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# **On the Relation between Financial Reporting Quality and Country Attributes: Research Challenges and Opportunities**

## **Abstract**

We provide new evidence on the co-dependence among the many country attributes previously linked to financial reporting quality. First, we show that the synchronicity of 21 *changing* country attributes spikes surrounding mandatory IFRS adoption. Thus, while IFRS adoption “explains” increased reporting quality, this finding disappears after including other *changing* country determinants of reporting quality. Second, a single underlying factor distills the numerous reporting quality measures used in the international literature. Finally, we document that four underlying country factors largely subsume the individual explanatory power of 72 candidate country attributes in explaining reporting quality *levels* across countries. We conclude with implications and suggestions for future research on international reporting quality.

*Keywords:* Accounting quality, Co-dependence, Financial reporting, International accounting, IFRS adoption, Country attributes.

*JEL classification:* F30; G15; K22; M41

*Data availability:* Data used in this paper are from publicly-available sources and/or are drawn directly from data tabulated in published research papers. See online data appendix.

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# On the Relation between Financial Reporting Quality and Country Attributes: Research Challenges and Opportunities

## 1. Introduction

The potential co-dependencies among country attributes and policies have been previously acknowledged in the international accounting literature (see, for example, Ball 1980, and Leuz, Nanda and Wysocki 2003). However, researchers continue to search for the stand-alone effects of *individual* country attributes and policies that purportedly influence *changes* or *levels* of financial reporting quality.<sup>1</sup> Similarly, the International Financial Reporting Standards (IFRS) adoption literature largely attempts to isolate the *individual* effect of IFRS adoption.<sup>2</sup> The goal of our study is to re-examine the many one-off findings and conclusions about which *individual* policy changes and country attributes seemingly influence international reporting outcomes.

We argue that a narrow focus on *individual* policy changes and country attributes leads to research and policy questions about possible one-off associations that generally do not, and possibly cannot, stand alone. We provide new empirical evidence on the strong co-dependencies among country attributes using a much broader portfolio approach and document strong joint co-movements of country policies and attributes linked to international reporting quality. Overall, we show that apparent ability of *individual* country attributes to explain *changes* or *levels* of reporting quality disappears after accounting for a broader portfolio of relevant changing and static country

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<sup>1</sup> Recent studies include Bae, Kanagaretnam, and Tan (2016); Batta, Heredia, and Weidenmier (2014); Brochet, Naranjo, and Yu (2016); Cantrell and Yust (2018), Chen, Chen, and Jin (2015); Li, Maydew, Willis, and Xu (2018); Mazzi, Slack, Tsalavoutas, and Tsoligkas (2017); Nguyen and Truong (2013); and Pevzner, Xie, and Xin (2015).

<sup>2</sup> The IFRS literature examines both direct and conditional (generally interactive) effects of IFRS adoption. See, for example, Armstrong, Barth, Jagolinzer, and Riedl (2010); Barth, Landsman, and Lang (2008); Christensen, Lee, Walker, and Zeng (2015); Core, Hail, and Verdi (2015); Daske, Hail, Leuz, and Verdi (2008); Daske, Hail, Leuz, and Verdi (2013); and Ramanna and Sletten (2014).

attributes/policies. While one might be inclined to use this evidence to negatively conclude that no *individual* country attribute or policy change (such as IFRS adoption) matters, we argue that our evidence highlights potential opportunities to better understand the co-dependencies and complementarities among the many country attributes and institutional changes that jointly affect reporting quality. We discuss these in the final section of our paper.

Our analyses first focus on *shocks/changes* methodologies used in the international accounting literature by examining the case of mandatory IFRS adoption across 30 countries. We examine associations among *changes* in 21 candidate explanatory variables for financial reporting quality before, during, and after mandatory IFRS adoption periods. We present an important new finding of a significant spike in the synchronicity of *changes* at the country-level in 21 determinants and correlates of reporting quality during the IFRS adoption window. As a new insight, we highlight that this synchronicity spike is, in part, an endogenous consequence of the *ex post* observed timing and implementation of a policy change “event” (such as IFRS adoption) that is the outcome of concurrent changes in economic, political and market conditions within a country.<sup>3</sup> Thus, the timing of observed IFRS adoption and other reporting events is likely associated with, but not necessarily causal of, various economic and market outcomes (see also the related literature on economic and political cycles and policy interventions such as Frey and

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<sup>3</sup> For example, favorable market and economic conditions are predicted to increase the likelihood that a policy with otherwise mixed stakeholder support (such as IFRS) will be implemented at a given point in time. There are also other reasons to (ex post) observe a spike in the co-movement of the determinants and mediators of reporting quality surrounding a policy adoption “event”. First, in the spirit of complementarities arguments of Atanasov and Black (2016); Ball (1980); Leuz et al. (2003); and Milgrom and Roberts (1995), rational policymakers will simultaneously change numerous complementary policy levers to achieve a larger policy goal. For example, the “EU IFRS adoption event” is probably a misnomer because EU regulators were striving to achieve a broader financial market overhaul and integration using many regulatory actions, of which IFRS adoption was just one policy lever (i.e., the Financial Services Action Plan). Second, in the spirit of the Lucas (1976), other mediators of reporting quality (such as auditors and analysts) will endogenously change surrounding a policy event. Thus, the stand-alone effect of a policy shock is exceedingly difficult to isolate from other correlates and one is prone to make false-positive attributions for observed favorable outcomes surrounding the policy event. We discuss these issues in more detail in section 2.

Schneider 1978; Julio and Yook 2012; and Pastor and Veronesi 2012). While our empirical evidence of a synchronicity spike around IFRS adoption is new, additional research is needed to determine if the finding extends and generalizes to other settings. Regardless, this observed co-variation spike suggests that *changes* or *difference-in-differences* methodologies commonly used in IFRS or other policy adoption studies face challenges in isolating the claimed policy effects because a much broader set of other competing, and thus far ignored, explanatory variables and outcomes simultaneously change in the event window.

To examine how this synchronous spike in observed economic outcomes can confound inferences about IFRS adoption, we use a sample of 30 countries to replicate and confirm prior findings that IFRS adoption is associated with increases in country-level reporting quality. However, after including a broader set of changing country attributes and policies, we find that the explanatory power of IFRS adoption disappears. Moreover, the disappearing significance of IFRS adoption persists even after excluding the influence of enforcement changes implemented with IFRS. Prior *changes/shocks* studies have noted the possibility of other confounding contemporaneous and past events that are associated with IFRS adoption, such as changes to regulatory enforcement, auditing rules, and governance systems (e.g., Ball 2016; Barth et al. 2008; Brown, Preiato, and Tarca 2014; Christensen, Hail, and Leuz 2013; Daske et al. 2008). However, we document that the set of confounding events is much broader than previously acknowledged and goes beyond economic, legal and regulatory events.

Our contribution is to explicitly demonstrate the large joint co-dependence among numerous concurrent changes in country attributes. We also highlight that the timing of implementation of changes in reporting policy is expected to be endogenous to past economic, political and social events (e.g., Hail, Tahoun, and Wang 2018; Hart 2009; Leuz 2007; Pastor and

Veronesi 2012). In addition, we offer several suggestions for future international research to deal with the high dependency issues documented in our study. Overall, we argue that high co-dependencies and synchronicity among changing country attributes and policies implies that “What is the individual effect of a policy change, such as IFRS adoption?” is a poorly-posed research question in this endogenously co-dependent setting.

We then turn our attention to research focusing on the *levels* of reporting quality across countries. We survey over a hundred empirical studies examining country attributes published in the last two decades and gather data for 35 countries used in their analyses.<sup>4</sup> First, we analyse 6 commonly-used international financial reporting quality measures and find that a single underlying latent factor largely explains these country-level reporting quality measures. Next, we tabulate cross-sectional *levels* of 72 candidate explanatory variables that have been used to measure countries’ economic, institutional and societal characteristics. We then confirm the findings of prior international studies that the *levels* of many of the 72 *individual* country-level variables are significantly correlated with variation in reporting quality across countries. However, we highlight that the *levels* of these 72 country variables are very highly correlated and show that they are largely explained by 4 underlying latent factors. Furthermore, the 4 latent country factors explain most of the cross-country variation in financial reporting quality. Finally, we show that essentially none of the *individual* country variables significantly explains reporting quality after including the 4 latent factors capturing joint variation in other country attributes. These findings suggest very high causal density and co-dependencies among *levels* of country attributes and indicate that

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<sup>4</sup> The *levels* sample is restricted to 35 countries because we require data for all financial reporting characteristics and previously identified country attributes (see appendix D for the list of countries). Our sample largely overlaps with the countries used in many prior international accounting studies. Note also that the separate *changes* analyses use a sample of 30 countries, listed in Appendix A, that experienced an IFRS adoption event.

research striving to isolate the *individual* effect of a country attribute or policy may be addressing ill-posed research questions and using ill-suited tools. These challenges also affect the many recent international accounting studies that examine variation in the strength of firm-level associations by conditioning or partitioning on an *individual* country variable (e.g. investor protection). The co-dependencies among country attributes imply that the claimed mediating effect of the country-level partitioning variable is confounded, if not subsumed, by other correlated and omitted country attributes.<sup>5</sup>

Our empirical tests also introduce several innovations to demonstrate the high causal density of countries' attributes. First, in our *changes* analyses, we introduce and document the concept of endogenous synchronicity spikes for the determinants and correlates of reporting quality. Second, in our *levels* analyses, we address the unwieldiness of 72 possible explanatory variables that explain reporting quality across 35 countries by using factor analysis to show that 4 underlying factors substantively capture variation in the 72 country variables. We then use these 4 factors to sequentially assess the incremental explanatory power each of the 72 *individual* variables and show that the 4 factors subsume individual country variables in explaining international reporting diversity.<sup>6</sup> Finally, we show that, while there are numerous empirical measures of reporting quality used in the prior international accounting literature, these seemingly-different measures are largely explained by a single common (latent) country-level construct of financial reporting quality.

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<sup>5</sup> Recent examples of the numerous international studies that use this type of conditioning or partitioning approach include Ball, Li, and Shivakumar (2015); Chen, Cheng and Lin (2016); Godsell, Welker and Zhang (2017); Kim, Kim and Zhou (2017); Li and Yang (2016); and Silvers (2016).

<sup>6</sup> Each test of the incremental explanatory power of a given country variable uses a benchmark of 4 estimated factors derived from the 71 *other* country variables (i.e., no mechanical correlation is created between a given country variable and a benchmark set of 4 estimated factors).

We also address whether other methodological approaches, such as structural equation modeling or qualitative comparative analysis, offer a path to overcome the problems of high causal density, co-dependencies, and lack of data that confound standard *changes/shocks* and *levels* methodologies currently used in the international accounting literature. We argue that existing methodological approaches and data aimed at isolating *individual* effects are unlikely to overcome the fundamental problems of co-dependencies and lack of observations that plague cross-country comparative studies in accounting, finance and economics. We also stress the role of theory in guiding what causal questions are worth asking, and the importance of well-defined models to identify how to address them.

With regard to future research, our evidence on the correlation structure among at least 72 country attributes (substantively captured by 4 latent factors) helps provide an enhanced picture of how numerous country-level institutions, features and policies potentially interact with and complement each other.<sup>7</sup> Overall, instead of focusing on *individual* changes or levels of country attributes, we suggest that future international accounting research identify portfolios of country attributes that respond in a systematic and coherent way to policy changes.

Our findings on the co-dependencies among major policy changes and other country conditions also have implications beyond international research. Our evidence suggests that single-country studies that examine (temporally endogenous) policy *changes/shocks* (e.g. SOX in the U.S.) to identify causal policy effects can benefit from our methodological insights about the confounding effects of other economic changes that occur before, during and after a policy shock.

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<sup>7</sup> Undoubtedly, the variables and factors tabulated in our study are not exhaustive with regard to all relevant country attributes and policies that *jointly* explain financial reporting and other economic outcomes around the world. However, researchers should avoid a mechanical search for the next country variable or event that appears to explain financial reporting and other outcomes. Such a mechanical search would justifiably be subject to data-mining critiques because the universe of all possible country variables undoubtedly includes spuriously correlated variables.

The insights of and cautions from our study are also likely to extend beyond reporting quality effects. While we focus on financial reporting quality as an outcome variable, other accounting and economic variables can and should be considered as possible outcomes of interest.<sup>8</sup>

The remainder of our paper is organized as follows. The next section examines *changes/shocks* approaches in international reporting research using the case example of mandatory IFRS adoption across 30 countries. Section 3 evaluates *levels* analyses in explaining average reporting quality using 72 country attributes across 35 countries with available data. Section 4 discusses whether alternative empirical methods can overcome the limitations of traditional regression analyses. Section 5 presents conclusions and possible directions for future research.

## **2. Changes in country attributes and changes in reporting quality**

This section examines whether *changes* or *shocks* methodologies can reliably isolate the effect of *individual* country-level policies or attributes on financial reporting outcomes. We first summarize various conceptual and empirical issues that arise when undertaking *changes/shocks* analyses of the possible determinants and correlates of reporting quality. We then apply these insights to the case of mandatory IFRS adoption across 30 countries to empirically examine whether *changes* in country-level reporting quality can be unambiguously attributed to IFRS adoption.

### *2.1. Conceptual and methodological challenges for changes/shocks studies*

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<sup>8</sup> Moreover, we do not argue for a particular causal model of reporting quality and we acknowledge that some of the explanatory variables in our benchmarking correlation analyses may also be outcomes.

The empirical literature in accounting and finance has highlighted the potential advantages of using *changes/shocks* analyses to attempt to isolate the causal effects of a given policy, event or characteristic (e.g., Atanasov and Black 2016). Changes/shocks methods have the potential to “difference out” fixed or slowly-changing country attributes and thus isolate the association between a change in reporting quality (or change in other outcome of interest) and a change in an individual country attribute or policy. For example, a researcher could estimate a regression of changes in accounting quality on changes in reporting standards and include country fixed effects to control for time-invariant country attributes. Similarly, a researcher could estimate a differences-in-differences regression with country fixed effects.

But shocks to institutions are generally not unexpected acts of nature or controlled experiments. Ball (1980) and Atanasov and Black (2016) provide a discussion and examples of the identification problems faced by research designs that use claimed exogenous shocks to make inferences about changes in reporting and economic behaviour. The assumption that the shock is unexpected and confined to a moment in time is potentially problematic. For example, prior theoretical and empirical studies argue that policy changes take time to implement and are largely anticipated (e.g., Armstrong et al. 2010; Christensen et al. 2015; Pastor and Veronesi 2012). In such circumstances, economic agents are likely to make anticipatory plans and alter their behaviors prior to the change. In other words, firms are likely to modify accounting practices in anticipation of new reporting standards and users are likely to alter their expectations about reporting outcomes.

Another problem arises when the observed shock is a reaction to changes in other potential determinants of reporting quality. Observed shocks in one country policy may be a reaction to other events such as legal reforms, financial and political crisis, international financial interventions, corporate scandals, etc. (e.g., Hail et al. 2018; Leuz 2007). For example, less

developed countries may choose to adopt high-quality reporting standards to compensate for weak governance, unstable political regimes, and poor information systems. If in fact the purported exogenous shock is a response to another event affecting countries' institutions, then causation runs both ways.

A third problem is the assumption of a stationary environment only perturbed by the exogenous change in one country attribute or policy. Country attributes are complementary parts of a large system and tend to co-move in systematic ways in response to changes in the environment. Further, the co-movement is often complex as some parts of the system are fixed (e.g., geographic characteristics), others move slowly (e.g., cultural values) and still others adjust relatively quickly (e.g., economic growth). This unbalanced co-movement creates a timing problem because confounding events potentially occur before, during and after the event.

Finally, we highlight a potentially important confounding effect arising from the endogenous timing of a policy change "event". Specifically, a contemplated policy or regulatory change is more likely to be implemented during favorable economic, social, political and market conditions within a country or region.<sup>9</sup> Thus, in the case of a country's adoption of IFRS, it is unsurprising that the timing of the adoption is likely coincident with favorable economic and social conditions such as increases or rebounds in the stock market, market liquidity, GDP growth, investment, access to capital, and declines or reversals in uncertainty and risk.<sup>10</sup> Additionally,

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<sup>9</sup> The timing of the introduction/implementation of a new policy or regulatory change is likely to be coincident with positive changes or rebounds in economic, social, political and market conditions because: (i) new regulations or changes to policies are costly and require political approval and support from affected stakeholders; thus, the implementation of a new policy or regulation with mixed stakeholder support will face less resistance during favorable upticks in these macro conditions, and (ii) new policies or regulatory changes can be in response to *past* transitory declines in economic or market conditions; thus, the lagged implementation of a new policy will more likely occur during the natural reversal of the conditions (i.e., coincident with a positive rebound in macro conditions). See Julio and Yook (2012), Frey and Schneider (1978), and Pastor and Veronesi (2012) for theoretical and empirical evidence on economic and political cycles explaining policy interventions.

<sup>10</sup> The endogenous timing of mandatory IFRS implementation in the entire EU is also likely to affect intra-EU outcomes and inferences about IFRS adoption. Specifically, if the timing of IFRS implementation is most affected by

implementation of major policy changes are likely to be delayed or abandoned around economic downturns and adverse market conditions (for example, the indefinitely-delayed U.S. adoption of IFRS around the 2008 financial crisis). Lawmakers choose to delay reforms during downturns because economic and political uncertainty is more severe (e.g., Julio and Yook 2012; Pastor and Veronesi 2012). Governments also delay or forgo policy changes during times of social or economic uncertainty to minimize damaging their popularity and maximize the probability of re-election (e.g., Frey and Schneider 1978; Pastor and Veronesi 2012; Yonce 2015).

Thus, we predict that, conditional on *ex post* observing a “policy event”, one is more likely to observe a favorable spike in the joint correlations of a broad portfolio of possible determinants and correlates of the policy. Similarly, failure to implement a policy is likely to be associated with a negative change in economic, political or other conditions, but the delayed or unimplemented policy is not the *cause* of the decline in economic and market conditions. Thus, false-positive inferences about the observed favorable outcomes surrounding a policy adoption event are likely when the incidence and timing of the adoption/implementation event are endogenous outcomes.

## 2.2. A synchronicity spike for a portfolio of changing variables surrounding IFRS adoption?

We use the case of the staggered mandatory adoption of IFRS across 30 adopting countries to re-examine whether the previously-documented association between the shock to accounting standards and *changes* in reporting quality is robust to the inclusion of a larger portfolio of *changes* in other co-moving country-level attributes. We test whether the correlations among a broad

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the economic and market conditions within the most politically-influential EU countries (including France, Germany and the U.K.), then the observed positive contemporaneous correlations between changes in economic and market conditions and IFRS implementation will be *stronger* for these countries. Thus, this endogenous timing effect can lead to spurious inferences about why the effects of IFRS adoption were more pronounced in certain EU countries.

portfolio of possible explanatory variables leads to attribution problems for a given *individual* variable in explaining changes in reporting quality.

For 30 countries, we obtain data on IFRS adoption dates as well as 21 country variables that *change* over time and are commonly used to represent countries' time-varying economic and social conditions (see the list of countries and the 21 variables in Appendix A, and variable definitions and data sources in Appendix B). Similar to prior studies on reporting quality (e.g., Bhattacharya, Daouk, and Welker 2003; Burgstahler, Hail, and Leuz 2006; Leuz 2010; Leuz et al. 2003), we measure *changes* in reporting quality using the rank of the mean absolute accruals scaled by total assets for firms in each country. We calculate changes over three-year windows starting in 2001 and ending in 2013 for each of the 30 countries.<sup>11</sup>

Appendix A summarizes the mean *changes* in several key variables that likely affect IFRS implementation timing (see section 2.1 about the endogenous timing of IFRS adoption) or are confounding correlates of the IFRS reporting outcomes. First, we note that the change in average stock market capitalization is 10.7 percent *during* the three-year IFRS adoption window (and 24 of the 30 countries had positive changes in average market cap) compared to 0.0 percent average change in market capitalization during the non-IFRS-adoption windows (only 9 of 30 countries had positive changes in average market cap in the non-adoption windows). This significant difference is consistent with the timing of the “successful” IFRS rollout corresponding with a

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<sup>11</sup> We calculate changes over a three-year window rather than a one-year window for a number of reasons. First, while we utilize annual data sources, in many cases these annual values correspond to data that was collected, surveyed or measured in prior years. A wider window avoids possible mismatches in the alignment of the data. Second, we wish to capture the more permanent, rather than transitory, links between changes in the variables. Transitory noise in annual observations has the potential to understate the true longer-term links between changes in various variables (see, for example, Chang and Li 2018, for a discussion of measurement error in time-series macro data). Using a three-year window helps extract the longer-term effects. Third, we use a three-year window because some of the possible associations between the variables may occur with a slight lag or delay. Our results for the changes analyses are robust to using different starting and ending years for the three-year interval and also to using a five-year window.

period of favorable market conditions. Second, we highlight important differences in *changes* in two key enforcement variables across the IFRS adoption and non-adoption periods. Specifically, 29 of the 30 countries experienced an increase in the enforcement of accounting standards during the non-IFRS adoption window (compared to only 11 of 30 countries experiencing an increase in the adoption window) while 29 of 30 countries had an increase in the enforcement of auditing standards during the non-IFRS adoption window (compared to only 6 of 30 countries experiencing an increase in the adoption window). Overall, this univariate evidence suggests the possibility of an endogenous spike in the synchronicity of *changes* in other key determinants and correlates of reporting quality during IFRS adoption periods across countries.<sup>12</sup>

Since we wish to determine possible joint co-dependencies among *changes* in a broader portfolio of relevant country attributes (which may not be fully reflected in simple one-off Pearson correlations), we estimate multiple regressions where we regress each of the 21 change variables on 4 other explanatory variables that yield the highest adjusted  $R^2$ . We estimate these regressions for the IFRS adoption window and for pre- and post-IFRS adoption windows. Table 1 - Panel A reports the results for the changes regressions for the IFRS adoption window for 30 countries adopting IFRS. The aim of this empirical analysis is to assess the extent of joint co-dependence among the numerous variables during the IFRS adoption window. We find a surprisingly high average adjusted  $R^2$  of 60 percent across the 21 regressions. This average maximal value is both

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<sup>12</sup> Another possibility is that correlations that occur in time-series data for country attributes and reporting quality are spurious. To assess this possibility, we performed co-integration tests. For each country and pair of variables, we test the null hypothesis of no co-integration using the trace statistic of Johansen (1991, 1995) for one and two lags. We fail to reject the null in only 18 percent of the cases; a result that suggests that co-integration is not an issue.

economically and statistically significant relative to a baseline value of 28 percent under the null using randomly-generated uncorrelated data.<sup>13</sup>

Next, we present the regression findings for the 21 change variables for both the pre- and post-IFRS adoption windows (see Table 1 - Panel B). In the pre-IFRS adoption window the average maximal adjusted  $R^2$  for the 4-variable regressions across the 21 dependent variables is only 49 percent. Likewise, in the post-IFRS adoption window the average maximal adjusted  $R^2$  for the 4-variable regressions across the 21 dependent variables is only 45 percent. Both of these estimated mean values are economically and statistically smaller than the estimated value for the IFRS adoption window. In other words, consistent with the predictions outlined in section 2.1, we observe a spike in the joint synchronicity of *changes* in the determinants and correlates of reporting quality during the IFRS adoption window. This correlation spike for the broad portfolio of variables suggest that inferences about the reporting outcomes during the IFRS adoption are likely confounded by these other important correlated variables.

### *2.3. IFRS adoption, changes in reporting quality and confounding changes in other country variables*

We study how the concurrent changes in other country attributes can confound inferences and attributions about the impact of mandatory IFRS adoption on reporting quality for a sample of 30 countries adopting IFRS with available time-series data for 21 relevant country attributes. We first confirm the existence of an increase in financial reporting quality during IFRS periods documented in prior studies (e.g., Armstrong et al. 2010; Byard, Li, and Yu 2011). In Table 2 –

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<sup>13</sup> We estimate the null benchmark of no correlation among randomly generated variables by running a Monte Carlo simulation with 100 iterations of randomly generated values of 21 variables for 30 country observations and then search for the maximal estimated adjusted  $R^2$  for a 4-variable multiple regression for each iteration. The simulated mean adjusted  $R^2$  is 28 percent.

Panel A, we compare the mean and median changes in reporting quality for the IFRS-adoption and non-adoption periods. The mean (median) increase in average reporting quality is 0.15 (0.11) during the staggered IFRS adoption windows and -0.05 (-0.04) during the combined pre- and post-IFRS adoption windows.

We then examine the association between IFRS adoption and average changes in reporting quality. As shown in Table 2 - Panel B, we use a pooled-time series sample of 140 observations (capturing available observations for combined IFRS adoption and non-adoption periods) and regress changes in reporting quality on an IFRS adoption indicator (capturing the staggered three-year window when a given country adopts IFRS). In line with prior IFRS studies, we find that the adoption of IFRS is significantly associated with an increase in measured reporting quality with or without country and time fixed effects inclusion (Columns 1 and 2 of Table 2 - Panel B).

We then augment the regression specification by including as covariates the changes in 21 other potential determinants or mediators of reporting quality.<sup>14</sup> In Column 3 of Table 2 - Panel B, we show that 21 changes variables have high joint explanatory power for changes in reporting quality (Adjusted  $R^2$  is 41 percent). We then include the IFRS adoption indicator in the regression (Column 4) and find that the coefficient on the IFRS adoption indicator is statistically insignificant. This suggests that the inclusion of contemporaneous changes in other relevant country attributes subsumes the claimed effect of IFRS adoption in explaining time-series variation in reporting quality. We also explore whether changes in specific documented co-determinants of reporting quality and IFRS adoption affect these results. Specifically, we remove changes in variables

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<sup>14</sup> Given that the panel data set has 140 observations between 2001 and 2013 and 21 time-varying variables, we can directly estimate regressions including all of the *changes* variables in the dataset. In contrast, the *levels* analysis in section 3 includes 72 time-invariant variables for only 35 country observations. To solve the problem of too many variables and not enough degrees of freedom in the *levels* analyses, we undertake a “data reduction” exercise using exploratory factor analysis to obtain latent factors capturing variation in the 72 variables.

*enforcement of audit standards* and *enforcement of accounting standards*, known to be associated with capital market outcomes of IFRS adoption (e.g., Christensen et al. 2013) and we exclude investment-related variables that have been used in prior IFRS studies (e.g., Florou and Pope 2012). The exclusion of these variables (results presented in Columns 5 and 6) do not change our main finding that other co-varying determinants and correlates of reporting quality subsume the effect of IFRS adoption.<sup>15</sup> We also note that the explanatory power of the model is substantially higher if one includes changes in the 21 relevant country variables rather than simply including country and time fixed effects.<sup>16</sup>

Our empirical evidence suggests that changes/shocks analyses are not a panacea for the problems of high causal density and attribution of effects in cross-country studies. The problems persist because a broad portfolio of other determinants and correlates of reporting quality concurrently change during major (endogenous) events in a country (such as IFRS adoption). Previous changes/shocks studies have recognized the possibility of other confounding contemporaneous events that overlap with IFRS adoption, such as changes to regulatory enforcement, auditing and governance systems (e.g., Ball 2016; Barth et al. 2008; Brown et al. 2014; Christensen et al. 2013; Daske et al. 2008). We show that the set of confounding events is much broader than previously acknowledged. Moreover, we provide explicit empirical evidence of the large co-movement among numerous concurrent changes in country attributes surrounding mandatory IFRS adoption events.

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<sup>15</sup> These findings complement the combined evidence in Barth and Israeli (2013) and Christensen et al. (2013) about the mediating role of enforcement for IFRS adoption. Furthermore, our evidence indicates that a much broader set of country policies and attributes (beyond enforcement) affect inferences about the possible outcomes of IFRS adoption.

<sup>16</sup> We do not tabulate results from regressions that include lagged changes of country variables because our three-year windows already capture lag and lead effects. However, our findings are robust to the inclusion of lagged changes.

This spike in the synchronicity of changes in confounding variables surrounding IFRS adoption is not surprising when one considers concurrent events across countries in the European Union (EU). There were several correlated economic regulatory and political events beyond just enforcement changes that occurred in the EU, concurrent with IFRS adoption, that undoubtedly had financial reporting implications. Examples include the adoption of Directives on tax, auditing, and market transparency, amendments to the EU laws, introduction of the Euro, and the Eurozone debt crisis and subsequent bailouts (see Appendix F for a detailed list of concurrent events in the EU, and Armstrong et al. (2010) for events related to the IFRS implementation). In addition, several EU countries implemented numerous reforms in capital market regulation, governance codes, bank supervision rules, enforcement structures and auditing services, that occurred concurrently.

Given our empirical evidence, we caution future research studies against mechanically attempting to find “new” shocks to country attributes that appear to have a robust association with reporting quality even after controlling for the 21 change variables tabulated in this study. Any “new” affirmative finding would be subject to data-mining critiques and any seemingly-robust new explanatory variable is very likely correlated with other, yet to be recorded, relevant country variables. Thus, while future empirical research on the correlation properties of changes/shocks can help document new correlations among the many country policies and attributes, the vexing problems of high causal density and attribution are likely to persist for researchers.

These problems are also relevant for studies that explore cross-country variation in the effect of a shock on an accounting or economic variable, by splitting the countries based on the *level* of a country attribute (see recent examples such as Ball et al. 2015; Chen et al. 2016; Godsell et al. 2017; Kim et al. 2017). Although some split variables do not change or change slowly, they

also interact with other country variables that do change. Single-country studies are not immune to this problem. The current trend in accounting research is to use a regulatory or exogenous shock (e.g., SOX, regulation FD, short-selling regulation, financial crisis) to identify causal effects (e.g., Amiram, Kalay and Ozer 2018; Beck and Mauldin 2014; Li and Zhang 2015; Petacchi 2015). Similar to global events, we argue that single-country shocks are also often implemented as a package of reforms and changes (e.g., Leuz 2007; Palmrose 2010). Moreover, the timing of regulatory interventions likely are in response to events such as a financial crisis, economic downturns, corporate scandals, political shifts, or public pressure (e.g., Hail et al. 2018; Hart 2009). For example, many of the recent regulatory changes in Europe, including mandatory adoption of IFRS, are actions resulting from the Financial Services Action Plan introduced in 1999, which suggests that IFRS adoption is not independent, but possibly related to various omitted lagged and contemporaneous variables.

The implication of our findings is that shocks/changes to corporate reporting are likely bundled with a broad set of economic, political and social interventions; and that the timing of these interventions is tied to economic and political events. The growing availability of data offers opportunities for future international research to explore which sets of policy interventions tend to co-move with changes to financial reporting and whether that varies around the world. It is also of interest to understand whether reporting changes, like other economic decisions, are sensitive to economic and political cycles (e.g., Frey and Schneider 1978; Mahmalat and Curran 2018; Pastor and Veronesi 2012).

We argue that a better understanding of these questions is necessary before one can draw unequivocal inferences about the stand-alone role of a policy change (such as IFRS adoption) on

financial reporting and other economic outcomes. The evidence presented in this paper provides a new baseline for future research and we discuss specific suggestions in Section 5.

### **3. The portfolio of country-level determinants of reporting quality**

This section describes our examination of the use of country *levels* variables in international accounting research. In particular, we demonstrate the implications of acknowledging the broader set of known country attributes that are likely to affect or mediate reporting quality across a large sample of 35 countries (Appendix D presents the list of countries).

#### *3.1. The multidimensionality and interdependency between levels of country characteristics*

For our *levels* analyses, we examine a panoply of variables proposed in prior empirical studies that have been shown to be (or are plausibly expected to be) *individually* associated with financial reporting quality. We survey over a hundred empirical studies published in the last two decades examining country attributes and identify cross-sectional levels of 72 candidate explanatory variables with available data for a sample of 35 countries.<sup>17</sup>

When feasible, we obtain our data from the original source (e.g., World Bank, World Values Survey). When variables are constructed by other authors or are obtained from private sources, we rely on the measures tabulated in prior studies. To deal with differences in scale and missing values, we standardize the variables and replace missing observations with their sample

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<sup>17</sup> Examples of these attributes include the quality of reporting standards (e.g., Armstrong et al. 2010; Barth et al. 2008; Christensen et al. 2015; Core et al. 2015; Daske et al. 2008; Daske et al. 2013), enforcement regulation (e.g., Brown et al. 2014; Christensen et al. 2013), legal rules (e.g., Gupta, Khurana, and Pereira 2008; Hail and Leuz 2006), investor protection (e.g., DeFond, Hung, and Trezevant 2007; Leuz et al. 2003), economic development (e.g., Chen et al. 2015), political institutions (e.g., Batta et al. 2015; Boutchkova, Doshi, Durnev, and Molchanov 2012; Bushman and Piotroski 2006; Li et al. 2018; Riahi-Belkaoui 2004a; Riahi-Belkaoui 2004b), and social values (e.g., Kanagaretnam, Lee, Lim, and Lobo 2018; McGuire, Omer, and Sharp 2012; Nanda and Wysocki 2015; Pevzner et al. 2015).

mean.<sup>18</sup> For the analyses in this section, we reduce time-varying variables to their average between 1998 and 2013.<sup>19</sup> Appendix B describes the variables.

To demonstrate the high interdependency in the levels of country attributes, we begin with an analysis of the explanatory power of regressions of each country variable on other country variables. These regressions are similar to the analyses of the changes variables in section 3.<sup>20</sup> In Table 3, we report the adjusted  $R^2$  of 72 separate regressions for each country-level variable that is regressed on 4 other country-level variables that yield the highest explanatory power.<sup>21</sup> To use a baseline for comparison, we estimate the null benchmark of no correlation among randomly generated variables by performing a Monte Carlo simulation with 100 iterations of randomly generated values of 72 variables for 35 country observations and search for the maximal estimated adjusted  $R^2$  for a 4-variable multiple regression for each iteration. The baseline using simulated random values has a mean adjusted  $R^2$  of 52 percent. The adjusted  $R^2$ s reported in Table 3 are generally very high. The average adjusted  $R^2$  for the 72 regressions is 71 percent, which is significantly higher than would be generated randomly.

Note that we limit our analyses to 4 explanatory variables for the regressions in Table 3 because of the dimensionality problem in cross-country studies (see Leuz and Wysocki 2016).

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<sup>18</sup> We obtain similar results when we use multiple imputation methods to deal with missing observations, where each missing value is predicted from the distribution of the observed values.

<sup>19</sup> To measure the 72 *levels* variables we use similar approaches as the prior literature. It should be noted that, in some cases, the variables may not be measured over the same period and this potentially causes measurement error. The international literature largely ignores this problem based on the assumed sticky nature of many country attributes. Future research can improve measurement of country attributes as better data sources become available.

<sup>20</sup> We also perform a correlation analysis of country attributes (Appendix G). We identify the variables that are very highly correlated (absolute correlation of 0.7 or higher), highly correlated (absolute correlation between 0.5 and 0.7), and moderately correlated (absolute correlation between 0.3 and 0.5). All variables have correlations of 0.3 or higher with at least one other variable. On average, each variable exhibits a correlation of 0.3 or higher with 10 other variables, and each measure has correlations of 0.7 or higher (0.5 or higher) with at least 3 (5) other variables.

<sup>21</sup> In each regression we remove any variable that is mechanically related to both the dependent and the independent variables or if it represents a similar construct. An example is *secrecy*, which is the combination of three other variables (*uncertainty avoidance* plus *power distance* minus *individualism*). Similarly, two measures that represent the same underlying institutional characteristic are *political stability* and *low political risk*.

Specifically, there are 71 (or more) possible explanatory country variables and only 35 country observations. Therefore, in the next subsection, we outline a promising data reduction solution to this dimensionality problem.

### *3.2. Factor analysis of country-level variables*

As a first step towards addressing the dimensionality problem, we perform exploratory factor analysis on the 72 country variables to attempt to identify patterns in the variables and investigate whether the observed patterns represent underlying factors in an economically meaningful way. Applying the principal components method, we extract the first 4 orthogonal factors using varimax rotation.<sup>22</sup> The 4-factor solution represents a balance between (i) explaining a large proportion of the variation, (ii) retaining factors with substantial incremental explanatory power, and (iii) finding a parsimonious solution.<sup>23</sup>

Table 4 summarizes the results of our factor analysis. The 4 factors explain about 58 percent of the total cross-country variation, with the first 2 factors explaining a significant portion (46 percent) of the variation (Table 4 - Panel A). We note that including a 5<sup>th</sup> factor adds little in further explaining variation (less than 5 percent). The reliability of each factor is high (ranging from 0.70 to 0.97) indicating that the observed country variables are strongly correlated with the

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<sup>22</sup> We also perform other extraction and rotation methods and obtain a similar solution. In particular, we apply oblique rotation (oblimin and promax) which often provides a simpler factor structure than orthogonal rotation. The disadvantage of oblique rotation is that factors are correlated and consequently there is no single unambiguous measure of the importance of a factor in explaining a variable; instead one needs to examine the factor structure and the reference structure. In choosing to report results using varimax rotation, we follow Tabachnick and Fidell's (2007) suggestion to look at the factor correlation matrix for correlations above 0.32. If correlations are below 0.32, then orthogonal and oblique rotation provide similar solutions. In our sample, the highest correlation between factors is 0.19 (0.10) using promax (oblimin) rotation.

<sup>23</sup> In selecting the number of factors, we also consider commonly-used criteria such as the Kaiser (1960) rule (i.e., selecting factors with eigenvalues larger than one) and the Cattell (1966) scree test (i.e., selecting factors above the point of inflection in a plot of eigenvalues). These approaches also point to the 4-factor outcome for this data.

latent country factor representing a cohesive factor.<sup>24</sup> Table 4 - Panel B presents standardized scores of the 4 factors by country. In Appendix C, we present the factor loadings (for parsimony and readability, we only print factor loadings higher than 0.4). The first factor accounts for 31 percent of the total variation and consists of a mix of economic, legal, and social variables, consistent with the idea that countries' attributes are multidimensional and complementary. The second factor includes variables largely related to the development of capital markets. The third factor has high loadings in measures related to political and regulatory systems. The fourth factor seems to be associated with a society's closedness particularly in relation to foreign investment.

### *3.3. The relation between country-level characteristics and financial reporting quality*

#### *The multidimensionality of financial reporting*

In this section, we examine the association between the 4 country-level latent factors and financial reporting quality. Our survey of the international accounting literature shows a variety of properties used to measure reporting quality around the world. While the *changes* analyses in Section 2 require time-series measures of reporting quality (for simplicity we construct a single time-series measure based on accruals), available data for *levels* analyses allow for the examination of 6 commonly-used reporting quality variables. *Reporting transparency* (the negative of the opacity score of Leuz 2010; Leuz et al. 2003), and *disclosure quality* (disclosure index reported in Bushman, Piotroski, and Smith 2004) are accounting measures based only on publicly reported financial statements. *Abnormal return*, *abnormal volume* and *return synchronicity* are market-based measures that capture investors' reaction to the release of financial information (Nguyen and Truong 2013). *Asymmetric timeliness* measures the relation between accounting information

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<sup>24</sup> The common rule of thumb is that the reliability measure should be at least 0.5, with many researchers suggesting a minimum value of 0.7.

and market information (Bushman and Piotroski 2006). All measures are standardized to have zero mean and standard deviation of one and are defined so that higher values indicate higher reporting quality. The mean values of individual financial reporting measures (unstandardized) are reported in Table 5 - Panel A. In Appendix B, we describe the reporting quality variables.

Despite attempting to capture different dimensions of the quality of financial information, the reporting measures are highly correlated (Table 5 - Panel B). The high correlations suggest that these variables represent the same underlying construct. To identify whether there is commonality in these 6 variables, we perform a factor analysis similar to that performed for the 72 country variables. We find that a single underlying reporting quality factor captures a substantial portion of the variation in the 6 variables (Table 5 - Panel C) and that all variables have high loadings on a single reporting quality factor. Standardized country scores for the single reporting quality factor are presented in Appendix D and issues of potential measurement error are outlined in Section 5.

#### *Explaining reporting quality with country variables and country latent factors*

In Table 6, we compare the variation in the financial reporting factor explained by the 4 latent country-level factors with the variation explained by each of the 72 country-level variables. If the country-level factors correctly represent the multifaceted structures that affect financial reporting, then we expect these factors to explain a substantial portion of cross-country variation in financial reporting. We also expect that an individual country-level variable would provide little explanatory power beyond the 4 country-level latent factors. In Table 6 – Panel A, we compare the  $t$ -statistic of each individual country-level variable  $v_i$  obtained from estimating two regression models: (i) a unidimensional regression of the financial reporting factor  $rqf$  on individual variable  $v_i$  (model  $rqf = \alpha + \beta * v_i + \epsilon$ ), and (ii) a multidimensional regression of the financial reporting

factor (*rqf*) on the 4 factors extracted from factor analysis using all country-level measures, *excluding* the identified individual variable, and the individual country-level measure  $v_i$  (model  $rqf = \alpha + \beta*v_i + \gamma_1*f_1 + \gamma_2*f_2 + \gamma_3*f_3 + \gamma_4*f_4 + \varepsilon$ ). The main result displayed in Table 6 – Panel A is the large drop in the number of statistically significant variables in the second expanded model. The first column shows that individually the majority of country-level variables (45 of the 72 variables) are statistically associated with variation in financial reporting quality (as shown in many international studies testing associations). In contrast, the second column for the multidimensional model shows only eight significant measures.<sup>25</sup>

In untabulated regressions, we test the significance levels of the  $t$ -statistics in a multiple testing framework. We propose that inferences about relations between country attributes and reporting quality should be done on a multiple testing framework rather than on a single test perspective because many international studies attempt to explain the same international cross-section of reporting differences. When we correct the significance levels using Bonferroni and Holm adjustments, we observe that only one (of the 72 candidate variables) remains statistically significant in the multivariate model.<sup>26</sup> We obtain similar results when using a single measure of reporting quality (i.e., time-invariant accrual variable similar to that used in section 2), and when examining the explanatory power of the regression models (Adjusted  $R^2$ ) instead of  $t$ -statistics (see Appendix H).

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<sup>25</sup> We acknowledge that some of the explanatory variables in our analyses may also be reporting outcomes (e.g., book tax independence, number of analysts). Excluding these explanatory variables from the regressions does not change our conclusions. More importantly, the main goal of our analyses is to highlight and demonstrate, using examples of variables widely used in prior studies, the fundamental problem of high causal density in across-country studies and highlight directions for future research.

<sup>26</sup> Similar multi-testing problems exist in the empirical asset pricing literature in finance where a multitude of studies have proposed and tested hundreds of individual return-predicting signals without acknowledging the existence and possible correlations among these signals. Asset pricing studies highlighting these multi-testing issues include Green, Hand, and Zhang (2013 and 2014); Harvey, Liu, and Zhu (2016); and Harvey and Liu (2018).

We now turn to the 4 original country latent factors as reported in Table 4 to examine their association with the financial reporting factor.<sup>27</sup> Regression results are presented in Panel B of Table 6. All 4 latent factors are positively associated with financial reporting quality and their explanatory power is high (adjusted R<sup>2</sup>s vary between 50 and 70 percent). Consequently, the 4 latent factors capture most of the underlying variation in the 72 individual country attributes and explain a significant portion of the cross-country variation in financial reporting outcomes.<sup>28</sup>

The identification of factors or portfolios of interdependent country attributes is potentially a useful tool for future international research studies. One application is to use the 4 factors to examine the incremental explanatory power of a “new” country attribute in explaining financial reporting quality. In Appendix E - Panel E1, we give an example of such an analysis for the economic freedom index recently proposed by Chen et al. (2015) as a macro determinant of firms’ investment decisions. Another application is to examine the explanatory power of the portfolios of country attributes (including a country-level reporting quality factor) for other economic outcomes. We illustrate this point in Appendix E - Panel E2 for the outcome variables: *differences to IFRS*, *unexpected earnings*, and *market capitalization*. The 4 country-level latent factors display very high explanatory power for other accounting quality outcomes (columns 1 and 2 of Panel E2). Moreover, when considered in isolation, the reporting quality factor strongly explains variation in countries’ market capitalization, but this effect disappears once the 4 country latent factors are included (columns 3 and 4 of Panel E2). This result highlights the interdependencies between

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<sup>27</sup> The regression analyses performed in this study are based on linear models with no interactive effects. Prior research suggests possible interactive effects between individual institutional variables (e.g., Leuz et al. 2003). While non-linear specifications and interactive effects may result in greater explanatory power, these approaches would not affect the main conclusions of this study. Specifically, the co-dependencies among the dozens of country variables make it difficult, if not impossible, to separate and ascribe the effects of individual country variables or interactions among these variables.

<sup>28</sup> As a robustness test, we repeated the tests excluding individual countries (e.g. US). Our conclusions regarding the country factors, reporting quality factor and regressions results do not change.

firms' reporting outcomes and country characteristics, and further emphasizes challenges for researchers trying to disentangle these effects. To further examine the co-dependencies among the reporting quality variables and the 72 other variables, we repeat the exploratory factor analysis and add the 6 individual reporting quality attributes to the existing set of 72 variables. We find essentially the same set of 4 underlying latent factors emerge from this analysis. In fact, the reporting quality variables have loadings on all 4 latent factors, which confirms the interconnectness between reporting quality outcomes and other country attributes.

It is important to emphasize that the 4 country-level factors extracted from our factor analysis are not intended to provide the “best” solution to the dimensionality problem or the “best” representation of countries' institutional systems. Rather it serves to illustrate one method to deal with the observed co-dependencies of countries' economic, political, regulatory, and social characteristics. What we wish to convey is that the co-dependencies in countries' attributes should be acknowledged and explained when assessing cross-country variation in economic phenomena. Further, our exercise highlights the idea that breaking complex systems of countries' attributes into tractable groups of variables can potentially help identify attributes that co-move and respond in a systematic and coherent way to changes (e.g., Milgrom and Roberts 1995).

#### **4. Alternative approaches**

In this section, we discuss alternative empirical methodologies that may address the limitations of correlation and regression analyses to study the relations between reporting quality and country characteristics. As discussed in the prior sections, the fundamental problems facing comparative country analyses arise from: (i) the limited number of country observations, (ii) the plethora of candidate “theories” and associated country variables that might explain reporting

outcomes, and (iii) the high correlation among these possible explanatory variables both in levels and changes (i.e., high causal density). In summary, there is a lack of degrees of freedom in multiple regression analyses arising from too many candidate theories/attributes/variables and too few empirical observations to separate the competing effects.

#### *4.1. Confirmatory factor analysis and structural modeling*

Exploratory factor analysis (EFA) can result in a solution where factors are difficult to label since several seemingly unrelated variables load on the same factor. Further, in the interest of parsimony, we restrict the number of factors used in our empirical analysis to only 4. However, there are potentially other country factors that could explain reporting quality variation. An alternative approach is explicitly and ex-ante identify latent country conditions and define relations between the observed indicators of the underlying conditions (confirmatory factor analysis or CFA).<sup>29</sup> But we suggest that model building should be driven by a sound theory and by knowledge of the specific setting of the study.

Structural modeling extends CFA to test causal relations between reporting outcomes and country characteristics.<sup>30</sup> One important advantage of structural modeling over standard regression analysis is that it allows for financial reporting quality to be both an outcome and a possible causal determinant of other economic outcomes. It also allows incorporating mediator, collider and

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<sup>29</sup> To demonstrate this approach, we perform CFA on the *levels* variables assuming 4 relevant latent country conditions for reporting quality: *Economic, Regulatory, Political and Sociological* (see Table 7 - Panel A for variable categorization). For simplicity, each variable can only be related to one factor and we assume that *Legal Origin* and *Latitude* are exogenous (hence excluded from the model). The reliability of the scale of the latent factors is high (between 0.70 and 0.92) and most variables have significant loadings (represented by the symbol \* in Table 7 - Panel A), indicating that the variables are a good representation of the underlying country conditions.

<sup>30</sup> Gow, Larcker, and Reiss (2016) and Leuz (2018) suggest structural models as a path forward to identify causal relations in accounting research. Wysocki (2011) also suggests structural modeling as a possible tool to identify the associations between reporting quality and other economic variables around the world.

confounder variables.<sup>31</sup> We note that the valid use of structural modeling for international comparative analyses requires well-defined theories to guide the correct specification of pathways and availability of relevant data. While such problems are not insurmountable, they create new challenges for scholars. Knowledge of the countries' environment and how institutions evolved in those environments is a way forward to build theoretically supported structural models of country characteristics and reporting outcomes.

#### *4.2. Qualitative Comparative Analysis (QCA) and Fuzzy Set Analysis*

Scholars in accounting (e.g., Leuz and Wysocki 2016) and in other fields identify *Qualitative Comparative Analysis* (QCA) and *Fuzzy Set Analysis* as empirical tools that can potentially help identify the correlation structure of observational data and test the consistency of the data with deterministic hypotheses.<sup>32</sup>

While CFA/structural models and QCA/Fuzzy Set can help identify how economic outcomes relate to observed variables, like other methods, formulating viable hypotheses requires a formal testable theory and well-specified models. Though one can develop a testable theory and apply it to build a plausible structural model (or QCA/Fuzzy Set model), that theory would be open

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<sup>31</sup> A first step to design a structure model is to propose a causal diagram (path analysis) based on a testable theory or a-priori reasoning. Examples of path analysis in international accounting include Core et al. (2015) and Landsman, Maydew, and Thornock (2012). The path diagram in Table 7 - Panel B is an example for our setting (we use SEM conventional graphical representation, e.g., Tabachnick and Fidell 2007: chapter 14). The diagram intends to show an example of a structural model. The small number of observations, the large number of variables, and potential other paths make estimation of this model unfeasible with our dataset.

<sup>32</sup> QCA is an empirical tool that evaluates the relation between observed dichotomous outcome variables and all possible Boolean combinations of other (explanatory) variable sets. Fuzzy Set Analysis extends the QCA methodology to continuous variables (e.g., Grant, Trautner, Downey, and Thiebaud 2010; Ragin 2000; Schneider and Wagemann 2012; Vaisey 2007). In Appendix I, we provide a simple case example showing the use of QCA/Fuzzy Set analysis for the 72 country level variables. One suggestion is to use QCA/Fuzzy Set as a first approach to identify the portfolios of country levels or changes variables (configurations in QCA terminology) deemed necessary and/or sufficient for the financial reporting outcome of interest to occur.

to question and the structural estimates would strongly depend on key model assumptions.<sup>33</sup> Structural models seem promising in quantifying economic impacts, but they have high data requirements and the interpretation of their results rely on strong functional-form and distributional assumptions and post-estimation validation. Furthermore, these approaches still face the fundamental problem plaguing the international comparative literature of too little data generated from too many intertwined and co-moving effects.

## 5. Conclusion and implications for future research

The current body of evidence in the empirical international accounting literature suggests that a multitude of country attributes seem to be *individually* associated with financial reporting outcomes around the world. Our study highlights the incomplete picture in the existing accounting literature where the claimed effects of “one” country attribute or policy change on accounting or other economic outcomes are generally established without acknowledging or controlling for the effects of numerous other known changes in policies or country attributes.

Our conclusion is that there are fundamental conceptual and empirical barriers in isolating the role of *individual* country attributes to explain *changes* or *levels* of reporting and disclosure quality across countries because: (i) the high correlations among country attributes suggest strong and arguably empirically inseparable interdependencies among each country’s characteristics, institutions and policies, (ii) the endogenous timing and implementation of policy adoptions is predicted to lead to observed spikes in the synchronicity of many joint determinants and outcomes of reporting quality and thus exacerbates the attribution conundrum, and (iii) even if individual

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<sup>33</sup> See, for example, Low and Meghir (2017) for a detailed discussion of structural models. Validation and post-estimation checks are also critical for valid model inferences, but these checks are often disregarded in empirical applications. Therefore, we caution future international research to balance the advantages and pitfalls of new methodological approaches to deal with the problems highlighted in this study.

marginal effects exist, the small number of country observations and measurement problems limits the ability of empiricists to statistically separate the effects of changes or levels of individual country attributes. While some scholars have alluded to the existence of these problems, our study is the first to systematically document the fundamental attribution problems facing empirical comparative country analyses. While our empirical evidence is consistent with the hypothesized confounding effects for reporting quality and IFRS adoption (specifically the synchronicity spike for correlates of reporting quality), additional research is needed to determine if our findings extend and generalize to other policy settings. We further highlight that the problem does not arise because of incorrect empirical tools (i.e., multiple regression vs. structural modeling vs. qualitative comparative analysis), but because there is both a more fundamental conceptual issue of (potentially inseparable) co-dependencies and an experimental issue of too little data generated from too many intertwined and co-moving effects.

#### *5.1. Looking forward: Implications and suggestions for international accounting research*

The empirical analyses in our study highlight challenges facing international comparative researchers. In this subsection, we identify a number of potential research directions to advance the international accounting literature.

##### *Adequately document institutional interdependencies*

Although many researchers are aware of the possible co-dependence of attributes and policies in a country, international accounting studies rarely acknowledge, explain or consider the high confounding correlations between the key conditioning/interaction variable and many other country attributes.<sup>34</sup> Studies also generally ignore any time-series variation in the country-level

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<sup>34</sup> Various shock/changes studies attempt to explain cross-country variation in the effect of a specific event by observing the interaction between the change variable and a country attribute such as legal origin, investor protection,

interaction variable and the possibility that the measure is a result of a more fundamental or primitive construct. However, our evidence on high co-dependencies in country attributes suggests that future research can provide a more complete picture by acknowledging and examining the broader set of correlated country attributes affecting a particular environment, rather than examining a single country variable as one of interest (e.g., investor protection).

#### *Consider portfolio of country attributes*

Our findings highlight the problem of interdependency among many institutional attributes, leading to statistical insignificance of individual country attributes, yet high joint explanatory power of the portfolio of country attributes. This finding suggests that country attributes and their effects should perhaps be evaluated as portfolios of interrelated attributes. Changes in policies are often implemented as a package of interventions rather than isolated changes.<sup>35</sup>

The high interdependency of countries' attributes makes it difficult to develop a comprehensive model, but it is possible to break the variables into subsets that tend to move together in response to policy changes. Milgrom and Roberts (1995) suggest the idea of breaking super modularity into tractable variables. Thus, future research can identify country attributes that respond in a systematic and coherent way to changes in specific environments.<sup>36</sup> The factors tabulated in our study are a potential starting point to represent sub-collections of attributes. But our factors are unlikely to be exhaustive with regard to the complete set of country characteristics

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and regulatory quality (e.g., Ball et al. 2015; Chen et al. 2016, Godsell et al. 2017; Li and Yang 2016; Silvers 2016). Other recent studies examine the association between the *level* of country attributes and the *level* or *changes* of reporting quality measures (e.g., Brochet et al. 2016; Kanagaretnam, Lim, Lobo 2014a, Kanagaretnam et al. 2014b; Kanagaretnam et al. 2018; Li, Griffin, Yue, and Zhao 2013; McGuire et al. 2012; Srinivasan, Wahid, and Yu 2015).

<sup>35</sup> For example, the EU adoption of IFRS in Europe is just one element of a set of initiatives to promote transparency in European Markets (see Appendix F).

<sup>36</sup> Milgrom and Roberts (1995) highlight that it is the *order* of changes in the complementary variables rather than the *value* of the changes that matters. This concept facilitates the exercise of identifying groups of variables in the sense that one does not need to accurately measure the correlation but simply establish the order in which the complementary variables are systematically impacted by movements in one part of the system of variables.

and there are potentially other groupings that may be more relevant in other settings. Additionally, studies should consider not just the current portfolio of variables but also pre-existing ones. It is likely that pre-existing sets of conditions affect both the treatment and the expected outcome.<sup>37</sup>

### Explore time-series variation

Interest in long-term time trends prompted recent research in economics, sociology, and political science to explore the impact of historical institutions on current economic outcomes.<sup>38</sup> This stream of literature is premised on the idea that environmental conditions persist over long periods of time and hence perturbances in these conditions can have continuing consequences long after events occur.<sup>39</sup> We do not suggest that future international accounting should move towards the search for long-gone historical changes, but that we can learn from other literatures how to explore time-series and setting-specific information to uncover associations and plausible causal effects between country characteristics and accounting outcomes. However, to be able to draw causal inferences, studies using historical events should implement a battery of alternative identification strategies.

### Understand and characterize the context

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<sup>37</sup> For example, evidence shows that the existent of particular conditions led some European countries to allow the use of IFRS before the mandatory adoption date and liquidity benefits of the implementation of EU Directives depend on pre-existing regulatory quality (e.g., Christensen, Hail, and Leuz 2016).

<sup>38</sup> For example, land rights during British colonialism, the French Revolution, and plough agriculture appear to continue to have impacts on economic and social conditions of modern societies (e.g., Acemoglu, Cantoni, Johnson, and Robinson 2011; Acemoglu, Hassan, and Robinson 2011; Acharya, Blackwell, and Sen 2016; Alesina, Giuliano, and Nunn 2013; Banerjee and Iyer 2005; Guiliano 2015; Nunn and Wantchekon 2011; Voigtländer and Voth 2012).

<sup>39</sup> International accounting studies are not ignorant of the role of historical institutions. They have extensively used La Porta et al.'s British Legal Origin (La Porta, Lopez-de-Silanes, Shleifer, and Vishny 1998) as a determinant of cross-country variation in accounting outcomes. A recent example is Hail et al. (2018) that uses hand-collected data for 26 countries for the period 1800 to 2015 to study the relation between corporate scandals reported by local media and regulatory changes. There is another stream of accounting dealing with historical events, which focuses on the description of the events rather than on long-term economic associations (e.g., Chandler 2017, Sánchez-Matamoros, Domínguez-Orta, and Gutiérrez-Hidalgo 2016).

The economics and political historical studies mentioned above attempt to establish a causal link between long-past events and current economic variables by relying on a thorough understanding of the specific setting in which the event occurred. Context specific knowledge is fundamental to establish a causal link, both theoretically and empirically. One possible avenue for future international accounting research is to better capitalize on single-country/region settings.<sup>40</sup> A detailed single-setting study allows for a deeper understanding of the phenomenon and the sources of differences between treatment and control groups. It also offers opportunities to explore unique datasets that are often not available for a large number of countries, and helps identifying the sets of country conditions that tend to co-move. However, one should be mindful of the trade-off between better identification and external validity.<sup>41</sup>

### Improve measurement

Reducing measurement problems is of first-order importance in (international) accounting research. Many of the empirical problems in international research result from incomplete and poor-quality data. For example, current international accounting and finance studies rely on country variables measured at different points in time (see also footnote 19) and often from unreliable and outdated sources.<sup>42</sup> Measurement issues also arise when a country's economic,

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<sup>40</sup> For example, Banerjee and Iyer (2005) examine land revenue across districts of India; Acharya et al. (2016) investigate the impact of slavery on racial attitudes in the US; Acemoglu et al. (2011) test the effect of the severity of Jewish persecution during WWII in wages and voting preferences in Russian cities.

<sup>41</sup> Examples of studies that focus on a single country include McGuire et al. (2012) and Cantrell and Yust (2015) who study the effects of religion in the US setting. Examples of single-country studies assessing IFRS effects are Brochet, Jagolinzer, and Riedl (2013) who use the UK setting to investigate changes in information comparability; Christensen et al. (2015) who study mandatory and voluntary IFRS adopters in Germany; and Ester, Ilanit and Baruch (2017) who compare IFRS and US GAAP reporting choices in Israel.

<sup>42</sup> Leuz (2018) offers a discussion of the challenges of the paucity of data and the opportunities resulting from the evidence-based approach of the IASB and FASB. Measuring accounting outcomes in a global setting is challenging because the quantity and quality of financial data vary substantially across countries. As new and better data become available, researchers can improve measures of both countries' underlying conditions and reporting quality outcomes. Leuz (2018) suggests that the current interest of standard setters and regulators in evidence-based research offers opportunities for data sharing. New measures based on better, more granular, and unexplored data could enhance our understanding of country characteristics.

social and market environment jointly influence a firm's economic fundamentals and the reporting of these fundamentals (e.g., Barth et al. 2008). As a result, empiricists face measurement challenges in separating firm fundamentals from reporting outcomes and then separating how they are both likely related to and influenced by country-level attributes. Nikolaev (2018) provides a potentially promising framework for measuring and separating these effects for accruals quality measures.

An additional issue that we highlight is that inferences about associations between country attributes should be based on a multiple-testing framework rather than on a single-test perspective because several international research studies attempt to explain the same international cross-section of reporting and disclosure outcomes. A multiple-testing framework corrects for the bias towards false discoveries that result from simultaneously testing multiple hypotheses using the same data. The upshot being: to evaluate the significance of a new country attribute in explaining financial reporting diversity or other outcomes, researchers must account for prior tests that document the correlations between a given outcome and other country-level attributes.

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**Table 1 – High joint explanatory power of changes in country variables for other change variables****Panel A - Determinants and explanatory power of changes variables in the IFRS adoption period**

| Short name                                          | Dependent variable: change variable ( $\Delta v_{it}$ ) | Adj.R <sup>2</sup> | Four explanatory variables providing maximal adj. R <sup>2</sup> ( $\Delta v_{jt}$ , $\Delta v_{kt}$ , $\Delta v_{lt}$ , $\Delta v_{mt}$ ) |
|-----------------------------------------------------|---------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| EnforAudS                                           | Enforcement of audit standards                          | 0.840              | Gdpc, PolitScore, UShold, IntHoldFor                                                                                                       |
| EnforAccS                                           | Enforcement of accounting standards                     | 0.583              | EnforAudS, Law, CCorr, ListedF                                                                                                             |
| Gdpc                                                | GDPc                                                    | 0.814              | EnforAudS, CreditR, UShold, InstHoldDom                                                                                                    |
| Law                                                 | Rule of law                                             | 0.527              | EnforAccS, CCorr, JudIndep, PolitScore                                                                                                     |
| RegQ                                                | Regulatory quality                                      | 0.569              | PolitStab, JudIndep, CreditR, MarkCap                                                                                                      |
| CCorr                                               | Control of corruption                                   | 0.310              | EnforAccS, Law, ListedF, UShold                                                                                                            |
| PolitStab                                           | Political stability                                     | 0.356              | RegQ, CreditR, ForeignInv, IndividW                                                                                                        |
| JudIndep                                            | Judicial independence                                   | 0.488              | Law, RegQ, ProprR, ListedF                                                                                                                 |
| ProprR                                              | Property rights                                         | 0.637              | JudIndep, ForeignInv, Religness, UShold                                                                                                    |
| CreditR                                             | Creditor rights                                         | 0.426              | RegQ, PolitStab, ListedF, IndividW                                                                                                         |
| MarkCap                                             | Market Cap. to GDP                                      | 0.766              | PolitScore, ForeignInv, InstHoldDom, IntHoldFor                                                                                            |
| ListedF                                             | Listed firms to population                              | 0.920              | JudIndep, CreditR, PolitScore, InfoKnow                                                                                                    |
| PolitScore                                          | Political score                                         | 0.932              | EnforAudS, MarkCap, ListedF, ForeignInv                                                                                                    |
| ForeignInv                                          | Foreign investment to GDP                               | 0.567              | MarkCap, PolitScore, UShold, InstHoldDom                                                                                                   |
| InfoKnow                                            | Information and knowledge                               | 0.615              | ProprR, ListedF, PolitScore, InstHoldDom                                                                                                   |
| Religness                                           | Religioseness                                           | 0.248              | EnforAccS, MarkCap, PolitScore, Trust                                                                                                      |
| IndividW                                            | Individualism in income                                 | 0.423              | EnforAccS, RegQ, PolitStab, CreditR                                                                                                        |
| Trust                                               | Trust                                                   | 0.129              | CCorr, ProprR, ForeignInv, Religness                                                                                                       |
| UShold                                              | US institutional holdings                               | 0.820              | JudIndep, ProprR, ForeignInv, InstHoldDom                                                                                                  |
| InstHoldDom                                         | Domestic institutional holdings                         | 0.856              | Gdpc, JudIndep, CreditR, UShold                                                                                                            |
| IntHoldFor                                          | Foreign institutional holdings                          | 0.686              | EnforAudS, MarkCap, Religness, UShold                                                                                                      |
| <i>Mean values:</i>                                 |                                                         |                    |                                                                                                                                            |
| Adjusted R <sup>2</sup> for sample data             |                                                         | 0.596              |                                                                                                                                            |
| Adjusted R <sup>2</sup> for randomly generated data |                                                         | 0.280              |                                                                                                                                            |

**Panel B – Explanatory power of changes variables in periods before and after IFRS adoption**

|                             | Before IFRS adoption | After IFRS adoption |
|-----------------------------|----------------------|---------------------|
| Average adj. R <sup>2</sup> | 0.491                | 0.454               |

This table reports the maximal adjusted R<sup>2</sup> of a regression of a *change* variable ( $\Delta v_{it}$ ) on 4 other *change* variables ( $\Delta v_{jt}$ ,  $\Delta v_{kt}$ ,  $\Delta v_{lt}$ ,  $\Delta v_{mt}$ ) drawn from the set of 21 possible explanatory country *change* variables, for 30 countries adopting IFRS. The regression equation is  $\Delta v_{it} = \alpha + \beta_1 \Delta v_{jt} + \beta_2 \Delta v_{kt} + \beta_3 \Delta v_{lt} + \beta_4 \Delta v_{mt} + \varepsilon_{it}$ , for each  $\Delta v_{it}$  where  $\Delta v_{jt}$ ,  $\Delta v_{kt}$ ,  $\Delta v_{lt}$ ,  $\Delta v_{mt}$  maximize adjusted R<sup>2</sup>. Panel A reports adjusted R<sup>2</sup> for the IFRS adoption period, using observed and randomly generated data. Panel B compares the average adjusted R<sup>2</sup> for periods before and after IFRS adoption. The list of countries is provided in Appendix A. Variable definitions are provided in Appendix B.

**Table 2 – IFRS adoption, changes in reporting quality and confounding changes in other country variables**

**Panel A – Summary statistics of changes in reporting quality in IFRS and non-IFRS periods**

|                                                | Mean         |                  | Median       |                  |
|------------------------------------------------|--------------|------------------|--------------|------------------|
|                                                | IFRS periods | non-IFRS periods | IFRS periods | non-IFRS periods |
| Change in reporting quality                    | 0.15         | -0.05            | 0.11         | -0.04            |
| Test of differences in means/medians [p-value] | 0.007        |                  | <0.001       |                  |

**Panel B - Regressions of changes in financial reporting quality on IFRS adoption and changes in other country variables**

| <i>Dependent variable:</i><br>Change in reporting quality | All changes variables |                     | All changes variables |                  | Changes variables excluding enforcement variables | Changes variables excluding enforcement and investment variables |
|-----------------------------------------------------------|-----------------------|---------------------|-----------------------|------------------|---------------------------------------------------|------------------------------------------------------------------|
|                                                           | (1)                   | (2)                 | (3)                   | (4)              | (5)                                               | (6)                                                              |
| IFRS adoption                                             | 0.373***<br>(3.984)   | 0.217***<br>(2.634) |                       | 0.137<br>(0.948) | 0.169<br>(1.266)                                  | 0.174<br>(1.472)                                                 |
| Contemporaneous changes in country variables              |                       |                     | Yes                   | Yes              | Yes                                               | Yes                                                              |
| Country effects                                           |                       | Yes                 | Yes                   | Yes              | Yes                                               | Yes                                                              |
| Time effects                                              |                       | Yes                 | Yes                   | Yes              | Yes                                               | Yes                                                              |
| R-square                                                  | 0.143                 | 0.515               | 0.656                 | 0.665            | 0.634                                             | 0.602                                                            |
| Adj. R-square                                             | 0.137                 | 0.332               | 0.410                 | 0.419            | 0.380                                             | 0.357                                                            |
| Observations = 140                                        |                       |                     |                       |                  |                                                   |                                                                  |

This table presents descriptive statistics and regressions results for the association between changes in financial reporting quality and changes in reporting standards (IFRS adoption), for the 35 sample countries. Panel A reports mean and median changes in reporting quality by IFRS and non-IFRS periods. Panel B presents regressions results for each of the following time-series regressions of the determinants of changes in reporting quality ( $\Delta rq_t$ ), IFRS adoption ( $\Delta IFRS$ ) and contemporaneous changes in country variables ( $\Delta v_{jt}$ ) across countries:

- (1)  $\Delta rq_t = a + \beta * \Delta IFRS + \varepsilon$
- (2)  $\Delta rq_t = a + \beta * \Delta IFRS + \text{Country fixed effects} + \text{Time fixed effects} + \varepsilon$
- (3)  $\Delta rq_t = a + \sum \gamma_j * \Delta v_{jt} + \text{Country fixed effects} + \text{Time fixed effects} + \varepsilon$
- (4)  $\Delta rq_t = a + \beta * \Delta IFRS + \sum \gamma_j * \Delta v_{jt} + \text{Country fixed effects} + \text{Time fixed effects} + \varepsilon$
- (5)  $\Delta rq_t = a + \beta * \Delta IFRS + \sum \gamma_j * \Delta v_{jt} + \text{Country fixed effects} + \text{Time fixed effects} + \varepsilon$  (excluding the following changes variables  $\Delta(\text{Enforcement of audit standards})$  and  $\Delta(\text{Enforcement of accounting standards})$ )
- (6)  $\Delta rq_t = a + \beta * \Delta IFRS + \sum \gamma_j * \Delta v_{jt} + \text{Country Fixed Effects} + \text{Time Fixed Effects} + \varepsilon$ , excluding  $\Delta(\text{Enforcement of audit standards})$ ,  $\Delta(\text{Enforcement of accounting standards})$ ,  $\Delta(\text{Foreign investment to GDP})$ ,  $\Delta(\text{US institutional holdings})$ ,  $\Delta(\text{Domestic institutional holdings})$ , and  $\Delta(\text{Foreign institutional holdings})$ . Appendix A lists the countries and changes variables. Appendix B provides definitions of all variables.

**Table 3 – The joint explanatory power of country-level variables for other country-level variables**

| Short name  | Dependent Variable ( $v_i$ )         | Adj. $R^2$ | Four Explanatory Variables Providing Maximal Adj. $R^2$ ( $v_j, v_k, v_l, v_m$ ) |
|-------------|--------------------------------------|------------|----------------------------------------------------------------------------------|
| AntiDir     | Anti-director rights                 | 0.584      | ProprR, PolitStab, Latitude, Big4Share                                           |
| LTaxEv      | Assessment of tax evasion            | 0.809      | BTaxInd, ReligFract, CCorr, LegalO                                               |
| AuditSpend  | Audit spending                       | 0.330      | DisclReg, USListing, UncAvoid, ClassAction                                       |
| BankPriv    | Bank money in private s. to GDP      | 0.744      | MarkCap, LRepContr, Masculin, Big4Share                                          |
| Big4Share   | Big4 market share                    | 0.427      | BankPriv, ForeignInv, ReligFract, Trust                                          |
| BlockPr     | Block premium                        | 0.567      | DisclReg, USListing, Religness, Masculin                                         |
| BTaxInd     | Book tax independence                | 0.482      | Latitude, InstHoldDom, ReligFract, Law                                           |
| Budhist     | Buddhist                             | 0.577      | PublCtr, Protestant, EnglProf, LegalO                                            |
| Catholic    | Catholic                             | 0.660      | InstHoldDom, IndividH, Trust, LegalO                                             |
| ClassAction | Class action lawsuit                 | 0.546      | MarkCap, PublicEnf, LegisComp, ReligFract                                        |
| CCorr       | Control of corruption                | 0.974      | InstHoldDom, Law, Protestant, RegQ                                               |
| CCorrL      | Corruption                           | 0.864      | ProprR, PolitStab, UShold, IndividH                                              |
| CreditR     | Creditor rights                      | 0.862      | BankPriv, AntiDir, LegalO, JudEff                                                |
| Democracy   | Democracy                            | 0.667      | LegislComp, IndividH, IndividW, EnglProf                                         |
| InstHoldDom | Domestic institutional holdings      | 0.388      | Latitude, UShold, IndividH, UncAvoid                                             |
| EnforAccS   | Enforcement of accg. standards       | 0.651      | DisclReg, LibStand, IndividH, Big4Share                                          |
| EnforAudS   | Enforcement of audit standards       | 0.843      | EnforAccS, AntiDir, Gdpc, BTaxInd                                                |
| EnglProf    | English proficiency                  | 0.645      | LRepContr, ForeignInv, IndividH, LegalO                                          |
| EthFract    | Ethnic fractionalization             | 0.615      | LangFract, Religness, UncAvoid, Big4Share                                        |
| PrivCtrEA   | Ex ante private control self-dealing | 0.745      | CreditR, PolitStab, IntHoldFor, JudEff                                           |
| PrivCtrEP   | Ex post private control self-dealing | 0.648      | BTaxInd, AuditSpend, NrAnal, LegalO                                              |
| IntHoldFor  | Foreign institutional holdings       | 0.486      | BankPriv, LegisComp, Latitude, ClassAction                                       |
| ForeignInv  | Foreign investment to GDP            | 0.599      | MarkCap, ReligFract, Protestant, CCorr                                           |
| Gdpc        | GDPc                                 | 0.881      | LRepContr, LegisComp, Latitude, JudEff                                           |
| HierIndep   | Hierarchy vs independence            | 0.417      | DisclReg, BTaxInd, LegisComp, LangFract                                          |
| IndividH    | Individualism                        | 0.786      | Gdpc, Democracy, ForeignInv, EnglProf                                            |
| IndividW    | Individualism in income              | 0.576      | BankPriv, OwnConc, PolitConn, USListing                                          |
| InfoKnow    | Information and knowledge            | 0.689      | Gdpc, PolitStab, LangFract, Masculin                                             |
| IPO         | IPOs to GDP                          | 0.525      | ListedF, PolitStab, InstHoldDom, CCorr                                           |
| JudEff      | Judicial efficiency                  | 0.835      | CreditR, BankPriv, Gdpc, IndividW                                                |
| JudIndep    | Judicial independence                | 0.943      | ProprR, UShold, Trust, LegalO                                                    |
| LangFract   | Language fractionalization           | 0.688      | ProprR, BlockPr, PolitStab, EthFract                                             |
| EnglProx    | Language proximity to English        | 0.906      | UShold, LTorient, HierIndep, EnglProf                                            |
| Latitude    | Latitude                             | 0.815      | PublicEnf, ReligFract, PowerD, NrAnal                                            |
| LawO        | Law and order                        | 0.933      | ProprR, LRepContr, PolitStab, CCorr                                              |
| LegalO      | Legal origin                         | 0.795      | CreditR, DisclReg, Gdpc, PowerD                                                  |
| LegislComp  | Legislative competition              | 0.516      | Gdpc, Democracy, PolitConn, HierIndep                                            |
| ListedF     | Listed firms to population           | 0.642      | OwnConc, PublicEnf, Religness, LegalO                                            |
| LTorient    | Long-term orientation                | 0.604      | LRepContr, Democracy, Religness, CCorr                                           |
| LPolitR     | Low political risk                   | 0.952      | LRepContr, PolitStab, LTorient, LegalO                                           |

**Table 3 [Continued] – The joint explanatory power of country-level variables for other country-level variables**

| Short name                                         | Dependent Variable ( $v_i$ )          | Adj. $R^2$ | Four Explanatory Variables Providing Maximal Adj. $R^2$ ( $v_j, v_k, v_l, v_m$ ) |
|----------------------------------------------------|---------------------------------------|------------|----------------------------------------------------------------------------------|
| LRepContr                                          | Low repudiation contracts by gov.     | 0.893      | ProprR, Gdpc, PolitConn, UncAvoid                                                |
| LExprR                                             | Low risk expropriation by gov.        | 0.943      | MarkCap, LRepContr, Big4Share, ClassAction                                       |
| MarkCap                                            | Market cap. to GDP                    | 0.713      | BankPriv, ListedF, ForeignInv, InfoKnow                                          |
| Masculin                                           | Masculinity                           | 0.440      | Gdpc, Latitude, IndividW, CCorr                                                  |
| Media                                              | Media                                 | 0.752      | PublicEnf, Gdpc, InfoKnow, EnglProf                                              |
| Muslim                                             | Muslim                                | 0.805      | Democracy, PolitStab, Latitude, UShold                                           |
| NrAnal                                             | Number of analysts                    | 0.654      | PublicEnf, Latitude, ReligFract, PowerD                                          |
| Veto                                               | Number of veto-players                | 0.719      | Democracy, LegisComp, Law, CCorr                                                 |
| OReligion                                          | Other religion                        | 0.524      | ListedF, Law, CCorr, JudEff                                                      |
| OwnConc                                            | Ownership concentration               | 0.553      | ListedF, DisclReg, Religness, ClassAction                                        |
| PolitScore                                         | Political score                       | 0.939      | Democracy, Latitude, Law, CCorr                                                  |
| PolitStab                                          | Political stability                   | 0.853      | ProprR, AntiDir, LangFract, Big4Share                                            |
| PolitConn                                          | Politically connected firms           | 0.573      | BankPriv, Gdpc, LegisComp, IndividW                                              |
| PowerD                                             | Power distance                        | 0.730      | DisclReg, Democracy, InfoKnow, LegalO                                            |
| PrivCtrIndex                                       | Private control of self-dealing index | 0.743      | BlockPr, Latitude, RegQ, LegalO                                                  |
| ProprR                                             | Property rights                       | 0.949      | JudIndep, UShold, RegQ, Trust                                                    |
| Protestant                                         | Protestant                            | 0.659      | ForeignInv, Law, Trust, CCorr                                                    |
| PublCtr                                            | Public control of self-dealing        | 0.346      | BlockPr, Democracy, Law, RegQ                                                    |
| PublicEnf                                          | Public enforcement sec. regulation    | 0.673      | ListedF, Latitude, LTorient, NrAnal                                              |
| RegQ                                               | Regulatory quality                    | 0.957      | DisclReg, LibStand, Protestant, CCorr                                            |
| ReligFract                                         | Religion fractionalization            | 0.605      | BTaxInd, Latitude, Law, Big4Share                                                |
| Religness                                          | Religiousness                         | 0.781      | LegislComp, EthFract, LTorient, CCorr                                            |
| Law                                                | Rule of law                           | 0.968      | Democracy, USlisting, Protestant, CCorr                                          |
| Secrecy                                            | Secrecy                               | 0.830      | MarkCap, Gdpc, Protestant, EnglProf                                              |
| DisclReg                                           | Securities reg. disclosure req.       | 0.931      | LibStand, EthFract, RegQ, JudEff                                                 |
| LibStand                                           | Securities reg. liability standards   | 0.939      | DisclReg, EthFract, RegQ, CCorr                                                  |
| SSecRegul                                          | Strength of securities regulation     | 0.878      | BlockPr, DisclReg, PublicEnf, ClassAction                                        |
| TaxComp                                            | Tax compliance                        | 0.557      | PublicEnf, PolitConn, EthFract, CCorr                                            |
| Trust                                              | Trust                                 | 0.656      | Latitude, PolitConn, Religness, UncAvoid                                         |
| UncAvoid                                           | Uncertainty avoidance                 | 0.704      | DisclReg, LegisComp, Protestant, EnglProf                                        |
| USlisting                                          | US cross-listing                      | 0.791      | UShold, LTorient, Big4Share, LegalO                                              |
| UShold                                             | US institutional holdings             | 0.805      | ListedF, PolitStab, USlisting, PowerD                                            |
| Average adjusted $R^2$ for observed data           |                                       | 0.709      |                                                                                  |
| Average adjusted $R^2$ for randomly generated data |                                       | 0.520      |                                                                                  |

This table reports the maximal adjusted  $R^2$  of regressions of a given country-level variable ( $v_i$ ) on 4 other country-level variables ( $v_j, v_k, v_l, v_m$ ) drawn from the set of 71 possible explanatory country-level variables. The 4 selected explanatory country variables are the variables that maximize the explanatory power of the model. Adjusted adjusted  $R^2$  obtained from simulations are reported at the bottom of the Table. Variable definitions are provided in Appendix B.

**Table 4 – Reducing the dimensionality of country-level variables****Panel A - Variation explained by country latent factors**

|                  | Eigenvalue | Variation explained | Cumulative variation explained | Reliability of factor (Cronbach alpha) |
|------------------|------------|---------------------|--------------------------------|----------------------------------------|
| Country factor 1 | 22.261     | 0.309               | 0.309                          | 0.970                                  |
| Country factor 2 | 10.868     | 0.151               | 0.460                          | 0.931                                  |
| Country factor 3 | 5.049      | 0.070               | 0.530                          | 0.727                                  |
| Country factor 4 | 3.699      | 0.051               | 0.582                          | 0.701                                  |
| Country factor 5 | 3.229      | 0.045               | 0.627                          |                                        |

**Panel B – Standardized scores for the first four latent country factors**

|                | Factor 1 | Rank | Factor 2 | Rank | Factor 3 | Rank | Factor 4 | Rank |
|----------------|----------|------|----------|------|----------|------|----------|------|
| Finland        | 1.409    | 1    | -0.300   | 19   | -1.062   | 31   | 0.543    | 9    |
| Sweden         | 1.296    | 2    | -0.324   | 21   | 0.122    | 15   | 0.454    | 12   |
| Switzerland    | 1.296    | 3    | -0.067   | 18   | -0.147   | 20   | -0.756   | 26   |
| Denmark        | 1.295    | 4    | 0.118    | 15   | -0.420   | 25   | 1.007    | 7    |
| Netherlands    | 1.092    | 5    | -0.339   | 22   | 0.248    | 14   | 0.497    | 11   |
| Austria        | 1.043    | 6    | -1.320   | 32   | -0.622   | 28   | 0.180    | 16   |
| Germany        | 0.953    | 7    | -0.961   | 28   | 0.556    | 11   | -1.043   | 32   |
| New Zealand    | 0.802    | 8    | 0.792    | 8    | 0.027    | 16   | 1.156    | 5    |
| Ireland        | 0.773    | 9    | 0.538    | 11   | -0.895   | 30   | 2.027    | 1    |
| United Kingdom | 0.687    | 10   | 1.337    | 4    | 0.875    | 6    | -0.272   | 22   |
| Japan          | 0.643    | 11   | -0.412   | 23   | -0.384   | 24   | -2.363   | 35   |
| Australia      | 0.592    | 12   | 0.972    | 7    | 1.262    | 3    | 0.450    | 13   |
| Belgium        | 0.533    | 13   | -0.836   | 27   | -0.106   | 19   | -0.987   | 31   |
| France         | 0.473    | 14   | -0.612   | 25   | 0.625    | 10   | -1.427   | 33   |
| Canada         | 0.470    | 15   | 1.022    | 6    | 2.130    | 2    | 0.114    | 17   |
| Hong Kong      | 0.446    | 16   | 2.033    | 2    | -1.236   | 33   | -0.107   | 21   |
| United States  | 0.362    | 17   | 1.030    | 5    | 2.438    | 1    | -0.020   | 20   |
| Spain          | 0.129    | 18   | -0.680   | 26   | 0.256    | 13   | -0.323   | 23   |
| Italy          | 0.082    | 19   | -0.972   | 29   | 0.370    | 12   | -0.967   | 30   |
| Portugal       | 0.059    | 20   | -1.250   | 31   | -0.311   | 22   | -0.013   | 19   |
| Singapore      | 0.019    | 21   | 2.310    | 1    | -2.489   | 35   | -0.420   | 24   |
| Chile          | -0.186   | 22   | -0.482   | 24   | -1.092   | 32   | 1.100    | 6    |
| Israel         | -0.197   | 23   | 0.449    | 13   | -0.043   | 17   | 1.328    | 4    |
| Taiwan         | -0.240   | 24   | 0.111    | 16   | -0.060   | 18   | -1.805   | 34   |
| Greece         | -0.276   | 25   | -1.403   | 34   | -0.274   | 21   | -0.685   | 25   |
| South Africa   | -0.830   | 26   | 0.757    | 9    | 0.668    | 9    | 0.723    | 8    |
| Argentina      | -0.950   | 27   | -1.448   | 35   | -0.365   | 23   | 1.685    | 2    |
| Mexico         | -0.972   | 28   | -1.371   | 33   | -0.620   | 27   | 1.441    | 3    |
| Brazil         | -1.024   | 29   | -1.225   | 30   | 0.781    | 7    | 0.531    | 10   |
| Malaysia       | -1.286   | 30   | 1.538    | 3    | -0.434   | 26   | -0.908   | 29   |
| Thailand       | -1.359   | 31   | 0.478    | 12   | -0.884   | 29   | -0.894   | 28   |
| India          | -1.419   | 32   | 0.609    | 10   | 1.240    | 4    | 0.272    | 15   |
| Indonesia      | -1.804   | 33   | -0.013   | 17   | -1.748   | 34   | -0.883   | 27   |
| Philippines    | -1.856   | 34   | -0.301   | 20   | 0.711    | 8    | 0.063    | 18   |
| Pakistan       | -2.055   | 35   | 0.220    | 14   | 0.882    | 5    | 0.301    | 14   |

This table reports the results of factor analysis on 72 explanatory country-level variables for 35 countries. Panel A summarizes the identification of the latent factors. Panel B reports the scores of latent factors. The estimated factor loadings of the 72 variables are presented in Appendix C. Variable definitions are provided in Appendix B. For consistency across country factors we reverse the sign of country factor 4.

**Table 5 – Financial reporting quality at a country-level****Panel A – Measures of reporting quality**

| Country        | Reporting transparency | Disclosure quality | Asymmetric timeliness | Abnormal return | Abnormal volume | Return synchronicity |
|----------------|------------------------|--------------------|-----------------------|-----------------|-----------------|----------------------|
| Argentina      | -0.391                 | 68                 | 0.401                 | 3.79            | 0.135           | 0.510                |
| Australia      | -0.078                 | 80                 | 0.343                 | 5.41            | 0.664           | 2.033                |
| Austria        | -0.808                 | 62                 | -0.093                | 4.33            | 0.213           | 1.603                |
| Belgium        | -0.682                 | 68                 | 0.181                 | 4.55            | 0.766           | 1.777                |
| Brazil         | -0.658                 | 56                 | 0.152                 | 3.53            | 0.250           | 1.249                |
| Canada         | -0.162                 | 75                 | 0.377                 | 6.03            | 0.960           | 2.582                |
| Switzerland    | -0.504                 | 80                 | 0.303                 | 4.97            | 0.993           | 2.192                |
| Chile          | -0.358                 | 78                 | 0.017                 | 3.31            | -0.110          | 1.200                |
| Germany        | -0.620                 | 67                 | 0.220                 | 3.88            | 0.329           | 1.872                |
| Denmark        | -0.530                 | 75                 | 0.244                 | 5.64            | 1.357           | 1.817                |
| Spain          | -0.792                 | 72                 | 0.314                 | 4.07            | 0.622           | 1.352                |
| Finland        | -0.26                  | 83                 | 0.110                 | 5.07            | 1.254           | 1.757                |
| France         | -0.536                 | 78                 | 0.040                 | 5.56            | 0.919           | 2.022                |
| United Kingdom | -0.133                 | 85                 | 0.276                 | 8.94            | 1.744           | 1.814                |
| Greece         | -0.881                 | 61                 | 0.087                 | 3.49            | -0.010          | 1.015                |
| Hong Kong      | -0.521                 | 73                 | 0.256                 | 6.49            | 1.286           | 1.306                |
| Indonesia      | -0.715                 | 65                 | 0.046                 | 3.43            | 0.436           | 1.351                |
| India          | -0.537                 | 61                 | 0.156                 | 5.11            | 0.860           | 1.263                |
| Ireland        | -0.199                 | 81                 | 0.495                 | 9.34            | 1.914           | 1.999                |
| Israel         | -0.329                 | 74                 | 0.23                  | 3.97            | 1.108           | 0.795                |
| Italy          | -0.826                 | 66                 | 0.135                 | 4.05            | 0.994           | 1.474                |
| Japan          | -0.802                 | 71                 | 0.107                 | 4.82            | 1.002           | 1.384                |
| Mexico         | -0.502                 | 71                 | 0.466                 | 4.8             | 0.514           | 0.915                |
| Malaysia       | -0.643                 | 79                 | 0.125                 | 3.93            | 0.331           | 1.230                |
| Netherlands    | -0.482                 | 74                 | 0.177                 | 7.59            | 1.362           | 1.815                |
| New Zealand    | -0.121                 | 80                 | 0.419                 | 5.42            | 0.916           | 1.913                |
| Pakistan       | -0.706                 | 73                 | -0.085                | 2.68            | -0.100          | 0.756                |
| Philippines    | -0.552                 | 64                 | 0.231                 | 4.32            | 0.074           | 1.055                |
| Portugal       | -0.88                  | 56                 | 0.263                 | 3.68            | 0.327           | 1.781                |
| Singapore      | -0.601                 | 79                 | 0.130                 | 6.11            | 1.194           | 1.332                |
| Sweden         | -0.168                 | 83                 | 0.486                 | 5.26            | 1.424           | 1.532                |
| Thailand       | -0.506                 | 66                 | 0.337                 | 3.55            | 0.247           | 1.173                |
| Taiwan         | -0.639                 | 58                 | 0.158                 | 3.25            | 0.081           | 0.618                |
| United States  | -0.228                 | 76                 | 0.312                 | 7.48            | 1.654           | 2.142                |
| South Africa   | -0.307                 | 79                 | 0.051                 | 3.42            | 0.278           | 1.595                |

**Table 5 [Continued] – Financial reporting quality at a country-level****Panel B – Correlations between reporting quality variables**

|                            | (1)    | (2)    | (3)    | (4)    | (5)    | (6) |
|----------------------------|--------|--------|--------|--------|--------|-----|
| (1) Reporting transparency | 1      |        |        |        |        |     |
| (2) Disclosure quality     | 0.706* | 1      |        |        |        |     |
| (3) Asymmetric timeliness  | 0.539* | 0.259  | 1      |        |        |     |
| (4) Abnormal return        | 0.539* | 0.537* | 0.440* | 1      |        |     |
| (5) Abnormal volume        | 0.485* | 0.583* | 0.431* | 0.868* | 1      |     |
| (6) Return synchronicity   | 0.380* | 0.423* | 0.223  | 0.565* | 0.552* | 1   |

**Panel C – Financial reporting latent factor**

|                                                             | Eigenvalues | Variation explained |
|-------------------------------------------------------------|-------------|---------------------|
| Financial reporting quality factor 1                        | 3.211       | 0.889               |
| Financial reporting quality factor 2                        | 0.456       | 0.106               |
| <i>Cronbach's alpha measure of reliability for factor 1</i> |             | <i>0.858</i>        |

This table reports summary statistics and factor analysis for reporting quality variables for 35 countries. Panel A reports mean values of reporting quality variables (unstandardized) by country. Panel B reports Pearson correlations. The symbol \* indicates statistical significance at the 0.05 level. Panel C reports the results of factor analysis of the 6 reporting variables. Variable definitions are provided in Appendix B.

**Table 6 – Country-level variables matter for reporting quality**

**Panel A – T-statistics for univariate and multivariate regressions of reporting quality factor**

| Country variable ( $v_i$ )              | Unidim.<br>t-stat on $v_i$ | Multidim.<br>t-stat on $v_i$ | Country variable ( $v_i$ )               | Unidim.<br>t-stat on $v_i$ | Multidim.<br>t-stat on $v_i$ |
|-----------------------------------------|----------------------------|------------------------------|------------------------------------------|----------------------------|------------------------------|
| Anti-director rights                    | 1.59                       | 0.64                         | Listed firms to population               | 2.25#                      | -1.80                        |
| Assessment of tax evasion               | 3.60#                      | -1.59                        | Long-term orientation                    | -1.10                      | -1.92                        |
| Audit spending                          | 3.12#                      | 2.00                         | Low political risk                       | 3.53#                      | 0.36                         |
| Bank money in private sector to GDP     | 1.81                       | -0.64                        | Low repud. contracts by govern.          | 3.46#                      | 0.43                         |
| Big4 market share                       | 3.64#                      | 0.75                         | Low risk of exprop. by govern.           | 3.85#                      | 1.11                         |
| Block premium                           | -2.40#                     | -0.68                        | Market Cap. to GDP                       | 2.25#                      | -0.63                        |
| Book tax independence                   | 0.28                       | -0.70                        | Masculinity                              | -0.37                      | 0.03                         |
| Buddhist                                | -0.94                      | 0.09                         | Media                                    | 2.85#                      | 1.38                         |
| Catholic                                | -0.97                      | 1.00                         | Muslim                                   | -1.89                      | -0.76                        |
| Class action lawsuit                    | 0.37                       | -0.51                        | Number of analysts                       | 2.64#                      | 2.06#                        |
| Control of corruption                   | 4.78#                      | -2.30#                       | Number of veto-players                   | -0.18                      | -1.27                        |
| Corruption                              | 4.42#                      | -0.91                        | Other religion                           | 0.32                       | -1.39                        |
| Creditor rights                         | 5.23#                      | -0.38                        | Ownership concentration                  | -3.33#                     | -1.77                        |
| Democracy                               | 1.67                       | 0.48                         | Political score                          | 3.44#                      | 0.21                         |
| Domestic institutional holdings         | -0.66                      | 0.08                         | Political stability                      | 2.88#                      | -0.78                        |
| Enforcement of accounting standards     | 3.13#                      | 0.87                         | Politically connected firms              | -1.22                      | 1.88                         |
| Enforcement of audit standards          | 5.46#                      | 1.98                         | Power distance                           | -2.99#                     | 0.61                         |
| English proficiency                     | 3.97#                      | 0.01                         | Private control of self-dealing          | 2.54#                      | 0.36                         |
| Ethnic fractionalization                | -1.30                      | -0.3                         | Property rights                          | 3.89#                      | -2.08#                       |
| Ex ante private control of self-dealing | 1.83                       | 0.79                         | Protestant                               | 3.49#                      | 1.12                         |
| Ex post private control of self-dealing | 2.80#                      | -0.35                        | Public control of self-dealing           | -1.23                      | -2.9#                        |
| Foreign institutional holdings          | 2.55#                      | 1.51                         | Public enforcement sec. regulation       | 1.11                       | 0.94                         |
| Foreign investment to GDP               | 1.92                       | 0.35                         | Regulatory quality                       | 4.64#                      | -1.12                        |
| GDPc                                    | 4.38#                      | 1.66                         | Religion fractionalization               | 1.67                       | -1.76                        |
| Hierarchy vs independence               | -1.76                      | -0.79                        | Religiousness                            | -2.4#                      | 0.79                         |
| Individualism                           | 5.56#                      | 4.03#                        | Rule of law                              | 4.35#                      | -1.84                        |
| Individualism in income                 | -1.01                      | 1.02                         | Secrecy                                  | -7.90#                     | -2.37#                       |
| Information and knowledge               | 2.30#                      | 0.24                         | Securities reg. disclosure req.          | 2.65#                      | 2.38#                        |
| IPOs to GDP                             | 2.38#                      | 0.50                         | Securities reg. liability standards      | 2.69#                      | 1.94                         |
| Judicial efficiency                     | 5.02#                      | -0.37                        | Strength of securities regulation        | 2.25#                      | 1.49                         |
| Judicial independence                   | 5.21#                      | -0.86                        | Tax compliance                           | 1.80                       | 1.69                         |
| Language fractionalization              | -1.21                      | -1.04                        | Trust                                    | 3.56#                      | 1.38                         |
| Language proximity to English           | 3.42#                      | -0.02                        | Uncertainty avoidance                    | -4.26#                     | -2.04                        |
| Latitude                                | 2.48#                      | 0.65                         | US cross-listing                         | 0.72                       | 2.91#                        |
| Law and order                           | 3.21#                      | -0.58                        | US institutional holdings                | 0.62                       | 1.97                         |
| Legal origin                            | 3.52#                      | -0.49                        |                                          |                            |                              |
| Legislative competition                 | 0.26                       | -1.31                        | <i>Nr. significant country variables</i> | <i>45</i>                  | <i>8</i>                     |

**Table 6 [Continued] – Country-level variables matter for reporting quality****Panel B – Regression of financial reporting quality factor on country-level factors**

|                         | (1)                 | (2)                 | (3)                 | (4)                 |
|-------------------------|---------------------|---------------------|---------------------|---------------------|
| Country factor 1        | 0.557***<br>(5.581) | 0.557***<br>(6.268) | 0.557***<br>(5.969) | 0.557***<br>(6.426) |
| Country factor 2        |                     | 0.502***<br>(4.173) | 0.502***<br>(4.784) | 0.502***<br>(5.849) |
| Country factor 3        |                     |                     | 0.165*<br>(1.992)   | 0.165*<br>(2.040)   |
| Country factor 4        |                     |                     |                     | 0.317***<br>(3.109) |
| R-square                | 0.338               | 0.613               | 0.642               | 0.752               |
| Adjusted R <sup>2</sup> | 0.318               | 0.588               | 0.608               | 0.719               |
| Observations = 35       |                     |                     |                     |                     |

This table reports t-statistics and regression results for financial reporting factor (*rqf*). Panel A reports t-statistics for the coefficient  $\beta$  on an individual country-level variable  $v_i$  in the following regression models: unidimensional regression ( $rqf = \alpha + \beta * v_i + \varepsilon$ ) and multidimensional regressions that exclude the country variable of interest from the country latent factors ( $rqf = \alpha + \beta * v_i + \gamma_1 * f_1 + \gamma_2 * f_2 + \gamma_3 * f_3 + \gamma_4 * f_4 + \varepsilon$ ). The symbol # indicates statistical significance at the 0.05 level. Panel B reports the results of regressions of financial reporting factor on 4 country-level factors. The symbols \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05 and 0.1 level, respectively, based on two tailed tests. Variable definitions are provided in Appendix B.

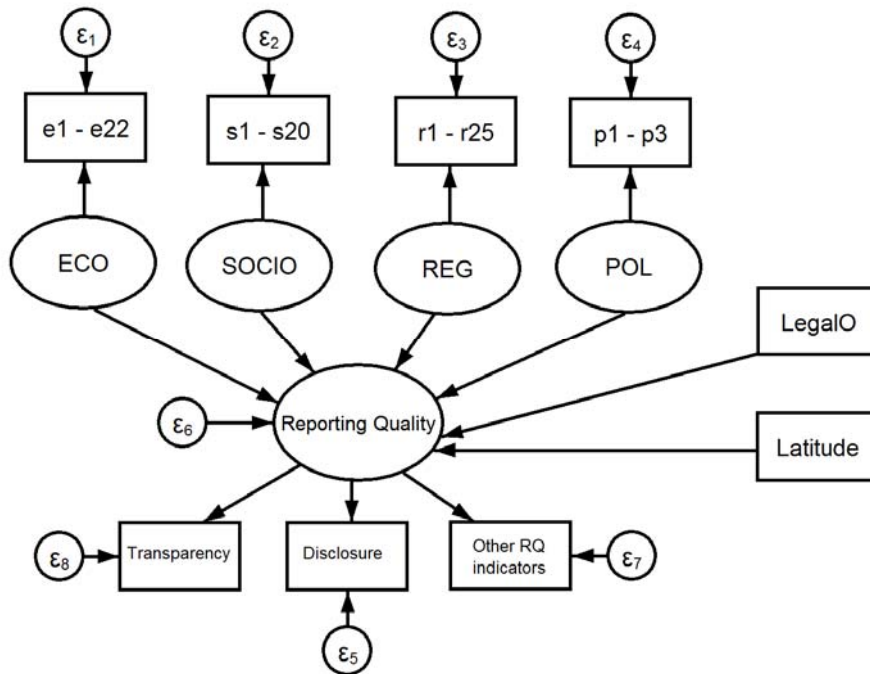
**Table 7 – Confirmatory factor analysis (CFA) of country-level variables**

**Panel A – Variables and statistics for four pre-defined country factors**

| <b>Economic (e1 – e22)</b>                                             | <b>Sociological (s1 – s20)</b>  | <b>Regulatory (r1 – r25)</b>              | <b>Political (p1 – p3)</b> |
|------------------------------------------------------------------------|---------------------------------|-------------------------------------------|----------------------------|
| Assessment of tax evasion *                                            | Buddhist                        | Judicial efficiency *                     | Democracy *                |
| Audit spending                                                         | Catholic                        | Judicial independence *                   | Legislative competition *  |
| Bank money in private sector to GDP *                                  | English proficiency *           | Law and order *                           | Number of veto-players     |
| Big4 market share *                                                    | Ethnic fractionalization *      | Low repudiation of contracts by govern. * |                            |
| Block premium *                                                        | Hierarchy vs independence *     | Low risk of expropriation by govern. *    |                            |
| Domestic institutional holdings                                        | Individualism *                 | Political score *                         |                            |
| Foreign institutional holdings *                                       | Language fractionalization *    | Property rights *                         |                            |
| Foreign investment to GDP *                                            | Language proximity to English * | Rule of law *                             |                            |
| GDPc *                                                                 | Long-term orientation           | Corruption *                              |                            |
| Information and knowledge *                                            | Masculinity                     | Anti-director rights                      |                            |
| IPOs to GDP *                                                          | Muslim *                        | Book tax independence                     |                            |
| Listed firms to population *                                           | Other religion                  | Class action lawsuit                      |                            |
| Low political risk *                                                   | Power distance *                | Control of corruption *                   |                            |
| Market Cap. to GDP *                                                   | Protestant *                    | Creditor rights *                         |                            |
| Media *                                                                | Religion fractionalization      | Enforcement of accounting standards *     |                            |
| Number of analysts *                                                   | Religiousness *                 | Ex ante private control of self-dealing * |                            |
| Ownership concentration *                                              | Secrecy                         | Ex post private control of self-dealing * |                            |
| Political stability *                                                  | Trust *                         | Private control of self-dealing index *   |                            |
| Politically connected firms *                                          | Uncertainty avoidance           | Public control of self-dealing            |                            |
| Tax compliance *                                                       | Individualism in income *       | Public enforcement securities regulation  |                            |
| US cross-listing                                                       |                                 | Regulatory quality *                      |                            |
| US institutional holdings                                              |                                 | Securities reg. disclosure requirements   |                            |
|                                                                        |                                 | Securities reg. liability standards       |                            |
|                                                                        |                                 | Strength of securities regulation *       |                            |
|                                                                        |                                 | Enforcement of audit standards *          |                            |
| Reliability of scale of latent country factor (Cronbach alpha):        |                                 |                                           |                            |
| 0.880                                                                  | 0.784                           | 0.917                                     | 0.695                      |
| Absolute correlation of latent country factors with reporting quality: |                                 |                                           |                            |
| 0.629*                                                                 | 0.641*                          | 0.608*                                    | 0.474*                     |

**Table 7 [continued] – Confirmatory factor analysis (CFA) of country-level variables**

**Panel B – Graphical representation of a structural model of reporting quality**



This table reports an example of confirmatory factor analysis for 4 pre-defined latent country factors (economic, sociological, regulatory, and political). Panel A presents the observed country variables associated to each factor and summary statistics. The symbol \* indicate statistical significance at the 0.05 level based on two tailed tests. Panel B shows a possible structural model of reporting quality. Variable definitions are provided in Appendix B.

## Appendix A – Change variables by country and IFRS periods

|              |              | Enforcement of<br>audit standards |                        | Enforcement of<br>accounting standards |                        | GDPc                       |                        | Rule of law                |                        | Regulatory<br>quality      |                        | Control of<br>corruption   |                        | Political stability        |                        | Judicial<br>independence   |                        |
|--------------|--------------|-----------------------------------|------------------------|----------------------------------------|------------------------|----------------------------|------------------------|----------------------------|------------------------|----------------------------|------------------------|----------------------------|------------------------|----------------------------|------------------------|----------------------------|------------------------|
|              | IFRS<br>year | IFRS<br>adoption<br>period        | non-<br>IFRS<br>period | IFRS<br>adoption<br>period             | non-<br>IFRS<br>period | IFRS<br>adoption<br>period | non-<br>IFRS<br>period | IFRS<br>adoption<br>period | non-<br>IFRS<br>period | IFRS<br>adoption<br>period | non-<br>IFRS<br>period | IFRS<br>adoption<br>period | non-<br>IFRS<br>period | IFRS<br>adoption<br>period | non-<br>IFRS<br>period | IFRS<br>adoption<br>period | non-<br>IFRS<br>period |
| Argentina    | 2012         | 0.00                              | -0.22                  | 0.00                                   | -0.28                  | -0.01                      | 0.07                   | -0.04                      | -0.01                  | -0.10                      | -0.04                  | -0.01                      | 0.01                   | 0.02                       | 0.08                   | -0.07                      | -0.01                  |
| Australia    | 2005         | 0.60                              | -0.04                  | 0.00                                   | 0.24                   | 0.19                       | 0.23                   | 0.02                       | -0.03                  | 0.04                       | 0.02                   | 0.00                       | 0.02                   | -0.05                      | 0.02                   | -0.02                      | -0.06                  |
| Austria      | 2005         | 0.26                              | -0.11                  | 0.16                                   | -0.20                  | 0.12                       | 0.15                   | -0.01                      | 0.02                   | -0.02                      | 0.05                   | -0.03                      | -0.03                  | 0.01                       | 0.05                   | -0.16                      | 0.10                   |
| Belgium      | 2005         | 0.26                              | -0.07                  | 0.52                                   | -0.02                  | 0.11                       | 0.14                   | 0.03                       | -0.04                  | 0.01                       | 0.01                   | 0.02                       | -0.04                  | -0.04                      | 0.00                   | -0.10                      | 0.05                   |
| Brazil       | 2010         | 0.00                              | -0.11                  | 0.00                                   | -0.17                  | 0.03                       | 0.04                   | 0.00                       | 0.03                   | -0.03                      | -0.01                  | -0.01                      | 0.00                   | -0.02                      | -0.12                  | -0.06                      | 0.06                   |
| Canada       | 2011         | 0.00                              | 0.20                   | 0.00                                   | 0.24                   | 0.12                       | 0.15                   | 0.02                       | -0.02                  | 0.03                       | 0.00                   | -0.02                      | -0.05                  | -0.01                      | -0.02                  | -0.06                      | -0.01                  |
| Chile        | 2009         | 0.00                              | -0.31                  | 0.00                                   | -0.20                  | 0.06                       | 0.01                   | 0.00                       | 0.02                   | 0.01                       | 0.01                   | -0.01                      | -0.02                  | -0.03                      | 0.00                   | 0.03                       | 0.20                   |
| Denmark      | 2005         | 0.51                              | -0.06                  | 0.52                                   | -0.02                  | 0.13                       | 0.20                   | 0.00                       | 0.02                   | 0.00                       | 0.02                   | -0.01                      | 0.03                   | -0.05                      | -0.05                  | -0.01                      | -0.04                  |
| Finland      | 2005         | 0.43                              | -0.17                  | 0.21                                   | -0.12                  | 0.11                       | 0.15                   | 0.00                       | 0.00                   | 0.04                       | -0.10                  | -0.04                      | 0.02                   | -0.01                      | -0.06                  | 0.05                       | -0.16                  |
| France       | 2005         | 0.60                              | -0.06                  | 0.00                                   | 0.11                   | 0.10                       | 0.12                   | 0.00                       | 0.04                   | 0.05                       | 0.00                   | -0.01                      | 0.04                   | -0.12                      | 0.14                   | -0.19                      | 0.19                   |
| Germany      | 2005         | 0.43                              | -0.11                  | 0.73                                   | -0.17                  | 0.11                       | 0.11                   | -0.01                      | 0.05                   | 0.00                       | 0.03                   | -0.01                      | -0.05                  | -0.12                      | 0.16                   | -0.11                      | 0.08                   |
| Greece       | 2005         | 0.43                              | -0.23                  | 0.21                                   | -0.20                  | 0.05                       | 0.11                   | -0.04                      | 0.02                   | 0.00                       | -0.07                  | -0.07                      | -0.02                  | -0.15                      | 0.06                   | -0.21                      | -0.12                  |
| Hong Kong    | 2005         | 0.26                              | 0.07                   | 0.00                                   | 0.12                   | 0.04                       | 0.08                   | 0.10                       | 0.00                   | 0.03                       | 0.00                   | 0.02                       | -0.01                  | -0.01                      | 0.08                   | 0.02                       | 0.00                   |
| Ireland      | 2005         | 0.26                              | 0.05                   | 0.00                                   | -0.05                  | 0.09                       | 0.23                   | -0.01                      | 0.08                   | -0.07                      | 0.10                   | 0.00                       | 0.07                   | -0.05                      | -0.07                  | -0.10                      | 0.25                   |
| Israel       | 2008         | 0.00                              | 0.03                   | 0.16                                   | 0.10                   | 0.05                       | 0.11                   | -0.01                      | -0.03                  | -0.01                      | 0.04                   | -0.01                      | -0.08                  | 0.03                       | -0.12                  | -0.05                      | -0.01                  |
| Italy        | 2005         | 0.38                              | -0.02                  | 0.00                                   | 0.16                   | 0.08                       | 0.11                   | -0.02                      | -0.12                  | 0.02                       | -0.04                  | -0.06                      | -0.02                  | -0.07                      | 0.03                   | -0.01                      | -0.24                  |
| Mexico       | 2012         | 0.00                              | -0.16                  | 0.00                                   | -0.06                  | 0.00                       | 0.04                   | -0.03                      | 0.01                   | -0.02                      | 0.07                   | 0.00                       | -0.04                  | -0.06                      | -0.01                  | -0.03                      | 0.02                   |
| Malaysia     | 2012         | 0.00                              | -0.03                  | 0.00                                   | 0.07                   | 0.02                       | 0.04                   | 0.02                       | 0.00                   | -0.03                      | 0.10                   | -0.03                      | 0.10                   | -0.02                      | 0.03                   | 0.10                       | 0.07                   |
| Netherlands  | 2005         | 0.26                              | -0.08                  | 0.16                                   | -0.01                  | 0.11                       | 0.15                   | 0.01                       | 0.02                   | -0.04                      | -0.03                  | -0.03                      | 0.00                   | -0.03                      | -0.09                  | -0.04                      | -0.01                  |
| New Zealand  | 2007         | 0.17                              | 0.00                   | 0.00                                   | 0.02                   | 0.17                       | 0.02                   | 0.00                       | 0.06                   | 0.01                       | 0.06                   | -0.01                      | 0.03                   | 0.02                       | -0.06                  | -0.03                      | 0.15                   |
| Pakistan     | 2007         | 0.00                              | -0.19                  | 0.00                                   | -0.12                  | 0.00                       | 0.00                   | 0.00                       | 0.00                   | 0.03                       | -0.04                  | 0.03                       | -0.09                  | -0.08                      | -0.21                  | -0.23                      | 0.03                   |
| Philippines  | 2005         | 0.17                              | -0.25                  | 0.73                                   | -0.28                  | 0.01                       | 0.01                   | -0.03                      | 0.04                   | 0.00                       | -0.05                  | 0.02                       | -0.09                  | -0.02                      | -0.02                  | -0.10                      | 0.05                   |
| Portugal     | 2005         | 0.43                              | -0.23                  | 0.00                                   | -0.04                  | 0.05                       | 0.07                   | 0.02                       | -0.12                  | -0.01                      | -0.07                  | -0.02                      | -0.05                  | -0.03                      | -0.12                  | -0.04                      | -0.02                  |
| Singapore    | 2003         | -0.32                             | 0.10                   | -0.37                                  | 0.07                   | 0.17                       | 0.05                   | 0.01                       | 0.14                   | 0.01                       | -0.13                  | -0.01                      | -0.03                  | 0.05                       | -0.13                  | 0.05                       | -0.21                  |
| Spain        | 2005         | 0.51                              | -0.08                  | 0.21                                   | -0.08                  | 0.07                       | 0.13                   | -0.02                      | -0.06                  | -0.02                      | -0.07                  | -0.02                      | -0.07                  | -0.07                      | -0.05                  | -0.16                      | -0.02                  |
| South Africa | 2005         | 0.43                              | -0.19                  | 0.42                                   | -0.28                  | 0.01                       | 0.03                   | -0.02                      | 0.07                   | 0.01                       | -0.03                  | -0.08                      | 0.03                   | -0.02                      | 0.13                   | 0.00                       | -0.10                  |
| Sweden       | 2005         | 0.34                              | -0.02                  | 0.00                                   | -0.13                  | 0.15                       | 0.16                   | 0.03                       | -0.02                  | 0.08                       | -0.08                  | -0.01                      | -0.01                  | -0.02                      | -0.02                  | 0.01                       | -0.17                  |
| Switzerland  | 2005         | 0.51                              | -0.06                  | 0.00                                   | 0.22                   | 0.22                       | 0.16                   | 0.00                       | -0.04                  | -0.01                      | -0.09                  | -0.02                      | 0.01                   | -0.03                      | 0.01                   | -0.08                      | 0.06                   |
| Taiwan       | 2013         | 0.00                              | -0.18                  | 0.00                                   | -0.12                  | 0.00                       | 0.00                   | 0.02                       | 0.03                   | -0.01                      | 0.02                   | 0.00                       | 0.02                   | 0.00                       | 0.09                   | 0.06                       | -0.01                  |
| U.K.         | 2005         | 0.60                              | 0.00                   | 0.42                                   | 0.03                   | 0.04                       | 0.17                   | -0.01                      | 0.03                   | -0.04                      | 0.07                   | -0.03                      | -0.09                  | -0.12                      | 0.14                   | -0.04                      | 0.03                   |

# Appendix A [continued] – Change variables by country and IFRS periods

|              | Property rights      |                 | Creditor rights      |                 | Market Cap. to GDP   |                 | Listed firms to population |                 | Political score      |                 | Foreign invest. to GDP |                 | Information and knowledge |                 | Religioseness        |                 |
|--------------|----------------------|-----------------|----------------------|-----------------|----------------------|-----------------|----------------------------|-----------------|----------------------|-----------------|------------------------|-----------------|---------------------------|-----------------|----------------------|-----------------|
|              | IFRS adoption period | non-IFRS period | IFRS adoption period | non-IFRS period | IFRS adoption period | non-IFRS period | IFRS adoption period       | non-IFRS period | IFRS adoption period | non-IFRS period | IFRS adoption period   | non-IFRS period | IFRS adoption period      | non-IFRS period | IFRS adoption period | non-IFRS period |
| Argentina    | -0.43                | -0.12           | -0.14                | 0.00            | -0.08                | -0.01           | 0.00                       | 0.00            | -0.14                | 0.04            | 0.01                   | 0.03            | -0.16                     | 0.11            | -0.04                | -0.08           |
| Australia    | -0.07                | -0.02           | 0.05                 | 0.49            | -0.01                | 0.08            | 0.01                       | 0.12            | 0.11                 | 0.00            | -0.03                  | 0.13            | 0.11                      | 0.07            | -0.01                | -0.09           |
| Austria      | -0.03                | -0.03           | 0.12                 | -0.24           | -0.03                | 0.14            | -0.02                      | 0.01            | 0.07                 | 0.05            | 0.03                   | -0.07           | 0.06                      | 0.06            | -0.05                | 0.00            |
| Belgium      | -0.10                | 0.10            | 0.08                 | -0.24           | -0.07                | 0.16            | 0.03                       | -0.08           | 0.10                 | 0.07            | -0.03                  | 0.19            | 0.09                      | 0.00            | -0.04                | 0.00            |
| Brazil       | -0.08                | 0.06            | -0.20                | 0.00            | 0.05                 | -0.08           | 0.00                       | 0.00            | -0.19                | 0.11            | -0.06                  | 0.07            | -0.18                     | 0.00            | 0.05                 | 0.00            |
| Canada       | -0.04                | -0.05           | -0.02                | 0.14            | 0.04                 | -0.02           | 0.31                       | -0.02           | 0.12                 | 0.01            | -0.06                  | 0.08            | 0.04                      | 0.04            | -0.01                | 0.00            |
| Chile        | -0.05                | 0.03            | -0.05                | 0.00            | 0.04                 | 0.03            | -0.01                      | -0.01           | -0.02                | 0.06            | -0.02                  | 0.15            | -0.19                     | 0.10            | -0.06                | 0.00            |
| Denmark      | -0.10                | 0.04            | 0.12                 | 0.12            | 0.00                 | 0.10            | -0.03                      | 0.02            | 0.19                 | -0.01           | -0.14                  | 0.02            | 0.18                      | 0.05            | 0.00                 | 0.00            |
| Finland      | 0.01                 | -0.07           | 0.11                 | -0.06           | -0.15                | 0.09            | 0.00                       | -0.02           | 0.21                 | 0.05            | -0.10                  | 0.01            | 0.21                      | 0.00            | -0.05                | 0.04            |
| France       | -0.16                | 0.12            | 0.24                 | -0.61           | -0.06                | 0.12            | 0.00                       | -0.03           | 0.05                 | 0.01            | -0.10                  | 0.08            | 0.06                      | 0.06            | -0.01                | 0.03            |
| Germany      | -0.13                | 0.16            | -0.06                | 0.30            | -0.03                | 0.04            | 0.00                       | 0.00            | 0.12                 | 0.02            | -0.03                  | 0.09            | 0.07                      | 0.08            | -0.04                | 0.08            |
| Greece       | -0.11                | 0.04            | 0.05                 | -0.61           | -0.08                | 0.09            | -0.02                      | -0.02           | -0.15                | 0.12            | -0.03                  | 0.07            | -0.05                     | 0.09            | 0.07                 | 0.00            |
| Hong Kong    | 0.00                 | -0.09           | 0.00                 | 0.67            | 0.68                 | 0.44            | 0.25                       | 0.04            | -0.06                | 0.00            | -0.08                  | 0.79            | 0.07                      | 0.00            | 0.02                 | -0.08           |
| Ireland      | -0.17                | 0.29            | 0.05                 | 0.30            | -0.05                | 0.07            | -0.03                      | 0.00            | 0.10                 | 0.03            | 0.35                   | -0.22           | 0.02                      | 0.09            | -0.06                | 0.00            |
| Israel       | -0.07                | -0.44           | 0.10                 | 0.18            | 0.06                 | -0.10           | -0.10                      | -0.03           | -0.06                | 0.02            | 0.19                   | -0.42           | 0.23                      | -0.13           | 0.00                 | 0.00            |
| Italy        | -0.26                | -0.06           | 0.00                 | -0.61           | -0.05                | 0.05            | 0.00                       | 0.00            | -0.06                | 0.03            | -0.03                  | 0.05            | -0.04                     | 0.07            | -0.02                | 0.03            |
| Mexico       | -0.06                | 0.06            | -0.14                | 0.27            | 0.03                 | 0.01            | 0.00                       | 0.00            | -0.23                | 0.05            | -0.05                  | 0.05            | -0.25                     | 0.01            | -0.03                | -0.02           |
| Malaysia     | 0.09                 | 0.00            | 0.22                 | 0.00            | 0.01                 | 0.08            | 0.01                       | -0.03           | -0.44                | 0.07            | 0.01                   | 0.15            | -0.16                     | 0.02            | 0.03                 | -0.08           |
| Netherlands  | -0.11                | 0.09            | -0.06                | 0.12            | -0.08                | 0.09            | 0.00                       | -0.02           | 0.15                 | 0.03            | -0.21                  | -0.04           | 0.09                      | 0.13            | -0.01                | -0.07           |
| New Zealand  | 0.03                 | 0.02            | 0.21                 | 0.00            | -0.01                | 0.06            | 0.03                       | -0.12           | 0.15                 | 0.04            | 0.08                   | -0.14           | 0.13                      | -0.13           | -0.01                | 0.00            |
| Pakistan     | -0.33                | 0.03            | -0.14                | 0.36            | 0.11                 | -0.05           | -0.01                      | 0.00            | -0.24                | 0.00            | 0.04                   | -0.09           | -0.19                     | 0.00            | -0.07                | 0.00            |
| Philippines  | -0.07                | 0.12            | 0.05                 | -0.61           | -0.03                | 0.10            | 0.00                       | 0.00            | -0.15                | -0.05           | -0.01                  | 0.09            | -0.27                     | 0.04            | 0.01                 | 0.00            |
| Portugal     | -0.09                | 0.12            | -0.06                | -0.43           | -0.02                | 0.06            | -0.02                      | -0.01           | 0.05                 | 0.02            | -0.07                  | 0.09            | -0.04                     | 0.04            | -0.03                | 0.00            |
| Singapore    | -0.01                | -0.05           | 0.22                 | 0.00            | -0.01                | 0.58            | -0.13                      | 0.53            | 0.08                 | -1.18           | 0.12                   | -0.37           | 0.05                      | 0.10            | -0.03                | 0.00            |
| Spain        | -0.16                | 0.01            | 0.06                 | -0.24           | -0.02                | 0.09            | 0.16                       | -0.01           | 0.03                 | 0.08            | -0.05                  | 0.02            | 0.00                      | 0.07            | -0.02                | -0.12           |
| South Africa | 0.00                 | 0.14            | 0.29                 | -0.24           | 0.05                 | 0.42            | -0.02                      | -0.01           | -0.04                | -0.01           | -0.11                  | -0.01           | -0.24                     | 0.07            | -0.01                | -0.02           |
| Switzerland  | -0.02                | 0.00            | 0.12                 | -0.06           | -0.13                | 0.30            | 0.00                       | -0.05           | 0.10                 | 0.08            | -0.16                  | 0.41            | 0.19                      | 0.07            | -0.02                | -0.01           |
| Sweden       | 0.02                 | 0.00            | 0.08                 | -0.06           | -0.08                | 0.19            | -0.02                      | 0.05            | 0.21                 | 0.02            | -0.18                  | 0.21            | 0.25                      | 0.02            | -0.01                | -0.05           |
| Taiwan       | -0.02                | 0.09            | -0.14                | 0.14            | 0.00                 | 0.00            | 0.00                       | 0.00            | 0.00                 | 0.00            | 0.00                   | 0.00            | 0.00                      | 0.00            | 0.00                 | 0.03            |
| U.K.         | -0.05                | 0.04            | -0.02                | 0.67            | -0.09                | 0.08            | -0.02                      | 0.08            | 0.09                 | 0.03            | -0.18                  | 0.37            | 0.09                      | 0.06            | 0.00                 | 0.05            |

## Appendix A [continued] – Change variables by country and IFRS periods

|              | Individualism in income |                 | Trust                |                 | US institutional holdings |                 | Domestic institutional holdings |                 | Foreign institutional holdings |                 |
|--------------|-------------------------|-----------------|----------------------|-----------------|---------------------------|-----------------|---------------------------------|-----------------|--------------------------------|-----------------|
|              | IFRS adoption period    | non-IFRS period | IFRS adoption period | non-IFRS period | IFRS adoption period      | non-IFRS period | IFRS adoption period            | non-IFRS period | IFRS adoption period           | non-IFRS period |
| Argentina    | 0.05                    | -0.31           | 0.01                 | 0.09            | 0.00                      | 0.00            | 0.00                            | 0.00            | 0.00                           | 0.00            |
| Australia    | -0.09                   | -0.06           | 0.03                 | 0.16            | 0.00                      | 0.06            | 0.03                            | 0.12            | 0.01                           | 0.05            |
| Austria      | -0.09                   | 0.00            | 0.02                 | 0.00            | 0.01                      | 0.05            | -0.05                           | 0.37            | 0.01                           | 0.04            |
| Belgium      | 0.02                    | 0.00            | 0.04                 | 0.00            | 0.02                      | 0.10            | 0.02                            | 0.27            | 0.01                           | 0.02            |
| Brazil       | -0.01                   | -0.12           | 0.02                 | -0.04           | 0.02                      | 0.06            | 0.07                            | 0.07            | 0.05                           | -0.04           |
| Canada       | 0.05                    | 0.00            | 0.03                 | 0.00            | -0.04                     | 0.07            | 0.00                            | 0.05            | 0.03                           | 0.01            |
| Chile        | -0.04                   | 0.00            | -0.07                | 0.00            | -0.04                     | -0.03           | -0.01                           | -0.01           | 0.00                           | 0.07            |
| Denmark      | 0.03                    | 0.00            | 0.06                 | 0.00            | 0.02                      | 0.02            | 0.05                            | 0.05            | 0.10                           | 0.02            |
| Finland      | -0.01                   | -0.04           | 0.04                 | 0.03            | -0.02                     | 0.09            | -0.03                           | 0.21            | 0.11                           | 0.12            |
| France       | 0.03                    | -0.03           | 0.06                 | -0.05           | 0.01                      | 0.05            | -0.02                           | 0.10            | 0.05                           | 0.04            |
| Germany      | -0.01                   | -1.06           | 0.05                 | -0.07           | 0.01                      | 0.08            | 0.01                            | 0.18            | 0.01                           | 0.08            |
| Greece       | 0.00                    | 0.00            | -0.02                | 0.00            | 0.12                      | 0.13            | 0.08                            | 0.21            | 0.00                           | 0.00            |
| Hong Kong    | 0.15                    | -0.60           | 0.04                 | -0.14           | 0.01                      | 0.07            | 0.03                            | 0.10            | 0.00                           | 0.03            |
| Ireland      | -0.14                   | 0.00            | 0.02                 | 0.00            | 0.33                      | -0.03           | 0.30                            | 0.20            | -0.01                          | 0.01            |
| Israel       | 0.00                    | 0.00            | 0.00                 | 0.00            | 0.07                      | -0.45           | 0.05                            | -0.40           | -0.01                          | 0.07            |
| Italy        | 0.02                    | -0.14           | 0.01                 | -0.07           | 0.01                      | 0.07            | 0.00                            | 0.19            | 0.00                           | 0.03            |
| Mexico       | 0.08                    | -0.13           | -0.04                | -0.05           | -0.07                     | -0.08           | -0.01                           | -0.05           | 0.00                           | 0.02            |
| Malaysia     | 0.03                    | -0.07           | 0.00                 | 0.00            | 0.02                      | 0.04            | 0.03                            | 0.05            | 0.01                           | 0.00            |
| Netherlands  | -0.07                   | -0.24           | 0.14                 | -0.31           | 0.17                      | 0.14            | 0.15                            | 0.32            | 0.05                           | 0.00            |
| New Zealand  | 0.00                    | 0.00            | 0.04                 | 0.00            | 0.04                      | -0.03           | 0.03                            | -0.02           | 0.03                           | 0.05            |
| Pakistan     | 0.00                    | 0.00            | -0.03                | 0.00            | 0.00                      | 0.00            | 0.00                            | 0.00            | 0.00                           | 0.00            |
| Philippines  | -0.04                   | 0.00            | -0.03                | 0.00            | -0.02                     | 0.12            | 0.03                            | 0.15            | 0.00                           | 0.00            |
| Portugal     | 0.09                    | 0.00            | 0.03                 | 0.00            | -0.01                     | 0.02            | 0.03                            | 0.09            | 0.02                           | 0.03            |
| Singapore    | -0.15                   | 0.00            | 0.12                 | 0.00            | 0.03                      | 0.00            | 0.03                            | 0.05            | 0.01                           | 0.02            |
| Spain        | -0.12                   | 0.31            | 0.02                 | -0.37           | 0.00                      | 0.04            | 0.00                            | 0.13            | 0.03                           | 0.04            |
| South Africa | 0.03                    | 0.04            | 0.05                 | 0.00            | -0.02                     | 0.15            | 0.00                            | 0.16            | 0.10                           | 0.07            |
| Switzerland  | 0.07                    | -0.32           | 0.03                 | 0.28            | 0.05                      | 0.09            | 0.05                            | 0.21            | 0.03                           | 0.06            |
| Sweden       | -0.13                   | -0.35           | -0.01                | 0.03            | -0.01                     | 0.00            | -0.01                           | 0.02            | 0.11                           | 0.06            |
| Taiwan       | 0.12                    | -0.31           | -0.09                | 0.09            | 0.01                      | 0.09            | 0.01                            | 0.06            | 0.03                           | -0.03           |
| U.K.         | 0.01                    | -0.35           | 0.07                 | 0.03            | 0.04                      | 0.07            | 0.05                            | 0.09            | 0.09                           | 0.08            |

## Appendix B – Variable definitions and data sources

### Panel B1 – Country variables

| Variable name                       | Short name  | Brief description                                                   | Source                                                          | References                                                                                                                                                                                                                                                                              |
|-------------------------------------|-------------|---------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Anti-director rights                | AntiDir     | Anti-director rights index                                          | Djankov et al. (2008),<br>La Porta et al. (1998)                | Chen et al. (2015), Nguyen and Truong (2013), Kim and Shi (2012), Hope et al. (2011), Leuz (2010), Francis and Wang (2008), Frost et al. (2006), Bushman et al. (2004), Dyck and Zingales (2004), Doidge et al. (2004), Haw et al. (2004), Hope (2003), Leuz et al. (2003), Hung (2001) |
| Assessment of tax evasion           | LTaxEv      | Score of low prevalence of tax evasion                              | Djankov et al. (2008),<br>La Porta et al. (1998)                | Dyck and Zingales (2004)                                                                                                                                                                                                                                                                |
| Audit spending                      | AuditSpend  | Fees of country's ten largest accountig firms as percentage of GDP  | Mueller, Gernon and Meek (1994)                                 | Hwahiope (2003), Ali and Hwang (2000)                                                                                                                                                                                                                                                   |
| Bank money in private sector to GDP | BankPriv    | Claims of deposit money banks on private sector to GDP              | Beck, Demirguç-Kunt and Levine (2001)                           | Beck et al. (2003), Bushman and Piotroski (2006), Bushman et al. (2004)                                                                                                                                                                                                                 |
| Big4 market share                   | Big4Share   | Market share of big 4 audit firms                                   | Francis and Wang (2008)                                         | Nanda and Wysocki (2015), Hope et al. (2008)                                                                                                                                                                                                                                            |
| Block premium                       | BlockPr     | Difference between price paid by the control block and market price | Djankov et al. (2008)                                           | Dyck and Zingales (2004)                                                                                                                                                                                                                                                                |
| Book tax independence               | BTaxInd     | Required book-tax conformity multiplied by minus one                | Li et al. (2018)                                                | Ali and Hwang (2000)                                                                                                                                                                                                                                                                    |
| Buddhist                            | Budhist     | Percentage of population that are buddhist                          | Stulz and Williamson (2003),<br>CIA Worldfact book (2003, 2010) | Pevzner et al. (2015)                                                                                                                                                                                                                                                                   |
| Catholic                            | Catholic    | Percentage of population that are catholic                          | Stulz and Williamson (2003),<br>CIA Worldfact book (2003, 2010) | Cantrell and Yust (2018), Pevzner et al. (2015), Siegel et al. (2011), Dyck and Zingales (2004), Beck et al. (2003)                                                                                                                                                                     |
| Class action lawsuit                | ClassAction | Indicator if class-action lawsuit is available                      | Leuz (2010)                                                     |                                                                                                                                                                                                                                                                                         |
| Control of corruption               | CCorr       | Score of control of corruption (average 1998-2013)                  | Kaufmann and Kraay. Worldwide Governance Indicators             | Pevzner et al. (2015), Dhaliwal et al. (2012), Armstrong et al (2010), Riahi-Belkaoui(2004b), Leuz et al. (2003), La Porta et al. (1998)                                                                                                                                                |
| Corruption                          | CCorrL      | Control of corruption                                               | La Porta et al. (1998)                                          | Mazzi et al. (2017), Nanda and Wysocki (2015), Dhaliwal et al. (2012), Kim and Shi (2012), Kanagaretnam et al. (2011), Kim et al. (2011), Gupta et al. (2008), Hope et al. (2008), Hope (2003), Leuz et al. (2003)                                                                      |
| Creditor rights                     | CreditR     | Legal protection of creditors and borrowers                         | The Global Competitiveness Report                               | Chen et al. (2015), Li et al. (2013), Kanagaretnam et al. (2011), Kim et al. (2011)                                                                                                                                                                                                     |
| Democracy                           | Democracy   | Democracy score (autocracy multiplied by minus one)                 | Boutchkova et al. (2012)                                        | Bushman et al. (2004)                                                                                                                                                                                                                                                                   |

## Appendix B [continued] – Variable definitions and data sources

| Variable name                           | Short name  | Brief description                                                                                                      | Source                                        | References                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------|-------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Domestic institutional holdings         | InstHoldDom | Holdings by domestic institutional investors as a proportion of firms' market value                                    | Covrig, DeFond and Hung (2007)                | Florou and Pope (2012), Callen et al. (2005)                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Economic freedom                        | EcoFreed    | Economic freedom index                                                                                                 | Chen, Chen and Jin (2015)                     | Riahi-Belkaoui (2004b)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Enforcement of accounting standards     | EnforAccS   | Score of accounting and market enforcement (average 2002, 2005, 2008)                                                  | Brown, Pricato and Tarca (2014)               | Christensen et al. (2013), Alford et al. (2003)                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Enforcement of audit standards          | EnforAudS   | Score of auditing enforcement (average 2002, 2005, 2008)                                                               | Brown, Pricato and Tarca (2014)               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| English proficiency                     | EnglProf    | Score for the speaking portion of the TOEFL exam                                                                       | Brochet, Naranjo and Yu (2016)                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Ethnic fractionalization                | EthFract    | One minus the Herfindhal index of ethnicity                                                                            | Alesina et al. (2003)                         | Beck et al. (2003), Siegel et al. (2011)                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Ex ante private control of self-dealing | PrivCtrEA   | Index of ex-ante private control of self-dealing                                                                       | Djankov et al. (2008)                         | Leuz (2010),                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Ex post private control of self-dealing | PrivCtrEP   | Index of ex-post private control of self-dealing                                                                       | Djankov et al. (2008)                         | Leuz (2010)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Foreign institutional holdings          | IntHoldFor  | Percentage of holdings by foreign institutional investors                                                              | Covrig, DeFond and Hung (2007)                | Yu and Wahid (2014), DeFond et al. (2011), Florou and Pope (2012), Callen et al. (2005)                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Foreign investment to GDP               | ForeignInv  | Net inflows of investment to acquire 10 percent or more of voting stock in a foreign enterprise (average 1998-2013)    | World Bank Development Indicators             | Bushman et al. (2004)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| GDPc                                    | Gdpc        | GDP per capita (average 1998-2013)                                                                                     | World Bank Development Indicators             | Chen et al. (2015), Core et al. (2014), Ramanna and Sletten (2014), Srinivasan et al. (2015), Christensen et al. (2013), Boutchkova et al. (2012), DeFond et al. (2011), Kanagaretnam et al. (2011), Kim et al. (2011), Lang et al. (2016), Siegel et al. (2011), Leuz (2010), Djankov et al. (2008), Hope et al. (2008), Bushman et al. (2004), Dyck and Zingales (2004), Doidge et al. (2004), Riahi-Belkaoui (2004b), Bhattacharya et al. (2003), Leuz et al. (2003), Land et al. (2002), La Porta et al. (1998) |
| Hierarchy vs independence               | HierIndep   | 100+%(should follow instructions)-%(must be convinced first)                                                           | World Values Survey                           | Pevzner et al. (2015)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Individualism                           | IndividH    | Hofstede individualism score                                                                                           | Hofstede (2010)                               | Pevzner et al. (2015), Nanda and Wysocki (2015), Kanagaretnam et al. (2014b), Nguyen and Truong (2013), Li et al. (2013), Kanagaretnam et al. (2011), Han et al. (2010), Douppnik (2008), Hope et al. (2008), Ding et al. (2005), Hope (2003)                                                                                                                                                                                                                                                                       |
| Individualism in income                 | IndividW    | Index equal to 100+%(completely agree we need large income difference)-%(completely agree with income should be equal) | World Values Survey                           | Pevzner et al. (2015)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Information and knowledge               | InfoKnow    | Score of information and knowledge based on 9 dimensions (average 2002-2012)                                           | Global Democracy Rankings                     | Bushman et al. (2004)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| IPOs to GDP                             | IPO         | Ratio of the equity issued by newly listed firms to its GDP                                                            | Djankov et al. (2008), La Porta et al. (2006) | Leuz et al. (2003)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

## Appendix B [continued] – Variable definitions and data sources

|                                         |            |                                                                                                                      |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Judicial efficiency                     | JudEff     | Score of judicial efficiency                                                                                         | La Porta et al. (1998)                                 | Nanda and Wysocki (2015), Kanagaretnam et al. (2014a), Dhaliwal et al. (2012), Kim and Shi (2012), Kanagaretnam et al. (2011), Kim et al. (2011), Gupta et al. (2008), Hope et al. (2008), Bushman and Piotroski (2006), Bushman et al. (2004), Dyck and Zingales (2004), Doidge et al. (2004), Haw et al. (2004), Hope (2003), Leuz et al. (2003)                                                                                                                                                    |
| Judicial independence                   | JudIndep   | Score of judicial independence                                                                                       | The Global Competitiveness Report                      | Bushman and Piotroski (2006)                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Language fractionalization              | LangFract  | One minus the Herfindhal index of language measure                                                                   | Alesina et al. (2003)                                  | Siegel et al. (2011)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Language proximity to English           | EnglProx   | The distance between English and the main language based on a 5-point classification system, multiplied by minus one | Brochet, Naranjo and Yu (2016)                         | DeFond et al. (2011), Frost et al. (2006)                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Latitude                                | Latitude   | Geographic latitude                                                                                                  | La Porta et al. (1999)                                 | Siegel et al. (2011), Beck et al. (2003)                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Law and order                           | LawO       | Score of law and order                                                                                               | La Porta et al. (1998)                                 | Chen et al. (2015), Brochet et al.(2016), Core et al. (2014), Nanda and Wysocki (2015), Kanagaretnam et al. (2014a), Nguyen and Truong (2013), Dhaliwal et al. (2012), Kim and Shi (2012), Hope et al. (2011), Kanagaretnam et al. (2011), Kim et al. (2011), Gupta et al. (2008), Hope et al. (2008), Hail and Leuz (2006), Frost et al. (2006), Brown and Higgins (2005), Riahi-Belkhaoui (2004a), Dyck and Zingales (2004), Haw et al. (2004), Hope (2003), Leuz et al. (2003), Beck et al. (2003) |
| Legal origin                            | LegalO     | Indicator of legal origin: Common, Civil/French,Civil/German,Civil/Scandinavia                                       | Stulz and Williamson (2003),<br>La Porta et al. (2006) | Pevzner et al. (2015), Chen et al. (2015), Siegel et al. (2011), Armstrong et al (2010), Leuz (2010), Francis and Wang (2008), Bushman and Piotroski (2006), Bushman et al. (2004), Doidge et al. (2004), Dyck and Zingales (2004), Haw et al. (2004), Lang et al. (2004), Beck et al. (2003), Bhattacharya et al. (2003), Lang et al. (2003a), Leuz et al. (2003), Beck et al. (2001), Hung (2001), Ball et al. (2000)                                                                               |
| Legislative competition                 | LegislComp | Index of the number of parties competing in legislative elections                                                    | Beck, Demirguç-Kunt and Levine (2003)                  | Beck et al. (2001)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Listed firms to population              | ListedF    | Listed firms per 1000 population                                                                                     | World bank Development Indicators                      | Frost et al.(2006), Leuz et al. (2003)                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Long-term orientation                   | LTorient   | Hofstede long-term orientation score                                                                                 | Hofstede (2010)                                        | Doupnik (2008)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Low political risk                      | LPolitR    | Index of political risk multiplied by minus one                                                                      | Boutchkova et al. (2012)                               | Bushman and Piotroski (2006)                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Low repudiation of contracts by govern. | LRepContr  | Score of repudiation of contracts by the government multiplied by minus one                                          | La Porta et al. (1998)                                 | Nguyen and Truong (2013), Kim and Shi (2012), Kanagaretnam et al. (2011), Kim et al. (2011)                                                                                                                                                                                                                                                                                                                                                                                                           |

## Appendix B [continued] – Variable definitions and data sources

|                                       |              |                                                                                              |                                                              |                                                                                                                                                                                                                                                                                      |
|---------------------------------------|--------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Market Cap. to GDP                    | MarkCap      | Market capitalization to GDP (average 1998-2013)                                             | World Bank Development Indicators                            | Brochet et al. (2016), DeFond et al. (2011), Djankov et al. (2008), Frost et al. (2006), La Porta et al. (2006), Bushman et al. (2004), Dyck and Zingales (2004), Leuz et al. (2003), La Porta (1997)                                                                                |
| Masculinity                           | Masculin     | Hofstede masculinity score                                                                   | Hofstede (2010)                                              | Pevzner et al. (2015), Kanagaretnam et al. (2011), Han et al. (2010), Douppnik (2008), Ding et al. (2005), Hope (2003)                                                                                                                                                               |
| Media                                 | Media        | Average rank of the media development (print and television)                                 | Bushman et al. (2004)                                        | Kanagaretnam et al. (2014a), Frost et al. (2006), Dyck and Zingales (2004), Haw et al. (2004)                                                                                                                                                                                        |
| Muslim                                | Muslim       | Percentage of population that are muslim                                                     | Stulz and Williamson (2003), CIA Worldfact book (2003, 2010) | Pevzner et al. (2015), Beck et al. (2003)                                                                                                                                                                                                                                            |
| Number of analysts                    | NrAnal       | Number of financial analysts follow firms                                                    | Bae, Tan and Welker (2008)                                   | Bae et al. (2016), Lang et al. (2016), Pevzner et al. (2015), Srinivasan et al. (2015), Choy and Zhang (2011), Landsman et al. (2012), Covrig et al. (2007), DeFond et al. (2007), Frost et al. (2006), Bushman et al. (2004), Lang et al. (2004), Hope (2003), Land and Lang (2002) |
| Number of veto-players                | Veto         | Number of veto-players in the political decision-making process                              | Beck et al. (2003)                                           | Li et al. (2018), Beck et al. (2001)                                                                                                                                                                                                                                                 |
| Other religion                        | OReligion    | Percentage of population from religions other than catholic, protestant, buddhist, or muslim | Stulz and Williamson (2003), CIA Worldfact book (2003, 2010) | Pevzner et al. (2015), Beck et al. (2003)                                                                                                                                                                                                                                            |
| Ownership concentration               | OwnConc      | Percentage of common shares owned by top three shareholders in the 10 largest firms          | Djankov et al. (2008), La Porta et al. (2006)                | Chen et al. (2015), Boutchkova et al. (2012), Hope et al. (2008), Burgstahler et al. (2006), Bushman and Piotroski (2006), Bushman et al. (2004), Dyck and Zingales (2004), Leuz et al. (2003)                                                                                       |
| Political score                       | PolitScore   | Index of political quality based on 8 dimensions (average 2002-2012)                         | Global Democracy Rankings                                    | Boutchkova et al. (2012)                                                                                                                                                                                                                                                             |
| Political stability                   | PolitStab    | Score of political stability (average 1998-2013)                                             | Worldwide Governance Indicators                              | Boutchkova et al. (2012)                                                                                                                                                                                                                                                             |
| Politically connected firms           | PolitConn    | Percentage of firms connected to politicians                                                 | Faccio (2006)                                                | Batta et al. (2014), Riahi-Belkhaoui (2004b)                                                                                                                                                                                                                                         |
| Power distance                        | PowerD       | Hofstede power distance score                                                                | Hofstede (2010)                                              | Pevzner et al. (2015), Nanda and Wysocki (2015), Kanagaretnam et al. (2011), Han et al. (2010), Douppnik (2008), Hope et al. (2008), Ding et al. (2005), Hope (2003)                                                                                                                 |
| Private control of self-dealing index | PrivCtrIndex | Index of ex-ante and ex-post private control of self-dealing                                 | Djankov et al. (2008)                                        | Pevzner et al. (2015), Li et al. (2013), Siegel et al. (2011), Leuz (2010), Bushman and Piotroski (2006)                                                                                                                                                                             |
| Property rights                       | ProprR       | Score of property rights                                                                     | The Global Competitiveness Report                            | Bushman et al. (2004), Beck et al. (2003), La Porta et al. (1999)                                                                                                                                                                                                                    |
| Protestant                            | Protestant   | Percentage of population that is protestant                                                  | Stulz and Williamson (2003), CIA Worldfact book (2003, 2010) | Cantrell and Yust (2018), Pevzner et al. (2015), Siegel et al. (2011)                                                                                                                                                                                                                |

## Appendix B [continued] – Variable definitions and data sources

|                                               |            |                                                                                                                                                                          |                                    |                                                                                                                                                                                                                                                  |
|-----------------------------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Public control of self-dealing                | PublCtr    | Index of public enforcement of anti self-dealing                                                                                                                         | Djankov et al. (2008)              | Leuz (2010)                                                                                                                                                                                                                                      |
| Public enforcement securities regulation      | PublicEnf  | Index of public enforcement (La Porta)                                                                                                                                   | La Porta et al. (2006)             | Dhaliwal et al. (2012), Leuz (2010), Francis and Wang (2008), Bushman and Piotroski (2006)                                                                                                                                                       |
| Regulatory quality                            | RegQ       | Score of regulatory quality                                                                                                                                              | Worldwide Governance Indicators    | Christensen et al. (2013), Leuz et al. (2013)                                                                                                                                                                                                    |
| Religion fractionalization                    | ReligFract | One minus the Herfindhal index of religion measure                                                                                                                       | Alesina et al. (2003)              | Siegel et al. (2011)                                                                                                                                                                                                                             |
| Religiousness                                 | Religness  | Principal component of religious attendance and importance of religion in life                                                                                           | World Values Survey                | Cantrell and Yust (2018), Kanagaretnam et al. (2015), McGuire et al. (2013)                                                                                                                                                                      |
| Rule of law                                   | Law        | Score of the quality of the rule of law (average 1998-2013)                                                                                                              | Worldwide Governance Indicators    | Nanda and Wysocki (2015), Kanagaretnam et al. (2014a), Srinivasan et al. (2014), Ramanna and Sletten (2014), Landsman, Maydew and Thornock (2012), Armstrong et al. (2010), Byard et al. (2010), Daske et al. (2008)                             |
| Secrecy                                       | Secrecy    | Uncertainty avoidance plus power distance minus individualism                                                                                                            | Hope et al. (2008)                 | Nanda and Wysocki (2015)                                                                                                                                                                                                                         |
| Securities regulation disclosure requirements | DisclReg   | Index of disclosure requirements by security laws                                                                                                                        | La Porta et al. (2006)             | Pevzner et al. (2015), Core et al. (2014), Nanda and Wysocki (2015), Kanagaretnam et al. (2011), Leuz (2010), Francis and Wang (2008), Hail and Leuz (2006), Hope et al. (2006), Haw et al. (2004), Leuz et al. (2003)                           |
| Securities regulation liability standards     | LibStand   | Index of the procedural difficulty in recovering losses                                                                                                                  | La Porta et al. (2006)             | Srinivasan et al. (2015), Leuz (2010), Francis and Wang (2008)                                                                                                                                                                                   |
| Strength of securities regulation             | SSecRegul  | The strength of securities regulation mandating and enforcing disclosures. Mean of disclosure requirements index, liability standard index, and public enforcement index | Hail and Leuz (2006)               | Bhattacharya et al. (2003)                                                                                                                                                                                                                       |
| Tax compliance                                | TaxComp    | Tax avoidance spread multiplied by minus one                                                                                                                             | Li et al. (2018)                   | Kanagaretnam et al. (2014a), Dyck and Zingales (2004), Haw et al. (2004)                                                                                                                                                                         |
| Trust                                         | Trust      | Index equal to 100+%(most people can be trusted)-%(can't be too careful)                                                                                                 | World Values Survey                | Bae et al. (2016), Pevzner et al. (2015), Nanda and Wysocki (2015), Kanagaretnam et al. (2018), La Porta et al. (2006)                                                                                                                           |
| Uncertainty avoidance                         | UncAvoid   | Hofstede uncertainty avoidance score                                                                                                                                     | Hofstede (2010)                    | Pevzner et al. (2015), Brochet et al. (2016), Nanda and Wysocki (2015), Kanagaretnam et al. (2014b), Nguyen and Truong (2013), Li et al. (2013), Kanagaretnam et al. (2011), Han et al. (2010), Douppnik (2008), Ding et al. (2005), Hope (2003) |
| US cross-listing                              | USlisting  | Percentage of American Depositary Receipt (ADR) trading on a U.S. exchange                                                                                               | Bradshaw, Bushee and Miller (2004) | Daske et al. (2013), Hope et al. (2013), DeFond et al. (2011), Hail and Leuz (2009), Daske et al. (2008), DeFond et al. (2007), Lang et al. (2004), Lang et al. (2003a), Lang et al. (2003b)                                                     |
| US institutional holdings                     | UShold     | Total market value of shares owned by U.S. institutions as a proportion as firms' market value                                                                           | Bradshaw, Bushee and Miller (2004) | Srinivasan et al. (2015), Florou and Pope (2012), Callen et al. (2005)                                                                                                                                                                           |

## Appendix B [continued] – Variable definitions and data sources

### *Panel B2 – Reporting quality variables*

| Variable name                             | Brief description                                                                                                                                                                                                                               | Source                          | References                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Abnormal return                           | Abnormal returns over the three-day announcement window around annual earnings announcements                                                                                                                                                    | Nguyen and Truong (2013)        | Core et al. (2015), Pevzner et al. (2015), Wang (2014), Landsman et al. (2012), Choy and Zhang (2011), Armstrong et al. (2010), DeFond et al. (2007), Lang et al. (2004)                                                                                                                                                                                                      |
| Abnormal volume                           | Abnormal trading volume over the three-day announcement window around annual earnings announcements                                                                                                                                             | Nguyen and Truong (2013)        | Pevzner et al. (2015), Wang (2014), Landsman et al. (2012)                                                                                                                                                                                                                                                                                                                    |
| Return synchronicity                      | Weighted average $R^2$ of regressions of firm stock returns around earnings announcement on the country's market return, multiplied by minus one                                                                                                | Nguyen and Truong (2013)        | Brochet et al. (2016), DeFond et al. (2007)                                                                                                                                                                                                                                                                                                                                   |
| Disclosure quality                        | Center for Financial Analysis and Research index of disclosure practices in the country. The index based on the disclosure of 90 items in firms' 1995 annual reports                                                                            | Bushman et al. (2004)           | Pevzner et al. (2015), Nanda and Wysocki (2015), Nguyen and Truong (2013), Dhaliwal et al. (2012), Landsman et al. (2012), Kim and Shi (2012), Choy and Zhang (2011), Hope et al. (2008), Bushman et al. (2004), Francis et al. (2005), Bhattacharya et al. (2003), Hope (2003), DeFond et al. (2007), Dyck and Zingales (2004), Doidge et al. (2004), La Porta et al. (1998) |
| Reporting transparency                    | Aggregate score of the following four earnings management metrics multiplied by minus one: 1) earnings smoothing 2) the correlation between accounting accruals and operating cash flows, 3) magnitude of accruals, and 4) small loss avoidance | Leuz et al. (2003), Leuz (2010) | Pevzner et al. (2015), Srinivasan et al. (2015), Nanda and Wysocki (2015), Choy and Zhang (2011), DeFond et al. (2011), Daske et al. (2008), Dounnik (2008), Francis and Wang (2008), DeFond et al. (2007), Burgstahler et al. (2006), Lang et al. (2006), Riahi-Belkaoui (2004a), Riahi-Belkaoui (2004b), Bhattacharya et al. (2003), Land and Lang (2002), Hung (2001)      |
| Asymmetric timeliness                     | Average country-level association between firms' earnings and negative stock returns                                                                                                                                                            | Bushman and Piotroski (2006)    | Christensen et al. (2015), Nanda and Wysocki (2015), Barth et al. (2012), Francis and Wang (2008), Barth et al. (2008), Lang et al. (2006), Ball et al. (2003), Ball et al. (2000), Basu (1977)                                                                                                                                                                               |
| Financial reporting quality (time-series) | Rank of country mean absolute accruals scaled by total assets                                                                                                                                                                                   | Self-constructed                | Leuz et al. (2003), Leuz (2010)                                                                                                                                                                                                                                                                                                                                               |

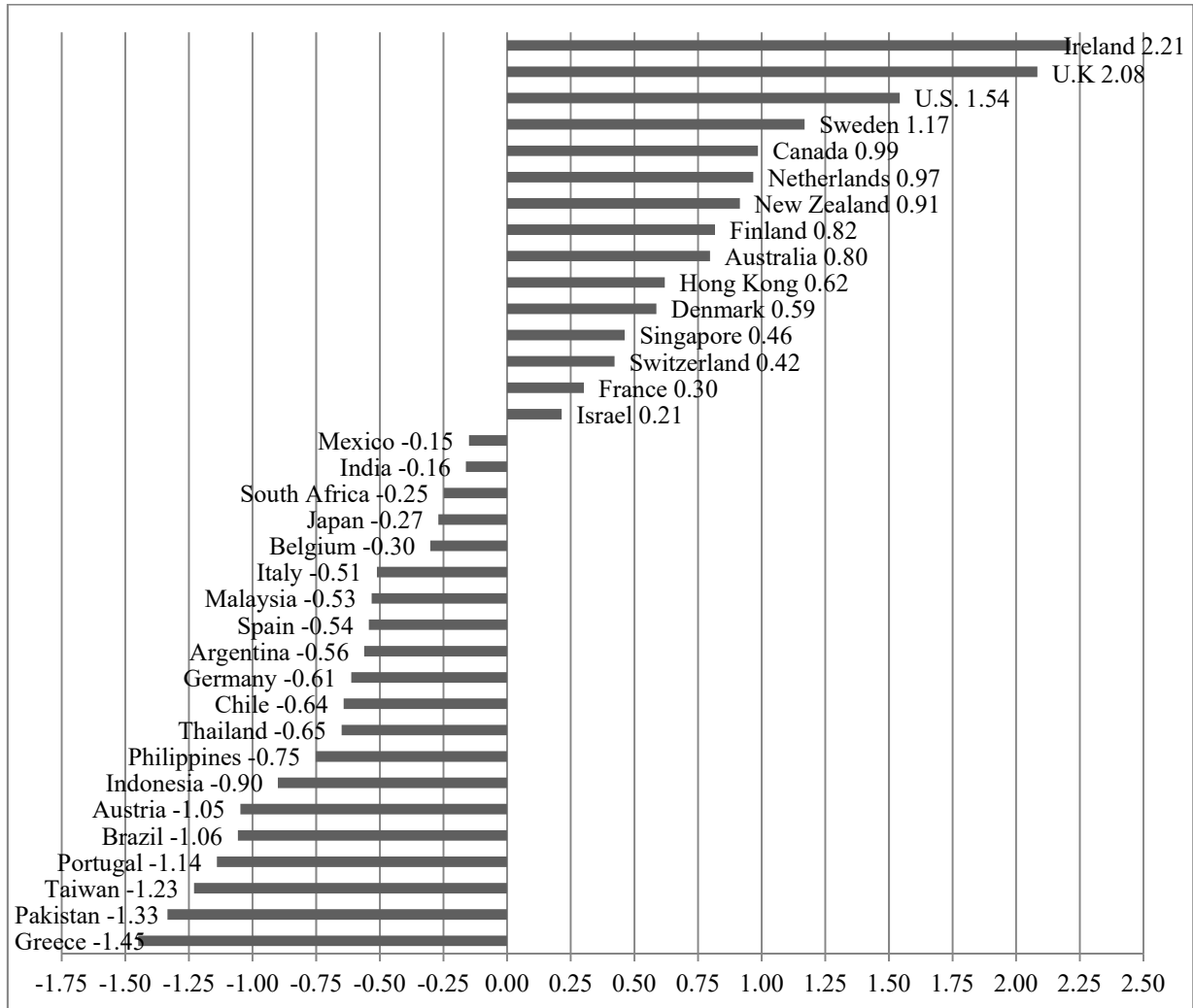
### Appendix C - Rotated factor loadings of country-level factors reported in Table 4

| Country-level variables              | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
|--------------------------------------|----------|----------|----------|----------|
| Control of corruption                | 0.938    |          |          |          |
| Rule of law                          | 0.938    |          |          |          |
| GDPc                                 | 0.928    |          |          |          |
| Low political risk                   | 0.914    |          |          |          |
| Law and order                        | 0.907    |          |          |          |
| Regulatory quality                   | 0.901    |          |          |          |
| Low repudiation of contracts by gov. | 0.891    |          |          |          |
| Corruption                           | 0.888    |          |          |          |
| Political score                      | 0.887    |          |          |          |
| Political stability                  | 0.883    |          |          |          |
| Low risk of expropriation by gov.    | 0.875    |          |          |          |
| Property rights                      | 0.843    |          |          |          |
| Judicial independence                | 0.802    | 0.428    |          |          |
| Judicial efficiency                  | 0.794    |          |          |          |
| Latitude                             | 0.749    |          |          |          |
| Media                                | 0.735    |          |          |          |
| Information and knowledge            | 0.722    |          |          |          |
| Enforcement of audit standards       | 0.702    |          |          |          |
| Individualism                        | 0.696    |          | 0.540    |          |
| Trust                                | 0.635    |          |          |          |
| Democracy                            | 0.585    |          |          |          |
| Protestant                           | 0.571    |          |          |          |
| Assessment of tax evasion            | 0.554    | 0.625    |          |          |
| Foreign institutional holdings       | 0.530    |          |          |          |
| Bank money in private sector to GDP  | 0.530    |          |          | 0.452    |
| Tax compliance                       | 0.507    |          | -0.484   |          |
| Creditor rights                      | 0.457    | 0.768    |          |          |
| Politically connected firms          | -0.508   |          |          |          |
| Individualism in income              | -0.533   |          |          |          |
| Language fractionalization           | -0.540   |          |          |          |
| Muslim                               | -0.569   |          |          |          |
| Ethnic fractionalization             | -0.580   |          |          |          |
| Secrecy                              | -0.694   |          |          |          |
| Power distance                       | -0.707   |          |          |          |
| Religiousness                        | -0.847   |          |          |          |

**Appendix C [continued] - Rotated factor loadings of country-level factors reported in Table 4**

| <b>Country-level variables</b>            | <b>Factor 1</b> | <b>Factor 2</b> | <b>Factor 3</b> | <b>Factor 4</b> |
|-------------------------------------------|-----------------|-----------------|-----------------|-----------------|
| Private control of self-dealing index     |                 | 0.855           |                 |                 |
| Legal origin                              |                 | 0.836           |                 |                 |
| Securities regulation liability standards |                 | 0.830           |                 |                 |
| Securities regulation disclosure requir.  |                 | 0.816           |                 |                 |
| Strength of securities regulation         |                 | 0.761           |                 |                 |
| Ex ante private control of self-dealing   |                 | 0.756           |                 |                 |
| Ex post private control of self-dealing   |                 | 0.745           |                 |                 |
| Listed firms to population                |                 | 0.647           |                 |                 |
| Anti-director rights                      |                 | 0.643           |                 |                 |
| Market cap. to GDP                        |                 | 0.636           |                 |                 |
| English proficiency                       |                 | 0.574           |                 | -0.433          |
| Public enforcement securities regulation  |                 | 0.556           |                 |                 |
| Language proximity to English             |                 | 0.527           |                 |                 |
| Religion fractionalization                |                 | 0.479           | 0.434           |                 |
| Other religion                            |                 | 0.454           |                 |                 |
| Foreign investment to GDP                 |                 | 0.430           |                 |                 |
| IPOs to GDP                               |                 | 0.420           |                 |                 |
| Block premium                             |                 | -0.540          |                 |                 |
| Catholic                                  |                 | -0.592          |                 |                 |
| Uncertainty avoidance                     |                 | -0.756          |                 |                 |
| Book tax independence                     |                 |                 | 0.658           |                 |
| Legislative competition                   |                 |                 | 0.627           |                 |
| Class action lawsuit                      |                 |                 | 0.618           |                 |
| Number of analysts                        |                 |                 | 0.541           |                 |
| Domestic institutional holdings           |                 |                 | 0.514           |                 |
| Number of veto-players                    |                 |                 | 0.479           |                 |
| Enforcement of accounting standards       |                 |                 | 0.425           |                 |
| Hierarchy vs independence                 |                 |                 | -0.489          |                 |
| Long-term orientation                     |                 |                 |                 | 0.737           |
| Buddhist                                  |                 |                 |                 | 0.440           |
| Audit spending                            |                 |                 |                 | -0.536          |
| US institutional holdings                 |                 |                 |                 | -0.591          |
| US cross-listing                          |                 |                 |                 | -0.641          |
| Ownership concentration                   |                 |                 |                 |                 |
| Public control of self-dealing            |                 |                 |                 |                 |
| Masculinity                               |                 |                 |                 |                 |
| Big4 market share                         |                 |                 |                 |                 |
| Cronbach's alpha measure of reliability   | 0.970           | 0.931           | 0.727           | 0.701           |

## Appendix D - Country scores of financial reporting quality factor



## Appendix E - Explanatory power of country-level factors for other country characteristics and other economic outcome variables

### Panel E1: Country-level factors explain other individual country-level variables

|                               | Reporting<br>quality<br>(1) | Reporting<br>quality<br>(2) |
|-------------------------------|-----------------------------|-----------------------------|
| <i>Economic freedom index</i> | 0.662***<br>(5.607)         | -0.176<br>(-0.997)          |
| Country factor 1              |                             | 0.785***<br>(4.078)         |
| Country factor 2              |                             | 0.652***<br>(4.878)         |
| Country factor 3              |                             | 0.303***<br>(3.846)         |
| Country factor 4              |                             | 0.194**<br>(2.212)          |
| Adjusted R <sup>2</sup>       | 0.416                       | 0.792                       |

### Panel E2: Country-level factors explain other reporting and economic outcomes

|                          | IFRS<br>difference<br>(1) | Unexpected<br>earnings<br>(2) | Capital<br>market<br>development<br>(3) | Capital<br>market<br>development<br>(4) |
|--------------------------|---------------------------|-------------------------------|-----------------------------------------|-----------------------------------------|
| Reporting quality factor |                           |                               | 0.381**<br>(2.655)                      | -0.178<br>(-0.735)                      |
| Country factor 1         | -0.168<br>(-1.306)        | -0.084<br>(-0.891)            |                                         | 0.270**<br>(2.138)                      |
| Country factor 2         | -0.693***<br>(-5.572)     | -0.546***<br>(-3.830)         |                                         | 0.564***<br>(3.238)                     |
| Country factor 3         | -0.015<br>(-0.162)        | -0.176**<br>(-2.251)          |                                         | -0.101<br>(-0.773)                      |
| Country factor 4         | -0.197<br>(-1.389)        | -0.134<br>(-0.909)            |                                         | -0.092<br>(-0.846)                      |
| Adjusted R <sup>2</sup>  | 0.486                     | 0.246                         | 0.107                                   | 0.331                                   |
| Observations             | 35                        | 29                            | 35                                      | 35                                      |

This table reports estimation results of regressions of economic outcomes on country-level factors. Panel A reports results of regressions of financial reporting quality on 4 country-level factors and the economic freedom index variable. Panel B reports results of regressions for the following outcome variables: IFRS difference (score measuring differences between domestic standards and IFRS in 21 key accounting items; Bae, Tan and Welker 2008), unexpected earnings (average absolute analyst forecast errors for forecasts of the current year, one and two-years ahead; Dhaliwal, Radhakrishnan, Tsang, and Yang 2012), and capital market development as a proportion of GDP. For the capital market development regressions, the country factors exclude variables that are mechanically related with the outcome variable. Heteroskedasticity adjusted t-statistics are presented in parentheses. The symbols \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05 and 0.1 level, respectively, based on two-tailed tests.

**Appendix F - Changes in regulatory, political, and economic conditions in the European Union  
before, during, and after IFRS adoption**

| Year | Regulatory changes                                          |                                                                |                                                                  | Economic events                                                                    | Political events                                            |
|------|-------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------|
| 2002 |                                                             |                                                                |                                                                  | Introduction of Euro currency                                                      |                                                             |
| 2003 | Market Abuse Directive (MAD) (1)                            | Regulation (EC) No 1606/2002 on adoption of IFRS in 2005       | Directive common taxation of interests and royalties (2)         |                                                                                    | Treaty of Nice                                              |
| 2004 | Transparency Directive (3)                                  | Free Movement Directive (4)                                    |                                                                  |                                                                                    | Biggest EU enlargement (10 new countries)                   |
| 2005 | Third Anti-Money Laundering Directive (AMLD) (5)            | Adoption of IFRS (6)                                           | Cross-border Merger Directive (7)                                |                                                                                    | France and The Netherlands reject the European constitution |
| 2006 | Directive on statutory audits (8)                           |                                                                |                                                                  |                                                                                    |                                                             |
| 2007 | Shareholders' rights Directive (9)                          | Implementation of Capital Requirements Directives (CRD I) (10) | Markets in Financial Instruments Directive (MiFID I) (11)        | Financial crisis                                                                   |                                                             |
| 2008 |                                                             |                                                                |                                                                  | Financial crisis                                                                   |                                                             |
| 2009 |                                                             | CRD II (10)                                                    | Directive on common taxation for M&A and transfer of assets (12) | European debt crisis                                                               | Treaty of Lisbon (reforms to EU constitution)               |
| 2010 |                                                             | CRD III (10)                                                   |                                                                  | Bailout of Greece and Ireland                                                      |                                                             |
| 2011 | Alternative Investment Fund Managers Directive (AIFMD) (13) | Directive common taxation for parent companies (14)            |                                                                  | Bailout of Portugal                                                                |                                                             |
| 2012 |                                                             |                                                                |                                                                  | Bailout of Cyprus<br><br>Important trade agreement with Central American countries |                                                             |
| 2013 | Transparency Directive Amending Directive (TDAD) (3)        | Accounting directive for certain undertakings (15)             | CRD IV (10)                                                      |                                                                                    |                                                             |

## **Appendix F [continued] - Changes in regulatory, political, and economic conditions in the European Union before, during, and after IFRS adoption**

### Notes:

- (1) Directive 2003/6/EC – measures to improve capital markets integrity and reduce manipulation. Amended by Regulation No 596/2014 (MAD II).
- (2) Directive 2003/49/EC.
- (3) Directive 2004/109/EC – improvements in reporting and disclosure with particular focus on transparency in capital markets and strength of investors' rights. The aims of these amendments are to establish minimum requirements regarding the financial information distribution all over the European Union. Amended by the Transparency Directive Amending Directive (Directive 2013/50/EU).
- (4) Directive 2004/38/EC - right to move, work and reside freely in any EU country.
- (5) Directive 2005/60/EC - prevention of the use of the financial system for the purpose of money laundering and terrorist financing.
- (6) Regulation (EC) No 1606/2002 – first year of application of IFRS to the consolidated financial statements of EU companies whose securities are traded on a regulated EU market.
- (7) Directive 2005/19/EC – common taxation and regulations on cross-border mergers. Amended by Directive 2009/133/EC.
- (8) Directive 2006/43/EC – harmonization of statutory audits of annual and consolidated accounts. Requires the use of International Auditing Standards.
- (9) Directive 2007/36/EC – rules on information and participation to help shareholders exercise certain rights.
- (10) Implementation of the Capital Requirements Directive (CRD) - Banking Directive (2000/12/EC), for the financial services industry. Application of Basel II and Basel III requirements to ensure financial soundness of financial institutions. Amended in 2009 (CRD II, Directive 2009/111/EC), 2010 (CRD III, Directive 2010/76/EU), and 2013 (CRD IV, Regulation (EU) No 575/2013).
- (11) Directive 2004/39/EC - regulation for firms that provide services linked to financial instruments. Amended in 2014 (MiFiD II).
- (12) Directive 2009/133/EC.
- (13) Directive 2011/61/EU - Alternative Investment Fund Managers need to obtain authorisation and make various disclosures as a condition of operation.
- (14) Directive 2011/96/EU.
- (15) Directive 2013/34/EU – regulations regarding the annual financial statements, consolidated financial statements and related reports of certain types of undertakings (e.g., small entities, non-listed entities). Amends Directive 2006/43 on statutory audits.

## Appendix G - Correlation between country-level characteristics

| Variable name         | Short name | Absolute correlation $\geq 0.7$                                                                                                                             | $0.5 \leq$ Absolute correlation $< 0.7$                                                                                      | $0.3 \leq$ Absolute correlation $< 0.5$                                                                                                                                                                                                                       |
|-----------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GDPc                  | Gdpc       | Law, LRepContr, LawO, LExprR, CCorr, LPolitR, RegQ, CCorrL, Media, PolitStab, JudEff, ProprR, EnforAudS, Religness, InfoKnow, PolitScore, JudIndep, Secrecy | IndividH, Latitude, PowerD, Trust, LTaxEv, BankPriv, EnforAccS                                                               | IntHoldFor, CreditR, EthFract, Protestant, NrAnal, IPO, Democracy, OwnConc, Muslim, TaxComp, LangFract, PolitConn, IndividW, Big4Share, ListedF, LTorient, EnglProx, BlockPr                                                                                  |
| Rule of law           | Law        | CCorr, RegQ, ProprR, LawO, LPolitR, LRepContr, LExprR, Gdpc, JudIndep, CCorrL, PolitStab, JudEff, PolitScore, Religness, LTaxEv, EnforAudS                  | Secrecy, Media, InfoKnow, IndividH, Latitude, PowerD, CreditR, Trust, BankPriv, EthFract, IntHoldFor                         | Muslim, Protestant, IndividW, Democracy, TaxComp, EnforAccS, PolitConn, ListedF, IPO, OwnConc, LangFract, NrAnal, PrivCtrEP, BlockPr, EnglProx, Big4Share, MarkCap, ForeignInv, ReligFract                                                                    |
| Regulatory quality    | RegQ       | CCorr, Law, ProprR, LPolitR, LRepContr, LawO, PolitStab, Gdpc, CCorrL, LExprR, JudIndep, JudEff, PolitScore, LTaxEv                                         | Religness, EnforAudS, Media, Secrecy, InfoKnow, CreditR, BankPriv, PowerD, IndividH, Muslim, Latitude, ListedF, Trust        | IntHoldFor, EthFract, EnforAccS, IPO, Protestant, ForeignInv, TaxComp, IndividW, MarkCap, LangFract, Democracy, Big4Share, PolitConn, PrivCtrEP, NrAnal, EnglProx, ReligFract, OwnConc                                                                        |
| Control of corruption | CCorr      | Law, RegQ, ProprR, LPolitR, CCorrL, LawO, JudIndep, PolitStab, Gdpc, LRepContr, LExprR, JudEff, PolitScore, Religness, LTaxEv, Secrecy                      | EnforAudS, Media, InfoKnow, PowerD, CreditR, IndividH, Latitude, Trust, Protestant, BankPriv, IntHoldFor                     | Muslim, EthFract, ListedF, IndividW, PolitConn, TaxComp, EnforAccS, Big4Share, LangFract, Democracy, OwnConc, NrAnal, MarkCap, ForeignInv, IPO, EnglProx, PrivCtrEP, ReligFract, BlockPr, UncAvoid, EnglProf                                                  |
| Law and order         | LawO       | LPolitR, PolitStab, LExprR, LRepContr, Law, CCorr, Gdpc, RegQ, CCorrL, ProprR, PolitScore, Religness, JudEff, JudIndep                                      | Media, EnforAudS, IndividH, InfoKnow, Latitude, Secrecy, Trust, LTaxEv, BankPriv, PowerD, Muslim                             | LangFract, NrAnal, EnforAccS, Democracy, Protestant, EthFract, IntHoldFor, OwnConc, IPO, CreditR, TaxComp, Big4Share, IndividW, PolitConn, UShold, ReligFract                                                                                                 |
| Judicial efficiency   | JudEff     | CCorr, Law, JudIndep, CCorrL, ProprR, Gdpc, RegQ, CreditR, LExprR, LawO, Religness, LRepContr                                                               | Secrecy, LPolitR, PolitStab, EnforAudS, LTaxEv, IndividH, PolitScore, InfoKnow, Media, PowerD, ListedF                       | BankPriv, Latitude, Trust, Protestant, IndividW, EnglProx, PolitConn, PrivCtrEP, EnforAccS, Big4Share, EthFract, OwnConc, EnglProf, ReligFract, MarkCap, TaxComp, LegalO, IPO, UncAvoid, Muslim, ForeignInv, Democracy, LangFract, OReligion                  |
| Corruption            | CCorrL     | CCorr, Law, ProprR, LPolitR, RegQ, LRepContr, JudEff, LawO, JudIndep, Gdpc, PolitStab, LExprR, PolitScore, EnforAudS, Religness                             | IndividH, Secrecy, Media, Latitude, PowerD, CreditR, InfoKnow, LTaxEv, Protestant, BankPriv, Muslim, Democracy               | PolitConn, Trust, IndividW, EnforAccS, NrAnal, ListedF, ReligFract, Big4Share, LangFract, MarkCap, IntHoldFor, TaxComp, EthFract, IPO, OwnConc, BlockPr, EnglProx                                                                                             |
| Judicial independence | JudIndep   | ProprR, CCorr, Law, RegQ, JudEff, CCorrL, LRepContr, CreditR, LExprR, Secrecy, Gdpc, LTaxEv, LawO                                                           | LPolitR, PolitStab, PolitScore, Religness, EnforAudS, Trust, PowerD, BankPriv, IndividH, Protestant, InfoKnow, Media, LegalO | Latitude, EnglProx, IntHoldFor, PrivCtrEP, ListedF, EnforAccS, UncAvoid, OwnConc, EnglProf, IndividW, MarkCap, ReligFract, Catholic, Democracy, TaxComp, BlockPr, PolitConn, PrivCtrIndex, EthFract, ForeignInv, Muslim, Big4Share                            |
| Property rights       | ProprR     | JudIndep, Law, CCorr, RegQ, LRepContr, CCorrL, LExprR, JudEff, PolitStab, LPolitR, LawO, Gdpc, LTaxEv                                                       | Religness, CreditR, PolitScore, EnforAudS, BankPriv, Secrecy, Media, Trust, IndividH, InfoKnow                               | Protestant, PowerD, IntHoldFor, MarkCap, Latitude, ListedF, IndividW, ReligFract, IPO, PrivCtrEP, EnglProx, OwnConc, Muslim, PolitConn, EnforAccS, ForeignInv, TaxComp, EthFract, UncAvoid, BlockPr, Democracy, LegalO, LTorient, Big4Share, UShold, EnglProf |

**Appendix G [continued] - Correlation between country-level characteristics**

|                                      |            |                                                                                                                                 |                                                                                                                                                                            |                                                                                                                                                                                                                                                                     |
|--------------------------------------|------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bank money in private sector to GDP  | BankPriv   |                                                                                                                                 | LRepContr, MarkCap, ProprR, LTaxEv, JudIndep, RegQ, Law, CCorr, LExprR, Gdpc, CreditR, Religness, LawO, CCorrL, LTorient                                                   | JudEff, EnforAudS, LPolitR, PolitStab, Media, ReligFract, ListedF, InfoKnow, IndividW, EnforAccS, IPO, TaxComp, USlisting, BlockPr, IntHoldFor, Trust, LibStand, OwnConc, PolitScore                                                                                |
| Low repudiation of contracts by gov. | LRepContr  | LExprR, LawO, Law, Gdpc, ProprR, RegQ, LPolitR, CCorr, PolitStab, CCorrL, JudIndep, EnforAudS, Religness, PolitScore, JudEff    | Media, BankPriv, InfoKnow, Secrecy, IndividH, LTaxEv, Trust, Latitude, PowerD, EnforAccS, CreditR                                                                          | IntHoldFor, Muslim, Democracy, LTorient, TaxComp, NrAnal, OwnConc, IPO, EthFract, Protestant, LangFract, IndividW, PrivCtrEP, Big4Share, ReligFract, UShold, BlockPr, ListedF                                                                                       |
| Low risk of expropriation by gov.    | LExprR     | LRepContr, LawO, Law, Gdpc, CCorr, RegQ, LPolitR, ProprR, CCorrL, PolitStab, JudIndep, EnforAudS, PolitScore, JudEff, Religness | Media, IndividH, Secrecy, InfoKnow, Latitude, LTaxEv, Trust, BankPriv, PowerD, IntHoldFor, NrAnal, EnforAccS                                                               | CreditR, Democracy, Muslim, OwnConc, LangFract, Big4Share, TaxComp, Protestant, LTorient, EthFract, IPO, IndividW, PrivCtrEP, ReligFract                                                                                                                            |
| Assessment of tax evasion            | LTaxEv     | RegQ, ProprR, CCorr, CreditR, JudIndep, Law                                                                                     | JudEff, PrivCtrEP, BankPriv, LRepContr, CCorrL, LExprR, ListedF, Gdpc, LawO, ReligFract, PolitStab, LegalO, MarkCap, LPolitR, Secrecy                                      | PrivCtrIndex, EnforAudS, LibStand, Big4Share, OwnConc, UncAvoid, BlockPr, Religness, InfoKnow, Catholic, Media, PowerD, Trust, IntHoldFor, IPO, DisclReg, EnglProx, EnforAccS, ForeignInv, AntiDir, EnglProf, Protestant, PrivCtrEA, TaxComp, SSecRegul, PolitScore |
| Low political risk                   | LPolitR    | PolitStab, LawO, Law, CCorr, RegQ, LRepContr, Gdpc, CCorrL, LExprR, ProprR, PolitScore, Religness                               | JudEff, JudIndep, Media, Muslim, Latitude, EnforAudS, IndividH, InfoKnow, Secrecy, LangFract, EthFract, Democracy, LTaxEv                                                  | PowerD, BankPriv, Protestant, Trust, TaxComp, IntHoldFor, IndividW, IPO, PolitConn, NrAnal, CreditR, EnforAccS, Big4Share, OwnConc                                                                                                                                  |
| Political stability                  | PolitStab  | LPolitR, LawO, CCorr, Law, RegQ, LRepContr, CCorrL, ProprR, Gdpc, LExprR, PolitScore                                            | Religness, JudEff, JudIndep, Media, Muslim, LangFract, Latitude, EnforAudS, LTaxEv, EthFract, InfoKnow                                                                     | IndividH, Secrecy, BankPriv, TaxComp, Trust, Democracy, Protestant, PowerD, IndividW, IPO, Big4Share, IntHoldFor, PolitConn, CreditR, ForeignInv, NrAnal, UShold, MarkCap                                                                                           |
| Foreign institutional holdings       | IntHoldFor |                                                                                                                                 | LExprR, Latitude, CCorr, Law                                                                                                                                               | RegQ, PolitScore, Gdpc, LRepContr, ProprR, InfoKnow, JudIndep, LPolitR, LawO, Trust, LTaxEv, PolitStab, CCorrL, Secrecy, Religness, BankPriv, NrAnal, PowerD, Media, EnforAudS, TaxComp, Protestant, IndividH, EthFract                                             |
| Information and knowledge            | InfoKnow   | Gdpc                                                                                                                            | Religness, CCorr, Law, PowerD, LawO, LRepContr, RegQ, LExprR, CCorrL, JudEff, LPolitR, Latitude, EnforAudS, PolitScore, Media, JudIndep, PolitStab, Secrecy, Trust, ProprR | EthFract, LangFract, IntHoldFor, Protestant, IndividH, LTaxEv, BankPriv, TaxComp, PolitConn, EnforAccS, OwnConc                                                                                                                                                     |
| Media                                | Media      | Gdpc                                                                                                                            | LRepContr, LawO, LExprR, LPolitR, RegQ, Law, CCorr, CCorrL, PolitStab, EnforAudS, Religness, ProprR, PolitScore, JudEff, InfoKnow, Latitude, JudIndep                      | IPO, NrAnal, IndividH, Secrecy, BankPriv, Trust, PowerD, EnforAccS, EthFract, LTaxEv, LangFract, Muslim, TaxComp, ListedF, Protestant, Democracy, IntHoldFor, OwnConc, MarkCap, LTorient                                                                            |

### Appendix G [continued] - Correlation between country-level characteristics

|                                         |              |                                                                                |                                                                                                                                                                        |                                                                                                                                                                                                                                    |
|-----------------------------------------|--------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Protestant                              | Protestant   |                                                                                | Trust, Secrecy, CCorr, JudIndep, PolitScore, CCorrL, PowerD, IndividH                                                                                                  | Law, Latitude, Religness, ProprR, LPolitR, Gdpc, LawO, JudEff, RegQ, InfoKnow, PolitStab, UncAvoid, Masculin, LRepContr, EnforAudS, LExprR, Catholic, Media, CreditR, OwnConc, IntHoldFor, Big4Share, LTaxEv                       |
| Religiousness                           | Religness    | PolitScore, CCorr, Law, Gdpc, LawO, LRepContr, CCorrL, JudEff, LExprR, LPolitR | RegQ, PolitStab, ProprR, InfoKnow, JudIndep, EthFract, Media, Latitude, Trust, EnforAudS, PowerD, Democracy, IndividH, BankPriv                                        | PolitConn, IndividW, Secrecy, Protestant, Muslim, LangFract, TaxComp, OwnConc, LTorient, LTaxEv, CreditR, ListedF, IntHoldFor, BlockPr, PublicEnf                                                                                  |
| Trust                                   | Trust        |                                                                                | Protestant, Secrecy, JudIndep, Gdpc, PowerD, Religness, CCorr, LawO, Law, LExprR, LRepContr, Latitude, PolitScore, ProprR, InfoKnow, RegQ                              | IndividH, CCorrL, LPolitR, JudEff, PolitStab, EnforAudS, Media, Catholic, UncAvoid, IntHoldFor, TaxComp, LTaxEv, OwnConc, BlockPr, CreditR, BankPriv, Big4Share, Masculin                                                          |
| Creditor rights                         | CreditR      | JudIndep, LegalO, JudEff, LTaxEv                                               | ProprR, PrivCtrIndex, Secrecy, PrivCtrEP, ListedF, UncAvoid, CCorr, CCorrL, EnforAudS, RegQ, Law, EnglProf, EnglProx, MarkCap, PrivCtrEA, BankPriv, AntiDir, LRepContr | LibStand, ReligFract, DisclReg, LExprR, Catholic, Gdpc, BlockPr, EnforAccS, ForeignInv, IndividH, Religness, LawO, LPolitR, Trust, Big4Share, OReligion, PolitStab, PowerD, SSecRegul, OwnConc, Protestant, TaxComp, IPO           |
| Market cap. to GDP                      | MarkCap      |                                                                                | ListedF, BankPriv, ForeignInv, CreditR, LibStand, LTaxEv, IPO, DisclReg                                                                                                | ProprR, PrivCtrIndex, SSecRegul, UncAvoid, RegQ, PrivCtrEA, JudEff, BlockPr, JudIndep, LegalO, ReligFract, CCorrL, PrivCtrEP, CCorr, AntiDir, OReligion, EnforAudS, EnglProx, Big4Share, Catholic, Law, Media, PolitStab, EnglProf |
| Listed firms to population              | ListedF      |                                                                                | MarkCap, CreditR, ForeignInv, LTaxEv, OReligion, PrivCtrEP, PrivCtrIndex, RegQ, JudEff                                                                                 | IPO, LegalO, EnforAudS, SSecRegul, CCorr, JudIndep, ProprR, LibStand, Law, BankPriv, DisclReg, PrivCtrEA, CCorrL, PublicEnf, UncAvoid, EnglProf, AntiDir, EnforAccS, Religness, Media, Gdpc, Catholic, BlockPr, LRepContr          |
| Anti-director rights                    | AntiDir      |                                                                                | PrivCtrIndex, PrivCtrEA, LegalO, UncAvoid, CreditR                                                                                                                     | LibStand, DisclReg, PrivCtrEP, Latitude, SSecRegul, MarkCap, ListedF, LTaxEv, Catholic                                                                                                                                             |
| Ex ante private control of self-dealing | PrivCtrEA    | PrivCtrIndex                                                                   | LegalO, AntiDir, CreditR, LibStand, DisclReg, PrivCtrEP, Latitude                                                                                                      | UncAvoid, PolitConn, MarkCap, SSecRegul, ListedF, Catholic, ForeignInv, PublicEnf, LTaxEv, BlockPr, EnglProf, Democracy                                                                                                            |
| Ex post private control of self-dealing | PrivCtrEP    | PrivCtrIndex                                                                   | LegalO, LibStand, DisclReg, CreditR, LTaxEv, SSecRegul, ListedF, PrivCtrEA                                                                                             | BlockPr, JudIndep, AntiDir, JudEff, OReligion, EnglProf, OwnConc, ProprR, Catholic, EnforAudS, Law, UncAvoid, MarkCap, RegQ, PublicEnf, EnforAccS, CCorr, LExprR, ForeignInv, LRepContr, EnglProx                                  |
| Private control of self-dealing index   | PrivCtrIndex | PrivCtrEA, PrivCtrEP, LegalO                                                   | CreditR, LibStand, DisclReg, AntiDir, SSecRegul, ListedF                                                                                                               | UncAvoid, LTaxEv, MarkCap, Catholic, BlockPr, ForeignInv, PublicEnf, EnglProf, OReligion, Latitude, PolitConn, ReligFract, JudIndep, EnglProx                                                                                      |

## Appendix G [continued] - Correlation between country-level characteristics

|                             |            |                                                                                                                               |                                                                                                                                                                                                           |                                                                                                                                                                                                                                     |
|-----------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Foreign investment to GDP   | ForeignInv |                                                                                                                               | MarkCap, ListedF                                                                                                                                                                                          | RegQ, CreditR, PrivCtrIndex, PrivCtrEA, ProprR, CCorr, UncAvoid, PolitStab, InstHoldDom, JudEff, LTaxEv, PrivCtrEP, EnglProx, JudIndep, Law, IPO, EnglProf, BTaxInd                                                                 |
| Catholic                    | Catholic   |                                                                                                                               | LegalO, OReligion, BlockPr                                                                                                                                                                                | CreditR, PrivCtrIndex, UncAvoid, Trust, USListing, PrivCtrEP, PrivCtrEA, LibStand, DisclReg, LTaxEv, JudIndep, OwnConc, Protestant, ListedF, SSecRegul, MarkCap, Muslim, AntiDir                                                    |
| Other religion              | OReligion  |                                                                                                                               | Catholic, ListedF                                                                                                                                                                                         | PrivCtrEP, SSecRegul, IPO, PrivCtrIndex, CreditR, MarkCap, LegalO, DisclReg, JudEff                                                                                                                                                 |
| Uncertainty avoidance       | UncAvoid   |                                                                                                                               | LegalO, CreditR, Secrecy, EnglProf, LibStand, DisclReg, EnglProx, SSecRegul, AntiDir                                                                                                                      | PrivCtrIndex, PrivCtrEA, LTaxEv, Catholic, Protestant, MarkCap, JudIndep, PublicEnf, AuditSpend, Trust, ListedF, PrivCtrEP, Big4Share, ProprR, ForeignInv, BlockPr, JudEff, CCorr, IPO, ReligFract                                  |
| Legal origin                | LegalO     | CreditR, PrivCtrIndex                                                                                                         | PrivCtrEP, DisclReg, EnglProf, Catholic, LibStand, UncAvoid, PrivCtrEA, EnglProx, AntiDir, LTaxEv, SSecRegul, JudIndep                                                                                    | Secrecy, ListedF, MarkCap, JudEff, BlockPr, EnforAudS, OwnConc, ReligFract, OReligion, PublicEnf, ProprR                                                                                                                            |
| Latitude                    | Latitude   | PolitScore                                                                                                                    | PowerD, Gdpc, IndividH, CCorrL, Democracy, LawO, Law, LPolitR, CCorr, Religness, PolitConn, LExprR, Secrecy, PolitStab, LRepContr, InfoKnow, Trust, NrAnal, RegQ, IntHoldFor, Media, PrivCtrEA, EnforAudS | JudIndep, Protestant, JudEff, ProprR, IndividW, AntiDir, PublicEnf, Muslim, LangFract, PrivCtrIndex, EthFract, LegisComp, SSecRegul, EnforAccS                                                                                      |
| Democracy                   | Democracy  | PolitScore, Muslim                                                                                                            | Latitude, IndividH, PolitConn, LegisComp, Religness, IndividW, LPolitR, CCorrL, PowerD                                                                                                                    | Law, LawO, LRepContr, EthFract, LExprR, Gdpc, PolitStab, RegQ, EnforAudS, CCorr, Secrecy, JudIndep, LangFract, ProprR, PublicEnf, Media, JudEff, HierIndep, PrivCtrEA                                                               |
| Political score             | PolitScore | Latitude, Democracy, Law, LPolitR, CCorr, Religness, CCorrL, IndividH, LawO, Gdpc, RegQ, PolitStab, LExprR, LRepContr, PowerD | Muslim, ProprR, JudIndep, Secrecy, PolitConn, JudEff, EnforAudS, Media, IndividW, Protestant, Trust, InfoKnow, EthFract                                                                                   | IntHoldFor, LangFract, NrAnal, PublicEnf, EnforAccS, TaxComp, OwnConc, Big4Share, Budhist, BankPriv, LTaxEv                                                                                                                         |
| Legislative competition     | LegislComp |                                                                                                                               | Veto, Democracy                                                                                                                                                                                           | HierIndep, PolitConn, Latitude, LTorient, IndividW, IndividH, ClassAction                                                                                                                                                           |
| Politically connected firms | PolitConn  |                                                                                                                               | PolitScore, IndividW, Latitude, Democracy, Muslim                                                                                                                                                         | Religness, CCorrL, LegisComp, PowerD, CCorr, PrivCtrEA, Law, JudEff, Gdpc, IndividH, EthFract, LPolitR, ProprR, RegQ, PolitStab, BTaxInd, EnforAudS, LawO, JudIndep, InfoKnow, PrivCtrIndex, Secrecy, LangFract, EnglProf, EnglProx |

## Appendix G [continued] - Correlation between country-level characteristics

|                                               |             |                               |                                                                                                                                                             |                                                                                                                                                                                                                                                                  |
|-----------------------------------------------|-------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Muslim                                        | Muslim      | Democracy                     | PolitScore, LPolitR, PolitStab, RegQ, CCorrL, PolitConn, LawO                                                                                               | Law, CCorr, EthFract, IndividW, LangFract, LRepContr, Religness, LExprR, IndividH, Gdpc, ProprR, Latitude, Media, EnforAudS, JudEff, Catholic, PowerD, JudIndep                                                                                                  |
| Power distance                                | PowerD      | Secrecy, PolitScore           | Latitude, Gdpc, IndividH, InfoKnow, CCorrL, JudIndep, CCorr, Law, Trust, RegQ, Religness, LExprR, LRepContr, JudEff, Protestant, LawO, EnforAudS, Democracy | LPolitR, ProprR, PolitConn, PolitStab, Media, LTaxEv, IndividW, CreditR, PublicEnf, LangFract, IntHoldFor, EthFract, EnglProx, EnglProf, OwnConc, Muslim                                                                                                         |
| Individualism in income                       | IndividW    |                               | PolitConn, PolitScore, Democracy                                                                                                                            | Religness, Law, Muslim, Latitude, CCorr, CCorrL, JudEff, PolitStab, RegQ, ProprR, LPolitR, JudIndep, LangFract, LawO, BankPriv, EthFract, PowerD, Gdpc, IndividH, LExprR, LRepContr, LegisComp, Budhist, EnforAudS                                               |
| US institutional holdings                     | UShold      | USlisting                     |                                                                                                                                                             | LTorient, BlockPr, ProprR, LRepContr, PolitStab, LawO, IPO                                                                                                                                                                                                       |
| Domestic institutional holdings               | InstHoldDom |                               |                                                                                                                                                             | BTaxInd, ForeignInv                                                                                                                                                                                                                                              |
| US cross-listing                              | USlisting   | UShold                        |                                                                                                                                                             | LTorient, BlockPr, Catholic, BankPriv                                                                                                                                                                                                                            |
| Masculinity                                   | Masculin    |                               |                                                                                                                                                             | Protestant, Trust                                                                                                                                                                                                                                                |
| Long-term orientation                         | LTorient    |                               | BankPriv                                                                                                                                                    | USlisting, LRepContr, Religness, UShold, LExprR, AuditSpend, LegisComp, PublicEnf, ProprR, Gdpc, Media                                                                                                                                                           |
| IPOs to GDP                                   | IPO         |                               | MarkCap                                                                                                                                                     | Media, ListedF, EnforAudS, RegQ, Gdpc, BlockPr, PolitStab, LRepContr, LPolitR, Law, ProprR, LawO, OReligion, LibStand, SSecRegul, OwnConc, JudEff, EnforAccS, LTaxEv, BankPriv, LExprR, CCorr, CCorrL, DisclReg, UncAvoid, ForeignInv, CreditR, EnglProx, UShold |
| Block premium                                 | BlockPr     |                               | DisclReg, OwnConc, LibStand, Catholic                                                                                                                       | SSecRegul, PrivCtrEP, CreditR, IPO, PrivCtrIndex, LTaxEv, USlisting, MarkCap, LegalO, Trust, UShold, Law, JudIndep, UncAvoid, ProprR, BankPriv, Religness, EnforAudS, CCorr, PrivCtrEA, CCorrL, TaxComp, Secrecy, LRepContr, ListedF, Gdpc                       |
| Public control of self-dealing                | PublCtr     |                               |                                                                                                                                                             | PrivCtrIndex                                                                                                                                                                                                                                                     |
| Strength of securities regulation             | SSecRegul   | DisclReg, PublicEnf, LibStand | PrivCtrEP, PrivCtrIndex, UncAvoid, LegalO, ClassAction                                                                                                      | BlockPr, ListedF, MarkCap, LangFract, PrivCtrEA, OReligion, EnglProf, IPO, AntiDir, ReligFract, CreditR, EnforAccS, Catholic, OwnConc, Latitude, LTaxEv                                                                                                          |
| Securities regulation disclosure requirements | DisclReg    | LibStand, SSecRegul           | PrivCtrIndex, LegalO, PrivCtrEP, PublicEnf, UncAvoid, PrivCtrEA, BlockPr, MarkCap                                                                           | CreditR, AntiDir, ListedF, OwnConc, Catholic, LangFract, LTaxEv, EnglProf, ReligFract, EnforAccS, IPO, OReligion, EnglProx, HierIndep, Budhist                                                                                                                   |

### Appendix G [continued] - Correlation between country-level characteristics

|                                           |             |                     |                                                                                   |                                                                                                                                                                                                                                                                    |
|-------------------------------------------|-------------|---------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Public enforcement securities regulation  | PublicEnf   | SSecRegul           | DisclReg, LibStand                                                                | ClassAction, Latitude, UncAvoid, PrivCtrIndex, ListedF, PolitScore, PrivCtrEP, PrivCtrEA, Democracy, PowerD, LegalO, LTorient, TaxComp, Religness                                                                                                                  |
| Securities regulation liability standards | LibStand    | DisclReg, SSecRegul | PrivCtrIndex, PrivCtrEP, LegalO, PublicEnf, UncAvoid, PrivCtrEA, MarkCap, BlockPr | CreditR, LTaxEv, AntiDir, ListedF, EnforAccS, Catholic, IPO, ReligFract, LangFract, EnglProf, OwnConc, EnglProx, BankPriv, EnforAudS                                                                                                                               |
| Tax compliance                            | TaxComp     |                     |                                                                                   | EthFract, LPolitR, PolitStab, Law, ClassAction, Religness, CCorr, RegQ, LRepContr, Gdpc, BTaxInd, Trust, LangFract, JudEff, LawO, LExprR, ProprR, CCorrL, Media, JudIndep, BankPriv, InfoKnow, PolitScore, IntHoldFor, PublicEnf, CreditR, LTaxEv, BlockPr         |
| Book tax independence                     | BTaxInd     |                     |                                                                                   | ReligFract, TaxComp, PolitConn, IndividH, InstHoldDom, NrAnal, ForeignInv, EnglProx                                                                                                                                                                                |
| Number of veto-players                    | Veto        |                     | LegislComp                                                                        | ClassAction                                                                                                                                                                                                                                                        |
| Language fractionalization                | LangFract   |                     | EthFract, PolitStab, LPolitR                                                      | LawO, Muslim, InfoKnow, Religness, PolitScore, Gdpc, RegQ, SSecRegul, CCorr, Law, TaxComp, LExprR, IndividW, DisclReg, CCorrL, LRepContr, Media, LibStand, Latitude, Democracy, PowerD, JudEff, PolitConn, EnforAudS                                               |
| Ethnic fractionalization                  | EthFract    |                     | LangFract, Religness, LPolitR, PolitStab, PolitScore, Law                         | TaxComp, RegQ, Muslim, InfoKnow, Gdpc, CCorr, Democracy, LawO, JudEff, Media, LRepContr, PolitConn, IndividW, LExprR, ProprR, Latitude, CCorrL, PowerD, JudIndep, IntHoldFor                                                                                       |
| Class action lawsuit                      | ClassAction |                     | SSecRegul                                                                         | PublicEnf, TaxComp, Veto, ReligFract, LegisComp, OwnConc                                                                                                                                                                                                           |
| Religion fractionalization                | ReligFract  |                     | LTaxEv                                                                            | CreditR, EnglProx, Big4Share, BankPriv, ClassAction, BTaxInd, ProprR, OwnConc, JudEff, CCorrL, MarkCap, LibStand, EnglProf, JudIndep, Secrecy, EnforAudS, SSecRegul, LegalO, DisclReg, CCorr, IndividH, RegQ, PrivCtrIndex, LExprR, LRepContr, Law, LawO, UncAvoid |
| Buddhist                                  | Budhist     |                     |                                                                                   | EnglProf, IndividW, PolitScore, DisclReg, IndividH                                                                                                                                                                                                                 |
| English proficiency                       | EnglProf    | EnglProx            | LegalO, Secrecy, CreditR, UncAvoid                                                | Budhist, EnforAudS, IndividH, PrivCtrEP, Big4Share, JudIndep, JudEff, PrivCtrIndex, SSecRegul, ReligFract, ListedF, AuditSpend, DisclReg, LibStand, EnforAccS, LTaxEv, PowerD, PolitConn, CCorr, PrivCtrEA, ForeignInv, MarkCap, ProprR                            |
| Language proximity to English             | EnglProx    | EnglProf            | Secrecy, CreditR, LegalO, UncAvoid                                                | JudIndep, IndividH, EnforAudS, ReligFract, JudEff, ProprR, Big4Share, LTaxEv, CCorr, EnforAccS, LibStand, DisclReg, RegQ, Gdpc, MarkCap, Law, ForeignInv, PowerD, PrivCtrIndex, CCorrL, PrivCtrEP, PolitConn, AuditSpend, BTaxInd, IPO                             |
| Big4 market share                         | Big4Share   |                     |                                                                                   | Secrecy, LTaxEv, ReligFract, JudEff, EnglProf, CCorr, RegQ, CCorrL, IndividH, EnforAudS, LExprR, LawO, PolitStab, HierIndep, UncAvoid, CreditR, EnglProx, Gdpc, OwnConc, MarkCap, Protestant, ProprR, Law, PolitScore, Trust, LPolitR, LRepContr, JudIndep         |

## Appendix G [continued] - Correlation between country-level characteristics

|                                     |            |                                                                   |                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------|------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Audit spending                      | AuditSpend |                                                                   |                                                                                                                                                                                  | UncAvoid, LTorient, EnglProf, Secrecy, EnglProx                                                                                                                                                                                                                                                                                               |
| Enforcement of audit standards      | EnforAudS  | Gdpc, IndivdH, LExprR, CCorrL, LRepContr, Secrecy, EnforAccS, Law | CCorr, RegQ, JudEff, LawO, ProprR, JudIndep, Media, PolitScore, LPolitR, CreditR, NrAnal, Religness, PolitStab, InfoKnow, PowerD, Latitude                                       | BankPriv, IPO, LTaxEv, ListedF, EnglProx, Trust, EnglProf, Democracy, OwnConc, PrivCtrEP, Protestant, Big4Share, LegalO, ReligFract, Muslim, PolitConn, MarkCap, IntHoldFor, BlockPr, HierIndep, LangFract, LibStand, IndivdW                                                                                                                 |
| Enforcement of accounting standards | EnforAccS  | EnforAudS                                                         | IndivdH, NrAnal, Gdpc, Secrecy, LExprR, LRepContr                                                                                                                                | RegQ, LawO, Law, LibStand, CCorrL, JudIndep, CreditR, CCorr, JudEff, Media, ProprR, IPO, BankPriv, LPolitR, PolitScore, PrivCtrEP, ListedF, EnglProx, DisclReg, LTaxEv, EnglProf, InfoKnow, SSecRegul, Latitude                                                                                                                               |
| Ownership concentration             | OwnConc    |                                                                   | BlockPr                                                                                                                                                                          | LTaxEv, LExprR, Gdpc, Religness, HierIndep, LRepContr, JudIndep, Secrecy, Law, EnforAudS, JudEff, ReligFract, PrivCtrEP, LawO, ProprR, DisclReg, IPO, IndivdH, Trust, CCorr, LegalO, Catholic, LibStand, CreditR, CCorrL, Big4Share, InfoKnow, Protestant, SSecRegul, Media, RegQ, PolitScore, BankPriv, NrAnal, LPolitR, PowerD, ClassAction |
| Individualism                       | IndivdH    | Secrecy, EnforAudS, PolitScore                                    | Gdpc, CCorrL, Latitude, LExprR, PowerD, JudEff, LawO, Law, EnforAccS, Democracy, CCorr, LRepContr, LPolitR, JudIndep, NrAnal, RegQ, Religness, Protestant, ProprR                | PolitStab, Trust, Media, EnglProx, Muslim, EnglProf, InfoKnow, PolitConn, CreditR, Big4Share, OwnConc, IndivdW, BTaxInd, ReligFract, LegisComp, IntHoldFor, Budhist                                                                                                                                                                           |
| Secrecy                             | Secrecy    | IndivdH, PowerD, JudIndep, EnforAudS, CCorr, Gdpc                 | JudEff, Trust, CCorrL, Protestant, Law, PolitScore, RegQ, CreditR, LExprR, ProprR, EnglProx, EnglProf, LRepContr, LawO, UncAvoid, LPolitR, Latitude, EnforAccS, InfoKnow, LTaxEv | Religness, LegalO, PolitStab, Big4Share, Media, OwnConc, NrAnal, Democracy, ReligFract, AuditSpend, IntHoldFor, PolitConn, BlockPr                                                                                                                                                                                                            |
| Hierarchy vs independence           | HierIndep  |                                                                   |                                                                                                                                                                                  | LegislComp, OwnConc, Big4Share, EnforAudS, Democracy, DisclReg                                                                                                                                                                                                                                                                                |
| Number of analysts                  | NrAnal     |                                                                   | EnforAudS, IndivdH, EnforAccS, Latitude, LExprR                                                                                                                                  | LawO, Media, Gdpc, LRepContr, PolitScore, CCorrL, Law, LPolitR, Secrecy, CCorr, RegQ, BTaxInd, IntHoldFor, OwnConc, PolitStab                                                                                                                                                                                                                 |

### Summary statistics

|        | Absolute correlation $\geq 0.7$ | $0.5 \leq$ Absolute correlation $< 0.7$ | $0.3 \leq$ Absolute correlation $< 0.5$ |
|--------|---------------------------------|-----------------------------------------|-----------------------------------------|
| mean   | 3.7                             | 7.5                                     | 16.9                                    |
| median | 2                               | 7                                       | 18                                      |
| min    | 0                               | 0                                       | 1                                       |
| max    | 18                              | 23                                      | 37                                      |

## Appendix H - Robustness test to Table 6

Adjusted R<sup>2</sup>s from nested regressions of financial reporting factor (*rqf*) on country-level variable (*v<sub>i</sub>*) and 4 factors

| Explanatory country variable ( <i>v<sub>i</sub></i> ) | (1)   | (2)  | (3)  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | (1)         | (2)         | (3)         |
|-------------------------------------------------------|-------|------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------|
| Anti-director rights                                  | 0.04  | 0.72 | 0.71 | Market Cap. to GDP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.11        | 0.72        | 0.72        |
| Assessment of tax evasion                             | 0.26  | 0.73 | 0.74 | Masculinity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -0.03       | 0.71        | 0.70        |
| Audit spending                                        | 0.20  | 0.69 | 0.72 | Media                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.17        | 0.72        | 0.73        |
| Bank money in private sector to GDP                   | 0.06  | 0.71 | 0.70 | Muslim                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.07        | 0.72        | 0.71        |
| Big4 market share                                     | 0.27  | 0.71 | 0.71 | Number of analysts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.15        | 0.73        | 0.75 *      |
| Block premium                                         | 0.12  | 0.73 | 0.72 | Number of veto-players                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -0.03       | 0.72        | 0.72        |
| Book tax independence                                 | -0.03 | 0.72 | 0.72 | Other religion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -0.03       | 0.71        | 0.72        |
| Buddhist                                              | 0.00  | 0.73 | 0.72 | Ownership concentration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.23        | 0.72        | 0.74        |
| Catholic                                              | 0.00  | 0.72 | 0.72 | Political score                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.24        | 0.72        | 0.71        |
| Class action lawsuit                                  | -0.03 | 0.72 | 0.71 | Political stability                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.18        | 0.72        | 0.72        |
| Control of corruption                                 | 0.39  | 0.72 | 0.76 | Politically connected firms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.01        | 0.74        | 0.76        |
| Corruption                                            | 0.35  | 0.72 | 0.72 | Power distance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.19        | 0.72        | 0.71        |
| Creditor rights                                       | 0.44  | 0.73 | 0.72 | Private control of self-dealing index                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.14        | 0.72        | 0.71        |
| Democracy                                             | 0.05  | 0.72 | 0.71 | Property rights                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.29        | 0.72        | 0.75 *      |
| Domestic institutional holdings                       | -0.02 | 0.71 | 0.70 | Protestant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.25        | 0.70        | 0.71        |
| Enforcement of accounting standards                   | 0.21  | 0.72 | 0.72 | Public control of self-dealing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.01        | 0.72        | 0.78 *      |
| Enforcement of audit standards                        | 0.46  | 0.72 | 0.74 | Public enforcement sec. regulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.01        | 0.71        | 0.71        |
| English proficiency                                   | 0.30  | 0.73 | 0.72 | Regulatory quality                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.38        | 0.72        | 0.72        |
| Ethnic fractionalization                              | 0.02  | 0.72 | 0.71 | Religion fractionalization                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.05        | 0.72        | 0.74        |
| Ex ante private control of self-dealing               | 0.06  | 0.71 | 0.71 | Religiousness                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.12        | 0.72        | 0.71        |
| Ex post private control of self-dealing               | 0.17  | 0.72 | 0.71 | Rule of law                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.35        | 0.72        | 0.74        |
| Foreign institutional holdings                        | 0.14  | 0.71 | 0.72 | Secrecy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.64        | 0.69        | 0.73 *      |
| Foreign investment to GDP                             | 0.07  | 0.73 | 0.72 | Securities reg. disclosure requ.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.15        | 0.72        | 0.75 *      |
| GDPc                                                  | 0.35  | 0.72 | 0.73 | Securities reg. liability standards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.16        | 0.72        | 0.74        |
| Hierarchy vs independence                             | 0.06  | 0.72 | 0.71 | Strength of securities regulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.11        | 0.71        | 0.73        |
| Individualism                                         | 0.47  | 0.70 | 0.80 | Tax compliance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.06        | 0.72        | 0.73        |
| Individualism in income                               | 0.00  | 0.73 | 0.73 | Trust                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.26        | 0.71        | 0.72        |
| Information and knowledge                             | 0.11  | 0.72 | 0.71 | Uncertainty avoidance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.33        | 0.70        | 0.73        |
| IPOs to GDP                                           | 0.12  | 0.72 | 0.71 | US cross-listing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | -0.01       | 0.69        | 0.75 *      |
| Judicial efficiency                                   | 0.42  | 0.72 | 0.72 | US institutional holdings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -0.02       | 0.70        | 0.73        |
| Judicial independence                                 | 0.43  | 0.72 | 0.72 | <i>Average Adjusted R2</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <i>0.16</i> | <i>0.72</i> | <i>0.72</i> |
| Language fractionalization                            | 0.01  | 0.72 | 0.72 | This table reports adjusted R <sup>2</sup> s for the following regression models for 35 countries. Model 1: regression of financial reporting factor <i>rqf</i> on country variable <i>v<sub>i</sub></i> ( <i>rqf</i> = <i>a</i> + <i>c</i> * <i>v<sub>i</sub></i> + <i>ε</i> ); model 2: regression of financial reporting factor <i>rqf</i> on 4 country factors (from a factor analysis that excludes the individual country variable <i>v<sub>i</sub></i> ) ( <i>rqf</i> = <i>a</i> + <i>b<sub>1</sub></i> * <i>f<sub>1</sub></i> + <i>b<sub>2</sub></i> * <i>f<sub>2</sub></i> + <i>b<sub>3</sub></i> * <i>f<sub>3</sub></i> + <i>b<sub>4</sub></i> * <i>f<sub>4</sub></i> + <i>ε</i> ); and model 3: regression of financial reporting factor <i>q</i> on 4 country factors derived from a factor analysis that excludes the individual country variable <i>v<sub>i</sub></i> plus the individual country variable <i>v<sub>i</sub></i> : ( <i>rqf</i> = <i>a</i> + <i>b<sub>1</sub></i> * <i>f<sub>1</sub></i> + <i>b<sub>2</sub></i> * <i>f<sub>2</sub></i> + <i>b<sub>3</sub></i> * <i>f<sub>3</sub></i> + <i>b<sub>4</sub></i> * <i>f<sub>4</sub></i> + <i>c</i> * <i>v<sub>i</sub></i> + <i>ε</i> ). Variable definitions are provided in Appendix B. The symbol * indicates a statistically higher adjusted R <sup>2</sup> of model 3 (compared to model 2) at the 0.05 level. |             |             |             |
| Language proximity to English                         | 0.24  | 0.72 | 0.72 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |             |             |
| Latitude                                              | 0.13  | 0.72 | 0.71 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |             |             |
| Law and order                                         | 0.21  | 0.72 | 0.71 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |             |             |
| Legal origin                                          | 0.25  | 0.72 | 0.72 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |             |             |
| Legislative competition                               | -0.03 | 0.73 | 0.73 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |             |             |
| Listed firms to population                            | 0.11  | 0.73 | 0.75 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |             |             |
| Long-term orientation                                 | 0.01  | 0.67 | 0.70 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |             |             |
| Low political risk                                    | 0.25  | 0.72 | 0.71 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |             |             |
| Low repudiation of contracts by gov.                  | 0.24  | 0.72 | 0.71 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |             |             |
| Low risk of expropriation by govern.                  | 0.29  | 0.72 | 0.72 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |             |             |

## Appendix I - Qualitative Comparative Analysis (QCA)

### 1) Terminology and brief explanation

*Outcome variable* = Financial reporting factor (q) as reported in section 2.1 the paper (i.e., reporting factor from factor analysis applied to six financial reporting characteristics: reporting transparency, disclosure quality, abnormal return, abnormal volume, return synchronicity, and timeliness).

*Predictor sets* = Country factor 1, country factor 2, country factor 3, country factor 4 (factors obtained from factor analysis on 72 country-level attributes as explained in section 3.3 of the paper).

| Sets             | High presence of set | Low presence of set |
|------------------|----------------------|---------------------|
| Country factor 1 | F1                   | f1                  |
| Country factor 2 | F2                   | f2                  |
| Country factor 3 | F3                   | f3                  |
| Country factor 4 | F4                   | f4                  |

QCA/Fuzzy Sets evaluates the relation between the financial reporting outcome factor (q) and all possible Boolean combinations of country factor sets (e.g., F1 . F2, F1 . f2, F2 . f1, f1 . f2, F1 . F3, F1 . f3, ... ; where operator “.” represents the Boolean “and”). QCA/Fuzzy Sets examines which combinations of sets or configurations are most likely to be present when the financial reporting outcome *q* is high.

Country observations are represented in terms of the level of membership in a set, for example the level of membership of the US in country factor 1 is 0.529. In our context the level of set membership can take any value between 0 (completely exclusive) and 1 (completely inclusive). Hence our setting is a fuzzy set.

### 2) Fuzzy set analysis

**Table 2.1 – Combinations of country factors that exist when financial reporting outcome is high**

| Combinations | Y consistency | N consistency | F value | P-value | Country factors                      |
|--------------|---------------|---------------|---------|---------|--------------------------------------|
| F1 F2 f3 F4  | 0.978         | 0.651         | 11.48   | 0.002   | High factors 1,2 and 4; Low factor 3 |
| F1 F2 F3 f4  | 0.946         | 0.695         | 4.780   | 0.036   | High factors 1,2 and 3; Low factor 4 |
| F1 F2 F3 F4  | 0.986         | 0.593         | 19.98   | <0.001  | High factors 1,2, 3 and 4            |

Table 1 reports the combinations that pass the sufficiency condition “*if the combination of country factors exist then financial reporting outcome (q) also exist*”. The three combinations pass the commonly used sufficiency tests. First, the probability that “*the combination exists when outcome q exists*” or Y consistency is significantly greater than the probability that “*the combination exists when outcome q does not exist*” or N consistency. Second, the Y consistency exceeds the recommended benchmark value of 0.8 (Ragin 2000, 2006).

## Appendix I [continued] - Qualitative Comparative Analysis (QCA)

Because the three significant combinations may overlap we perform a reduction of the proposed solution as follows:

**Table 2.2 – Final solution: country factors combinations leading to high financial reporting outcome**

| Combinations             | Raw coverage | Unique coverage | Consistency | Country factors                |
|--------------------------|--------------|-----------------|-------------|--------------------------------|
| F1 F2 F3                 | 0.499        | 0.133           | 0.983       | High country factor 1, 2 and 3 |
| F1 F2 F4                 | 0.455        | 0.089           | 0.958       | High country factor 1, 2 and 4 |
| Total coverage: 0.588    |              |                 |             |                                |
| Total consistency: 0.962 |              |                 |             |                                |

The final reduced solution suggests that there are two recipes of country factors that lead to high quality financial reporting. The first is a high level of country factor 1 (associated with good institutional and governance systems, and economic and social welfare), high level of country factor 2 (associated with strong protection of investors' rights and capital markets development), and high level of country factor 3 (associated with political transparency, and tax and accounting enforcement). The second is a combination of high-country characteristics represented in factors 1, 2 and 4 (openness of society to external investment). The two recipes together explain 58.8 percent of the membership in the financial reporting outcome, a percentage that can be interpreted as R<sup>2</sup> in regression models. The overall solution consistency of 0.962 indicates that few cases deviate from the two patterns identified in the data (consistency would be 1 if all countries perfectly fit into one of the two recipes).

Comparison of the statistics between the two recipes suggests that having high country factors 1, 2 and 3 is probably a better recipe to achieve high quality financial reporting. The extent to which that recipe explains financial reporting (raw coverage), the proportion of cases that the recipe alone explains (unique coverage), and consistency is higher for the first recipe.

In summary, the Fuzzy Set analysis confirms the regression results discussed in the paper. The Fuzzy Set analysis suggests that a solution with one single country factor is not sufficient to achieve high quality financial reporting outcomes. Further, country factor 1 and country factor 2 are necessary but not sufficient for the desired financial reporting outcome. We conclude that an intertwined combination of many country characteristics needs to exist in a country for high quality financial reporting to exist.