to attribute the capital-market effects for mandatory adopters solely or even primarily to the IFRS mandate;” while Christensen *et al.* (2008) find that improvements in earnings management and timely loss recognition behavior among IFRS adopting firms are “confined to firms with incentives to adopt,” suggesting that “incentives dominate [IFRS] in determining accounting quality.”

Firm-level studies of IFRS adoption are conditional on countries’ decisions to allow or mandate IFRS, suggesting that firm-level studies examine the second stage in what is at least a two-stage process. Further, since firm-level studies require significant amounts of cross-company data, they have been limited to firms in a few (mostly developed) countries where corporate financial reports are available in machine-readable format. By examining IFRS adoption across 102 different (non-EU) countries, we expand our understanding of the determinants and consequences of IFRS adoption to a more global sample. Our evidence of a higher IFRS adoption rate among countries with moderate governance standards is consistent with IFRS being adopted for reasons that can be beneficial to a country. At the same time, the evidence that the best governed and most powerful non-EU countries were, as of 2007, less likely to adopt IFRS, suggests that several countries still perceived IFRS as being costly.

We caution against any broad interpretation of the results in this paper in the context of any ongoing policy debate on IFRS adoption. There are two reasons for this caveat. First, the data in the paper on country-level IFRS adoption are based largely on information provided by Deloitte on its IASplus.com website. While even the IASB relies on these data (IASB, 2008a, b), our correspondence with managing partners of non-Deloitte big-4 audit firms in some countries reveal potential “errors” in the IASplus.com dataset. The errors are likely due to disagreements

among auditors on the extent to which a country has adopted IFRS: several countries adopt “modified” versions of IFRS, and we suspect auditors do not agree on whether the modifications are substantial enough to constitute something apart from IFRS.

Second, as noted earlier, our analysis covers IFRS adoption through year 2007. As more countries adopt the international standards, the network benefits from IFRS adoption are likely to increase. This, in turn, can change the relative importance of direct (autarky) benefits and costs in determining IFRS adoption. In other words, the determinants of IFRS adoption are likely to be dynamic, so the magnitude of coefficients documented in this paper are likely to vary as the sample is expanded.

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Appendix A: List of sample countries by region

Region	Country	Region	Country	Region	Country
<i>Asia-Pacific</i>	Australia (A)	<i>...Former Communist Bloc</i>	Belarus (PA)	<i>...Middle-East</i>	Kuwait (A)
	Bangladesh (NA)		Bosnia and Herzegovina (A)		Lebanon (A)
	Bhutan (NA)		Croatia (NA)		Morocco (A)
	China (NA)		Georgia (A)		Oman (PA)
	Fiji (A)		Kazakhstan (A)		Qatar (A)
	Hong Kong (A)		Kyrgyzstan (A)		Saudi Arabia (A)
	India (NA)		Macedonia (A)		Syria (NA)
	Indonesia (NA)		Moldova (NA)		Tunisia (NA)
	Japan (NA)		Russia (PA)		United Arab Emirates (NA)
	Laos (PA)		Serbia (A)	<i>North America</i>	
	Malaysia (NA)		Tajikistan (A)		Canada (NA)
	Maldives (PA)		Ukraine (NA)		Mexico (NA)
	Nepal (NA)		Uzbekistan (NA)		United States (NA)
	New Zealand (A)	<i>Latin America</i>		<i>Sub-Saharan Africa</i>	
	Pakistan (NA)		Argentina (NA)		Benin (NA)
	Papua New Guinea (A)		Bolivia (PA)		Botswana (PA)
	Philippines (NA)		Brazil (PA)		Burkina Faso (NA)
	Singapore (NA)		Chile (NA)		Cote D'Ivoire (NA)
	South Korea (NA)		Colombia (NA)		Ghana (A)
	Sri Lanka (PA)		Costa Rica (A)		Kenya (A)
	Thailand (NA)		Ecuador (NA)		Lesotho (PA)
	Vietnam (NA)		El Salvador (PA)		Malawi (A)
<i>Caribbean</i>			Guatemala (A)		Mali (NA)
	Aruba (PA)		Guyana (A)		Mauritius (A)
	Bahamas (A)		Honduras (NA)		Mozambique (PA)
	Barbados (A)		Nicaragua (A)		Namibia (A)
	Dominica (PA)		Panama (A)		Niger (NA)
	Dominican Republic (A)		Paraguay (PA)		South Africa (A)
	Haiti (NA)		Peru (NA)		Suriname (PA)
	Jamaica (A)		Uruguay (NA)		Swaziland (PA)
	Trinidad and Tobago (A)		Venezuela (A)		Tanzania (A)
<i>Europe</i>		<i>Middle-East</i>			Togo (NA)
	Switzerland (PA)		Bahrain (A)		Uganda (PA)
	Turkey (A)		Egypt (A)		Zambia (PA)
<i>Former Communist Bloc</i>			Iran (NA)		Zimbabwe (PA)
	Armenia (A)		Israel (NA)		
	Azerbaijan (PA)		Jordan (PA)		

Adoption status is listed in parentheses next to the country name with (A) indicating full adopters of IFRS, (PA) indicating partial adopters (i.e. countries in which IFRS is required for some listed companies or in which IFRS is permitted for listed companies), and (NA) indicating non-adopters as of 2007.

Appendix B: Variable and factor definitions

Proxy	Variables	Definition
Economic Globalization	Exports	ratio of exports of goods and services to GDP
	NetFDI	ratio of net foreign direct investment (FDI) inflows to GDP
Quality of Local Governance	StockGDP	total value of stocks traded as % of GDP
	StockTurn	turnover ratio of stocks traded (%)
	GDP_PPP	per capita gross domestic product (GDP) adjusted for purchasing power parity (PPP)
	Democracy	the Economist magazine's democracy score (1 to 10, increasing in democracy)
	StartupRules	number of start-up procedures to register a business
Power	UNSC	number of years a country has been elected to the United Nations Security Council
	GDPrank	rank of GDP in current US dollars
	Population Area	population in thousands area in thousands
Culture	Culture	proportion of a country's population that is Christian
Network Effects	PctAdopt	percentage of IFRS adopters within a country's geographical region measured as of (1) the year prior to a country's adoption year for IFRS adopters, and (2) year 2007 for non-adopters and partial adopters. Regions are defined in Appendix A.

Proxy	Factors	Definition
Economic Globalization	Economic	factor obtained from principle component analysis of exports, and NetFDI
Quality of Local Governance	Governance	factor obtained from principle component analysis of GDP_PPP, democracy, and StartupRules
	Governance1	factor obtained from principle component analysis of GDP_PPP, and democracy
Power	Power	factor obtained from principle component analysis of UNSC, GDPrank, population, and area
	Power1	factor obtained from principle component analysis of UNSC, GDPrank, and population

Appendix C: Factor compositions

Factor Name	Factor Composition	Factor Loadings	Eigen Value	N
Economic	Exports	0.842	1.418	96
	NetFDI	0.842		
Governance	GDP_PPP	0.761	1.626	90
	Democracy	0.700		
	StartupRules	-0.747		
Governance1	GDP_PPP	0.766	1.174	96
	Democracy	0.766		
Power	UNSC	0.917	2.657	100
	GDPrank	0.706		
	Population	0.745		
	Area	0.874		
Power1	UNSC	0.867	1.986	101
	GDPrank	0.742		
	Population	0.828		

See Appendix B for variable definitions and Table 1 for a description of the sample.

Table 1**Panel A**

Distribution of sample countries by IFRS adoption status

	Adopters	Partial adopters	Non-adopters	Total
Number of countries	39	23	40	102

Panel B

IFRS adoption frequency by year

Year	Adopters	All others
2002	19	83
2003	20	82
2004	24	78
2005	34	68
2006	35	67
2007	39	63

The sample is based on the list of countries on Deloitte's IASplus.com website; it excludes European Union (EU) member states and countries without GDP data on the World Bank's WDI database. Partial adopters include those that permit (but do not require) IFRS, as well as those that require IFRS for only some companies.

Table 2**Panel A**

Descriptive statistics for European Union and sample (Non-European Union) countries

European Union Countries

Variable	N	Mean	Median	Standard Deviation
Exports	28	53.446	46.547	27.796
NetFDI	28	5.880	4.191	5.933
StockGDP	29	43.683	17.746	61.845
StockTurn	29	58.197	39.100	50.197
GDP_PPP	29	22,346	22,877	10,534
Democracy	29	8.307	8.150	0.851
StartupRules	26	7.231	7.000	3.050
UNSC	29	7.448	4.000	13.783
GDPrank	29	90.241	99.000	30.252
Population	29	16,789	8,043	22,046
Area	29	164	92	161
Culture	28	69.536	81.900	33.150

Non-European Union Countries

Variable	N	Mean	Diff. from EU P-value	Median	Diff. from EU P-value	Standard Deviation
Exports	100	40.231	0.027	34.914	0.005	27.511
NetFDI	98	2.894	0.002	2.025	0.000	3.947
StockGDP	74	18.504	0.021	1.521	0.000	43.296
StockTurn	63	37.387	0.134	12.700	0.001	65.824
GDP_PPP	98	7,965	0.000	4,189	0.000	10,144
Democracy	97	5.431	0.000	5.820	0.000	1.909
StartupRules	92	10.098	0.000	10.000	0.000	3.365
UNSC	102	4.608	0.210	2.000	0.066	9.676
GDPrank	102	60.392	0.000	58.500	0.000	37.441
Population	101	49,680	0.288	8,890	0.375	165,243
Area	100	1,051	0.067	210	0.039	2,574
Culture	102	38.425	0.000	33.750	0.001	38.487

Table 2 ...Cont.**Panel B**

Descriptive statistics by adoption status

Non-Adopters

Variable	N	Mean	Median	Standard Deviation
Exports	40	36.062	28.070	32.402
NetFDI	40	2.422	1.559	3.262
StockGDP	30	27.512	4.206	58.524
StockTurn	28	58.693	15.850	89.187
GDP_PPP	40	7,145	3,582	9,058
Democracy	40	5.300	5.985	2.078
StartupRules	40	10.475	11.000	2.717
UNSC	40	7.025	4.000	12.093
GDPPrank	40	76.150	84.500	38.083
Population	40	103,428	24,963	252,433
Area	40	1,385	354	2,533
Culture	40	31.923	5.750	40.290

Full Adopters

Variable	N	Mean	Diff. from Nonadopters P-value	Median	Diff. from Nonadopters P-value	Standard Deviation
Exports	38	45.954	0.137	41.795	0.007	25.080
NetFDI	36	3.664	0.133	2.334	0.154	3.869
StockGDP	30	11.913	0.189	0.565	0.036	26.511
StockTurn	23	19.839	0.055	4.100	0.031	35.533
GDP_PPP	37	10,049	0.239	5,582	0.210	12,282
Democracy	37	5.587	0.518	5.700	0.764	1.773
StartupRules	33	9.212	0.078	9.000	0.065	3.314
UNSC	39	2.256	0.018	2.000	0.005	2.541
GDPPrank	39	52.103	0.003	49.000	0.004	31.201
Population	39	9,742	0.023	4,014	0.000	14,157
Area	38	487	0.055	97	0.000	1,304
Culture	39	39.379	0.387	39.100	0.185	35.649

Table 2 ...Cont.**Panel B ... Cont.****Partial Adopters**

Variable	N	Mean	Diff. from Nonadopters P-value	Median	Diff. from Nonadopters P-value	Standard Deviation
Exports	22	37.925	0.808	34.418	0.283	20.300
NetFDI	22	2.492	0.948	1.995	0.370	5.063
StockGDP	14	13.327	0.402	1.267	0.257	31.643
StockTurn	12	21.308	0.161	17.000	0.443	17.048
GDP_PPP	21	5,853	0.575	3,375	0.927	7,309
Democracy	20	5.406	0.849	5.630	1.000	1.873
StartupRules	19	10.842	0.695	10.000	0.955	4.400
UNSC	23	4.391	0.404	0.000	0.008	11.789
GDPPrank	23	47.043	0.005	39.000	0.005	37.730
Population	22	22,755	0.144	7,670	0.002	45,787
Area	22	1,419	0.967	222	0.062	3,923
Culture	23	48.117	0.127	44.700	0.100	39.380

Table 2 ...Cont.**Panel C**

Descriptive statistics of factors by adoption status

Non-Adopters

Factor	N	Mean	Median	Standard Deviation
Economic	40	-0.187	-0.467	1.137
Governance	40	-0.115	-0.332	1.019
Governance1	40	-0.113	-0.113	1.109
Power	40	0.327	0.118	1.212
Power1	40	0.395	0.223	1.306

Full Adopters

Factor	N	Mean	Diff. from Nonadopters P-value	Median	Diff. from Nonadopters P-value	Standard Deviation
Economic	35	0.210	0.110	-0.127	0.008	0.968
Governance	37	0.171	0.130	0.035	0.036	0.874
Governance1	37	0.171	0.218	0.035	0.105	0.874
Power	38	-0.294	0.004	-0.345	0.001	0.393
Power1	39	-0.296	0.002	-0.291	0.001	0.390

Partial Adopters

Factor	N	Mean	Diff. from Nonadopters P-value	Median	Diff. from Nonadopters P-value	Standard Deviation
Economic	21	0.007	0.478	-0.258	0.054	0.702
Governance	17	-0.186	0.814	-0.247	0.688	1.102
Governance1	19	-0.097	0.959	-0.129	0.808	0.994
Power	22	-0.088	0.195	-0.374	0.004	1.161
Power1	22	-0.194	0.065	-0.380	0.004	0.905

See Appendix B for variable definitions and Table 1 for a description of the sample.

Table 3

Pearson (above the diagonal) and Spearman (below the diagonal) correlations among factors

	Economic	Governance	Governance1	Power	Power1	Culture
Economic	1	0.266	0.220	-0.193	-0.180	0.001
Governance	0.198	1	0.824	0.284	0.311	0.171
Governance1	0.065	0.065	1	0.008	0.003	0.107
Power	-0.207	0.241	0.263	1	0.989	-0.029
Power1	0.054	0.023	0.010	0.054	1	0.775
Culture	0.185	0.235	0.461	0.044	0.056	1
	0.086	0.029	0.000	0.688	0.608	

See Appendix B for variable and factor definitions and Table 1 for a description of the sample.

Table 4**Panel A**

Association of a country's IFRS adoption status in 2007 with the median adoption status of countries in its region

		IFRS Adoption Status			
		Adopters	Partial adopters	Non-adopters	<i>Total</i>
Over 50% of region has adopted	No	25	17	35	77
	Yes	14	6	5	25
	<i>Total</i>	39	23	40	102
	<i>Statistic</i>	<i>p-value</i>			
	Chi-Square	5.8825	0.053		

Panel B

Association of a country's IFRS adoption status in 2007 with the adoption status of its largest regional economy

		IFRS Adoption Status			
		Adopters	Partial adopters	Non-adopters	<i>Total</i>
Largest regional economy has adopted	No	14	7	22	43
	Yes	25	16	18	59
	<i>Total</i>	39	23	40	102
	<i>Statistic</i>	<i>p-value</i>			
	Chi-Square	4.6284	0.099		

The sample is based on the list of countries on Deloitte's IASplus.com website; it excludes European Union (EU) member states and countries without GDP data on the World Bank's WDI database. Partial adopters include those that permit (but do not require) IFRS, as well as those that require IFRS for only some companies. See Appendix A for a list of countries by region.

Table 5
Multinomial logit models of IFRS adoption status

Panel A

Adoption Status	Variable	Parameter Estimate	Standard Error	P-value	Marginal Effect
Full Adopters	Intercept	-0.696	0.674	0.301	
	Economic	-0.086	0.340	0.801	-2.29%
	Governance	0.775	0.292	0.008	15.90%
	Power	-1.792	0.592	0.002	-35.25%
	Culture	0.006	0.010	0.549	2.70%
Partial Adopters	Intercept	-1.161	0.368	0.002	
	Economic	0.130	0.374	0.729	2.51%
	Governance	-0.115	0.542	0.832	-6.49%
	Power	-0.149	0.509	0.770	8.31%
	Culture	0.009	0.007	0.183	4.38%
	<i>N</i>	87			
	<i>Pseudo R2</i>	0.092			

Panel B

Adoption Status	Variable	Parameter Estimate	Standard Error	P-value	Marginal Effect
Full Adopters	Intercept	-0.618	0.617	0.317	
	Economic	0.011	0.239	0.962	-0.12%
	Governance	0.770	0.331	0.020	15.71%
	Power1	-1.836	0.770	0.017	-34.58%
	Culture	0.005	0.009	0.578	2.11%
Partial Adopters	Intercept	-1.110	0.365	0.002	
	Economic	0.058	0.385	0.880	0.93%
	Governance	-0.021	0.622	0.973	-5.06%
	Power1	-0.435	0.760	0.567	3.97%
	Culture	0.008	0.007	0.229	4.21%
	<i>N</i>	88			
	<i>Pseudo R2</i>	0.106			

Table 5 ...Cont.

Panel C

Adoption Status	Variable	Parameter Estimate	Standard Error	P-value	Marginal Effect
Full Adopters	Intercept	-0.463	0.627	0.461	
	Economic	0.015	0.389	0.970	-0.81%
	Governance1	0.664	0.313	0.034	14.20%
	Power	-1.795	0.624	0.004	-36.05%
	Culture	0.003	0.010	0.778	-0.19%
Partial Adopters	Intercept	-1.117	0.424	0.008	
	Economic	0.181	0.403	0.654	2.80%
	Governance1	-0.095	0.485	0.845	-5.87%
	Power	-0.189	0.549	0.731	8.52%
	Culture	0.009	0.007	0.188	5.52%
	<i>N</i>	91			
	<i>Pseudo R2</i>	0.083			

Panel D

Adoption Status	Variable	Parameter Estimate	Standard Error	P-value	Marginal Effect
Full Adopters	Intercept	-0.374	0.585	0.523	
	Economic	0.067	0.295	0.820	0.88%
	Governance1	0.781	0.377	0.038	15.75%
	Power1	-1.956	0.877	0.026	-36.85%
	Culture	0.001	0.009	0.891	-1.08%
Partial Adopters	Intercept	-1.037	0.385	0.007	
	Economic	0.081	0.410	0.844	0.96%
	Governance1	0.068	0.589	0.908	-3.96%
	Power1	-0.563	0.976	0.564	3.43%
	Culture	0.008	0.007	0.237	4.96%
	<i>N</i>	92			
	<i>Pseudo R2</i>	0.102			

Table 5 ...Cont.

Panel E

Adoption Status	Variable	Parameter Estimate	Standard Error	P-value	Marginal Effect
Full Adopters	Intercept	-0.485	0.886	0.584	
	Economic	-0.098	0.320	0.761	-2.56%
	Governance	0.986	0.231	0.000	20.86%
	Governance ²	-0.222	0.292	0.448	-9.78%
	Power	-1.636	0.623	0.009	-32.07%
	Culture	0.006	0.010	0.572	2.41%
Partial Adopters	Intercept	-1.348	0.491	0.006	
	Economic	0.144	0.358	0.687	2.76%
	Governance	-0.275	0.597	0.644	-10.17%
	Governance ²	0.142	0.203	0.484	6.87%
	Power	-0.184	0.526	0.727	6.61%
	Culture	0.009	0.007	0.176	4.61%
	<i>N</i>	87			
	<i>Pseudo R2</i>	0.105			

See Appendix B for variable definitions, Table 1 for a description of the sample, and section 5.1. for a description of the regression model.

Table 6

Cox proportional hazard analysis of adoption decisions among non-EU countries

Panel A

Variable	Parameter Estimate	Standard Error	Pr > ChiSq	Change in Hazard
Economic	0.014	0.129	0.914	2.54%
Governance	0.419	0.161	0.009	124.02%
Power	-1.234	0.383	0.001	-92.14%
Culture	-0.001	0.005	0.914	-4.37%
PctAdopt	2.667	0.509	<.001	160.40%
<i>N</i>	87			
<i>LogL</i>	-76.77			

Panel B

Variable	Parameter Estimate	Standard Error	Pr > ChiSq	Change in Hazard
Economic	0.086	0.082	0.297	18.83%
Governance	0.487	0.184	0.008	159.42%
Power1	-1.305	0.465	0.005	-93.12%
Culture	-0.001	0.005	0.817	-8.53%
PctAdopt	2.815	0.557	<.001	174.37%
<i>N</i>	88			
<i>LogL</i>	-78.02			

Panel C

Variable	Parameter Estimate	Standard Error	Pr > ChiSq	Change in Hazard
Economic	0.069	0.120	0.568	13.17%
Governance1	0.328	0.174	0.059	86.34%
Power	-1.185	0.408	0.004	-91.04%
Culture	-0.002	0.005	0.602	-16.80%
PctAdopt	3.132	0.580	<.001	211.30%
<i>N</i>	91			
<i>LogL</i>	-83.10			

Table 6 ...Cont.

Panel D

Variable	Parameter Estimate	Standard Error	Pr > ChiSq	Change in Hazard
Economic	0.125	0.088	0.156	28.50%
Governance1	0.416	0.199	0.037	121.67%
Power1	-1.237	0.454	0.006	-91.88%
Culture	-0.003	0.004	0.488	-20.67%
PctAdopt	3.175	0.642	<.001	216.00%
<i>N</i>	92			
<i>LogL</i>	-84.34			

Panel E

Variable	Parameter Estimate	Standard Error	Pr > ChiSq	Change in Hazard
Economic	0.020	0.190	0.918	3.57%
Governance	0.857	0.164	<.001	420.51%
Governance^2	-0.378	0.236	0.109	-73.74%
Power	-1.172	0.354	0.001	-91.06%
Culture	<-.001	0.005	0.938	-2.98%
PctAdopt	3.284	1.166	0.005	224.92%
<i>N</i>	87			
<i>LogL</i>	-74.14			

See Appendix B for variable definitions, Table 1 for a description of the sample, and section 5.2. for a description of the regression model.

Table 7

Hazard analysis of adoption decisions among non-EU countries (Counting-process method)

Panel A

Variable	Parameter Estimate	Standard Error	Pr > ChiSq	Change in Hazard
Economic	0.079	0.132	0.548	15.30%
Governance	0.359	0.116	0.002	99.61%
Power	-1.406	0.305	<.001	-94.48%
Culture	0.002	0.004	0.632	14.06%
PctAdopt	2.828	0.482	<.001	175.89%
<i>N</i>	509			
<i>LogL</i>	-220.28			

Panel B

Variable	Parameter Estimate	Standard Error	Pr > ChiSq	Change in Hazard
Economic	0.141	0.104	0.177	32.70%
Governance	0.421	0.114	<.001	127.89%
Power1	-1.387	0.308	<.001	-94.17%
Culture	0.001	0.004	0.679	11.72%
PctAdopt	3.020	0.517	<.001	195.29%
<i>N</i>	515			
<i>LogL</i>	-220.34			

Panel C

Variable	Parameter Estimate	Standard Error	Pr > ChiSq	Change in Hazard
Economic	0.103	0.134	0.440	20.40%
Governance1	0.310	0.123	0.012	79.92%
Power	-1.230	0.259	<.001	-92.90%
Culture	0.001	0.003	0.738	8.67%
PctAdopt	3.092	0.446	<.001	206.82%
<i>N</i>	531			
<i>LogL</i>	-231.99			

Table 7 ...Cont.

Panel D

Variable	Parameter Estimate	Standard Error	Pr > ChiSq	Change in Hazard
Economic	0.158	0.109	0.148	37.33%
Governance1	0.385	0.120	0.001	108.92%
Power1	-1.284	0.266	<.001	-92.61%
Culture	0.001	0.003	0.825	5.38%
PctAdopt	3.205	0.453	<.001	219.44%
<i>N</i>	537			
<i>LogL</i>	-232.53			

Panel E

Variable	Parameter Estimate	Standard Error	Pr > ChiSq	Change in Hazard
Economic	0.107	0.227	0.637	21.18%
Governance	0.837	0.165	<.001	400.26%
Governance^2	-0.520	0.223	0.019	-84.07%
Power	-1.290	0.271	<.001	-93.00%
Culture	0.002	0.003	0.615	14.59%
PctAdopt	3.797	1.297	0.003	290.53%
<i>N</i>	509			
<i>LogL</i>	-204.43			

See Appendix B for variable definitions, Table 1 for a description of the sample, and section 5.2. for a description of the regression model.