

## Country-level accounting enforcement and IPO underpricing

**Abstract:** Using a sample of up to 2,488 IPOs in 32 countries in the years 2011-2017, we predict and find that higher levels of country-level accounting enforcement are associated with less underpricing, both directly, but also indirectly, by mitigating the impact of shareholder litigation. We show that accounting enforcement matters in reducing the cost of equity: a standard deviation increase in the accounting enforcement score is associated with a 9.3%-point decrease in underpricing.

**Keywords:** Accounting enforcement, underpricing, cross-country study, financial analyst coverage, shareholder litigation, IPOs.

**JEL codes:** M41, G32

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# Country-level accounting enforcement and IPO underpricing

## 1. Introduction

There is a great deal of evidence on underpricing, i.e. when the stock price on the first day of trading exceeds the offering price. The extent of underpricing is on average about 10-15% of the offering price, but varies considerably across firms, across time – and across countries (Ibbotson, Sindelar & Ritter, 1994; Loughran & Ritter, 2004). Boulton et al. (2017: 768) reported a range of -1% (Argentina) to 66% (Greece) for the time period 1998-2014. In our sample, 30 IPOs in Norway had a median underpricing of -1.1% in the period 2011-2017, while it was 46.4% in Japan in the same period (421 IPOs). Why is there so much variation across countries?

Lin, Pukthuanthong & Walker (2013) argued that countries differ in their legal settings, and indeed found that higher litigation risk was strongly associated with IPO underpricing. Other papers have considered the role of investor protection, the rule of law, legal origin, and the level of legal enforcement (Engelen & van Essen, 2010; Hopp & Dreher, 2013). However, corporate finance theory explains underpricing mainly by *information asymmetries* between IPO participants (Baron & Holmström, 1980; Rock, 1986; Allen & Faulhaber, 1989). Institutional measures referring to the *financial reporting environment* may therefore be more warranted variables in empirical designs. Differences in the country-level quality of information may explain cross-country heterogeneity in information asymmetries and underpricing. Leuz, Nanda & Wysocki (2003) argued that higher earnings quality reduces information asymmetries and serves to protect outside investors, whereas Boulton, Smart & Zutter (2011, 2017) find that earnings quality is negatively associated with IPO underpricing.

What is missing in this body of literature is a study on the role of country-level *accounting enforcement* on IPO underpricing. Accounting enforcement is an important element of a country's framework to ensure high financial reporting quality; in fact, it may be even more important than the quality of the accounting standards themselves (Christensen, Hail & Leuz, 2013; Ewert & Wagenhofer, 2019). Country-level accounting enforcement is likely to affect a firm's financial

reporting choices, limiting the going public firm's discretion for earnings management. We may expect higher levels of accounting enforcement to improve earnings quality and, eventually, to reduce information asymmetries and IPO underpricing.

The underpricing literature so far has controlled for *legal* enforcement, e.g. as measured by the rule of law index and/or the corruption index of Kaufmann, Kraay & Mastruzzi (2010), by the public enforcement and/or anti self-dealing index of Djankov, LaPorta, Lopez-de-Silanes & Shleifer (2008), or by legal origin (e.g. Engelen & van Essen, 2010; Banerjee, Dai & Shrehsta, 2011; Hong, Hung & Lobo, 2014). However, although those indexes may be a valid measure of general legal enforcement, they need not necessarily be such for accounting enforcement.

We therefore apply a relatively new index developed by Brown, Preato & Tarca (2014), who calculated measures of the degree of accounting enforcement activity for 51 countries. To date, this study seems to provide the most thorough measure of *accounting* enforcement. The basic question is whether accounting enforcement contributes to reducing information uncertainty and to reducing the level of IPO underpricing. We also ask how accounting enforcement affects IPO underpricing *indirectly* via financial analyst coverage and shareholder litigation.

Using a large set of firm-specific control variables, we analyze 1,930 IPOs in 32 countries in the years 2011-17. We have two main findings. First, we find strong and robust evidence that higher levels of accounting enforcement directly imply lower levels of underpricing. This effect is also strong in economic terms: a standard deviation increase in the accounting enforcement score is associated with a 9.3%-point decrease in underpricing. Second, higher levels of accounting enforcement are *indirectly* negatively associated with underpricing by mitigating the impact of shareholder litigation. IPOs in countries that encourage shareholder litigation tend to exhibit more underpricing. In sum, we contribute to the underpricing literature by showing that accounting enforcement matters for the cost of going public. An improvement in accounting enforcement may be considered as a way to encourage more IPOs and, ultimately, to stimulate innovation in the first place.

We contribute to the relatively small body of accounting literature that addresses the role of the financial reporting environment on underpricing. Banerjee, Dai & Shrehsta (2011) used two proxies to

measure information asymmetry: 1) country-level analyst following, and 2) country-level stock price synchronicity, which they found to be negatively and positively associated with underpricing, respectively. Shi, Pukthuanthong & Walker (2013) reported that the stringency of disclosure requirements for IPO prospectuses – as measured by La Porta, Lopez-de-Silanes & Shleifer (2006) – was negatively associated with IPO underpricing, using a sample from 1995-2002. Byard, Darrough & Suh (2019) showed that the adoption of the European Union's Prospectus Directive significantly reduced IPO underpricing. However, they were unable to confirm a negative association between mandatory IFRS adoption and IPO underpricing, as found by Hong, Hung & Lobo (2014). None of the above papers addresses the role of accounting enforcement.

There is some research on the IPO level showing that underpricing occurs to a lesser extent with more, more precise, more trustworthy, or less favorable information. Leone, Rock & Willenborg (2007) found that voluntary disclosures on the use of IPO proceeds reduced underpricing. In a similar vein, Falconieri & Tastan (2018) reported that the length of a prospectus was negatively associated with underpricing. Bajo & Raimondo (2017) showed that a positive tone in newspaper articles was positively related to underpricing among US IPOs. Chaplinsky, Hanley & Moon (2017) and Barth, Landsman & Taylor (2017) reported that IPOs under the US Jumpstart Our Business Startups Act have experienced significantly higher levels of underpricing than IPOs under the regular securities law, probably due to lower levels of mandatory disclosure. Nielsson & Wójcik (2016) demonstrated that US IPOs with issuers headquartered in local areas were associated with lower levels of underpricing compared to US IPOs from urban firms, suggesting that local information in rural areas seemed to be more precise. However, Huang, Liu & Ma (2019) found evidence for Chinese IPOs that underpricing occurred less among firms located closer to a major metropolitan area. Li, Wang & Wang (2019) also analyzed Chinese IPOs, and showed that firms located in provinces with high social trust experienced lower levels of underpricing. All these papers have analyzed IPO underpricing in a specific country, and consequently do not account for the level of accounting enforcement.

We also contribute to the underpricing literature in corporate finance. Most of the studies have only been conducted for single countries, predominantly the US. The extent of underpricing varies considerably across countries, which has stimulated some cross-country studies in order to understand

the marginal impact of institutional determinants (Ljungqvist, Jenkinson & Wilhelm 2003; Engelen & van Essen 2010; Hopp & Dreher, 2013; Lin, Pukthuanthong & Walker, 2013). Still, the role of country-level financial reporting quality, and, in particular, the role of *accounting* enforcement, has not yet been investigated in that literature. Moreover, we look at a sample period after the financial crisis, and after securities market regulation had been improved in many countries, e.g. by the Sarbanes-Oxley Act in the US (2003) and by the Markets for Financial Instruments Directive in the European Union (2004).

We proceed as follows. Section 2 develops the hypotheses, while Section 3 addresses data collection and the research design. Section 4 reports the results, and Section 5 summarizes.

## **2. Development of hypotheses**

### **2.1 Accounting enforcement and underpricing: direct effect**

Corporate finance theory suggests that underpricing results from asymmetric information where the underwriting bank, or the IPO firm (issuer), or some investors are assumed to have private information (Baron & Holmström, 1980; Allen & Faulhaber, 1989; Rock, 1986).<sup>1</sup> Figure 1 provides an overview of the type of information asymmetries identified by the theoretical underpricing literature.

--Insert Figure 1 about here--

The reasons for private information are manifold. The models of Baron & Holmström (1980) and Baron (1982) assume that the underwriting bank is an agent of the IPO firm, with the task of selling the shares at the highest possible price. Higher effort by the underwriter would increase the offering price. However, the IPO firm is unable to observe the “fair” value of the shares or the underwriter’s effort. The underwriter would then have an incentive to suggest a rather low offering price, because investors would be less likely to file claims stating they bought shares at an excessive price.

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<sup>1</sup> There are also institutional and behavioral models that are referred to far less frequently in the empirical literature; see Ljungqvist (2007).

Rock (1986) assumed that some investors are better informed about the prospects of the IPO firm than others, e.g. represented by institutional versus individual investors, respectively. The “uninformed” investors then rationally abstain from buying shares because they anticipate that they would otherwise buy the “lemons”, i.e. overpriced shares. They know that informed investors bid when issuing prices are lower than “fair” value and do not bid in the opposite case. However, the IPO firm may need the uninformed investors’ money. The IPO firm will therefore rationally offer the shares at a price sufficiently below fair value to compensate for the adverse selection risk of uninformed investors.

Allen & Faulhaber (1989) assumed an information asymmetry between IPO firms and investors. Investors are unable to distinguish between “good” and “bad” IPO firms such that “good” IPO firms use underpricing as a device to credibly signal their better quality.

These theories do not exclude each other, and may even complement each other (Loughran & Ritter, 2002). While all of them are based on asymmetric information, only Rock’s (1986) and Allen & Faulhaber’s (1989) models consider information asymmetries with regard to the “fair” value of the IPO firm’s shares. How does accounting enforcement affect those information asymmetries?

Stricter accounting enforcement is believed to increase the reliability and information value of financial statements because enforcement agencies reflect a form of monitoring that limits managerial and auditors’ discretion about reporting choices (Christensen, Hail & Leuz, 2013). As a consequence of several severe financial accounting scandals in the US (such as Enron and Worldcom), as well as outside the US (Parmalat and Flowtex), regulators around the world started to establish rules and new institutions to improve the financial reporting quality of publicly listed companies. For example, the Public Company Accounting Oversight Boards (PCAOB) started reviewing financial reports, disclosing those reviews and taking enforcement actions in 2002. Soon after, countries outside the US established similar regulatory bodies with varying competences (Brown et al., 2014). Accounting enforcement is an important element of a country’s framework to ensure high financial reporting quality; it may be even more important than the quality of the accounting standards themselves (Ewert

& Wagenhofer, 2019). Thus, stricter accounting enforcement is supposed to improve financial reporting quality and to reduce information asymmetries.

Considering Rock's (1986) and Allen & Faulhaber's (1989) models, we should therefore expect underpricing to decrease with stricter accounting enforcement. In the settings of Baron & Holmström (1980) and Baron (1982), the level of accounting enforcement should not matter, since underpricing is a consequence of the underwriter's shirking. Similarly, if "road show" presentations and private communication between managers and investors during the IPO process sufficiently reduce information asymmetries (Hong, Hung & Lobo, 2014: 1366), the level of accounting enforcement becomes irrelevant. We are not aware of any evidence suggesting that *only* the settings of Baron & Holmström (1980) and Baron (1982) are valid in reality. In fact, prior empirical evidence is in line with the idea that information asymmetries exist between the IPO firm and investors or among investors (Allen & Faulhaber, 1989; Rock, 1986). We therefore postulate:

**H1:** IPOS in countries with stricter accounting enforcement exhibit less underpricing.

## **2.2 Accounting enforcement and underpricing: indirect effects**

We also look at the *indirect* ways in which earnings quality might affect underpricing. Two factors that have been shown to be related to underpricing are financial analyst coverage and the litigation risk of the IPO firm. The level of accounting enforcement may marginally affect those determinants, as we argue in the following paragraphs.

Financial analysts are information intermediaries who collect and evaluate both publicly available and private information about listed firms and their markets. Financial analysts also issue forecasts, especially on the firm's earnings and dividends (Beaver, 1998). With higher analyst coverage, publicly listed firms are more likely to be scrutinized, and private information is more likely to be collected and disseminated to the capital market. Thus, financial analysts serve to significantly reduce the information asymmetries between investors and IPO firms, and among investors. Indeed, higher financial analyst coverage has been found to reduce underpricing, including country-level analyst

coverage (Bowen, Xia & Cheng, 2008; Banerjee, Dai & Shrestha, 2011). The role of financial analysts may be especially valuable when the information environment is poor otherwise. Preiato, Brown & Tarca (2015) provided evidence that higher scores of accounting enforcement are associated with less dispersion in financial analyst forecasts. Overall, we expect that financial analyst coverage and accounting enforcement will partially substitute each other in reducing the extent of underpricing:

**H2a:** The negative association between financial analyst coverage and IPO underpricing becomes weaker with stronger country-level accounting enforcement.

Another important driver of underpricing is prospectus liability. The more convinced investors are that the offering price was overpriced, the likelier it is that they will bring a lawsuit (Ibbotson, 1975). Thus, higher underpricing reduces the firm's litigation risk (Lowry & Shu, 2002; Banerjee et al., 2011; Lin et al., 2013). However, investors will be more willing to bring a lawsuit the more favorable the litigation framework is; this depends on the expected benefits, such as the measurement of damages, the liability rule, and the burden of proof, but also on the allocation of legal expenses such as court and attorney fees. Advantageous litigation frameworks are especially important for settings with low financial reporting quality (Hanley & Hoberg, 2012).

Put differently, the prospects of bringing a lawsuit are less favorable in an environment where financial reporting quality is generally high, e.g. in countries with stricter accounting enforcement. Severe earnings manipulation and financial misconduct are then less likely to occur. We were unable to find any empirical or theoretical studies on the link between accounting enforcement and shareholder litigation. However, we expect that shareholder litigation rights and accounting enforcement may be partial substitutes in reducing the extent of underpricing:

**H2b:** The positive association between shareholder litigation rights and IPO underpricing becomes weaker with higher levels of country-level accounting enforcement.

### 2.3. Accounting enforcement and legal enforcement

Even though accounting enforcement is considered to be an important element of a country's framework to ensure high financial reporting quality (Christensen, Hail & Leuz, 2013; Ewert & Wagenhofer, 2019), there is as yet no evidence on whether *accounting* enforcement affects underpricing, but only on the impact of *legal* enforcement in general.

LaPorta et al. (1998) measured legal enforcement using five variables: the efficiency and integrity of the judicial system; the rule of law; the extent of corruption in the government; the risk of expropriation; and the risk of repudiation of contracts by the government. Kaufmann, Kraay & Mastruzzi (2010) developed a rule-of-law index as well as a corruption index. The literature has further distinguished between public and private enforcement. Public enforcement has been measured by the financial and human resources of the security markets regulator (Jackson & Roe, 2009), private enforcement by the extent of shareholder rights (Djankov et al., 2008). Those measures relate to a country's legal system and institutions *in general*, but are not specifically related to the financial reporting framework. The underpricing literature (e.g. Engelen & van Essen, 2010; Banerjee et al. 2011; Hong et al., 2014; Boulton et al., 2017) as well as the accounting literature (e.g. Hope, 2003; Leuz et al., 2003; Daske, Hail, Leuz & Verdi, 2008) has so far controlled for *legal* enforcement as measured by the above variables; however, Brown, Prieto & Tarca (2014) objected that, while the aforementioned enforcement variables might be a valid measure of general legal enforcement, they are possibly a noisy measure of accounting enforcement.

*Accounting* enforcement is specific and differs from more general concepts of legal enforcements, as Brown, Prieto & Tarca (2014) showed. They developed an accounting enforcement index which covers information on (a) whether a security market regulator or another body exists that monitors financial reporting, (b) whether this body has the power to set accounting or auditing standards, (c) whether this body reviews financial statements, (d) whether this body provides a report about its reviews on financial statements, (e) whether this body has taken enforcement actions regarding financial statements, (f) and whether the body is well-staffed.

Currently, the Brown et al. (2014) specification of accounting enforcement represents the most refined measure of the financial reporting framework. Accounting enforcement was measured for the year 2008; the index is therefore based on more recent data than the La Porta et al. (1998) and Djankov et al. (2008) enforcement proxies, which partly refer to data from the 1990s.

### 3. Research design and data

#### 3.1. The main model

We regressed IPO-level underpricing against a set of variables measured at the country level  $j$  and variables at the IPO level  $i$ . Since the extent of underpricing is skewly distributed, we mainly employed the logarithm of underpricing. Among the set of country-level variables, the level of accounting enforcement is the independent variable of interest, as measured by the most recent 2008 values in Brown et al. (2014). At the country-year level, we also employed average analyst coverage ( $\# Analysts$ ) and an index reflecting how strong the incentives are for shareholders to bring a lawsuit against the firm in the respective country ( $EaseSuits$ ). Following Boulton et al. (2011), we also controlled for an aggregated measure of country-level earnings quality ( $EQAggr$ ). We contextualize and describe all variables in more detail below. The model for Hypothesis 1 is specified as follows:

$$(1) \ln(Underpricing + 1)_{i,t} = \alpha + \beta_1 AccEnforce_j + \beta_2 \#Analysts_{j,t} + \beta_3 EaseSuits_{j,t} + \beta_4 EQAggr_{j,t} + \text{other country-level controls}_{j,t} + \text{IPO-level controls}_{i,t} + \text{industry- and year-fixed effects} + \varepsilon_{i,j,t}.$$

With Hypotheses 2a-2b we added interaction terms, interacting  $\#Analysts$  and  $EaseSuits$  with  $AccEnforce$ . Since some important variables show no variation in the investigation period (e.g.  $AccEnforce$  and for some countries even  $EaseSuits$  and the shareholder rights index), we ignored country-fixed effects and ran a pooled OLS regression with robust standard errors clustered at the country-year level and controlling for year-fixed effects and industry-fixed effects based on the one-digit SIC code (the use of two-digit SIC codes does not change the qualitative results).

### 3.2. Measurement of underpricing, financial analyst coverage and shareholder litigation

The independent variable is the natural logarithm of underpricing. *Underpricing* is defined as the first-day trading return, that is, as the first-day secondary market closing price divided by the IPO offer price, minus 1 (Banerjee et al., 2011: 1297; Boulton et al., 2011: 488). We obtained the IPO offer data from the Thomson Reuters New Issues Database and matched it with the secondary market prices from Datastream using the International Securities Identification Number [ISIN]. We only considered IPOs where the first valid secondary market closing price occurred within –3 to +10 days of the IPO issue date.<sup>2</sup>

Since we were interested in the information environment at the country level, we measured analyst coverage by determining the average number of sell-side analysts per listed firm in a given country-year. We focused on analysts who forecast earnings per share (EPS) according to the I/B/E/S Estimates Database, since EPS is the most commonly forecasted item (Banerjee et al., 2011: 1295).

We used the Ease of Shareholder Suits index of the World Bank’s “Doing Business” database (<https://www.doingbusiness.org/en/methodology/protecting-minority-investors>). The World Bank provides time-series data for almost all countries. The ease of shareholder suits index has six components reflecting the extent to which shareholders have access to internal corporate documents; whether evidence is obtainable during the trial; and how legal expenses are allocated.<sup>3</sup> The index

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<sup>2</sup> Boulton et al. (2011: 488) includes observations with closing prices within –3 to +60 days of the IPO issue date.

<sup>3</sup> The six components are: (1) Whether shareholders owning 10% of the company’s share capital have the right to inspect the Buyer-Seller transaction documents before filing a suit. Alternatively, whether they can request that a government inspector investigate the Buyer-Seller transaction without filing a suit. A score of 0 is assigned if no; 1 if yes. (2) The range of documents that are available to the shareholder plaintiff from the defendant and witnesses during trial. A score of 1 is assigned for each of the following types of documents available: information that the defendant has indicated she/he intends to rely on for her/his defense; information that directly proves specific facts in the plaintiff’s claim; and any information relevant to the subject matter of the claim. (3) Whether the plaintiff can obtain categories of relevant documents from the defendant without

ranges from 0 to 10, with higher values indicating greater shareholder power in litigation. Some studies, e.g. Lin et al. (2013: 76), also refer to the prospectus liability index developed by LaPorta et al. (2006). However, the index values were based on answers to a questionnaire sent out in 1993 (LaPorta et al., 2006: 5), and there have been significant changes in securities market law in many countries since then (e.g. the 2003 Sarbanes-Oxley Act in the U.S., and the 2004 Markets for Financial Instruments Directive in the European Union). Considering that our period of investigation was 2011-2017, the World Bank's Ease of Shareholder Suits index seemed to be more suitable.

### 3.3. Measurement of other country-level control variables

We controlled for all country-specific variables and characteristics of the IPO or IPO firm that prior literature showed to be significantly associated with the extent of underpricing and where data was available from the Thomson Reuters New Issues Database and from Datastream.

(1) *Earnings quality*: Ball & Shivakumar (2008: 327-332) found that private firms adjust their financial reporting choices to the “general” standard just before they go public. We therefore accounted for country-level earnings quality. We measured it as an aggregated sum of four earnings management measures using a composite scoring method based on four measures, as suggested by Leuz et al. (2003: 509-511) (see Appendix 1 for more precise information). The four measures include two proxies for earnings smoothing, one measure for discretionary accruals, and the propensity to

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identifying each document specifically. A score of 0 is assigned if no; 1 if yes. (4) Whether the plaintiff can directly examine the defendant and witnesses during trial. A score of 0 is assigned if no; 1 if yes, with prior approval of the questions by the judge or if the judge can set aside questions for any reason; 2 if yes, without prior approval. (5) Whether the standard of proof for civil suits is lower than that for a criminal case. A score of 0 is assigned if no; 1 if yes. (6) Whether shareholder plaintiffs can recover their legal expenses from the company. A score of 0 is assigned if no; 1 if plaintiffs can recover their legal expenses from the company upon a successful outcome of their legal action; 2 if plaintiffs can recover their legal expenses from the company regardless of the outcome of their legal action.

avoid reporting small losses. We obtained the data from the Datastream Worldscope Fundamentals Database.

We measured each earnings management proxy based on the financial data of all publicly listed firms in Datastream in the last five years (t-4 to t) in the respective country. If there was a time series of less than five years, we also took four or three years. If the time series was shorter, we omitted the observation. For each earnings management proxy, we took the average over all listed firms as well as over the five years. Table 2 below shows the average number of publicly listed firms per year included in the respective countries. Ultimately, our composite measure reflects the average level of earnings management, and thus, average earnings quality in the respective country at that point of time. In line with (Boulton et al., 2011), we expected earnings quality to be negatively associated with underpricing.

*IPO Activity:* Ibbotson & Jaffe (1975: 1029) and Ritter (1984: 218) determined that underpricing is higher in “hot markets”, that is, when there are many IPOs. We controlled for IPO activity by measuring the ratio of the number of IPOs to the number of listed firms on a country-year basis.

*Market liquidity:* Ellul & Pagano (2006: 412-414) reported that underpricing was higher with lower market liquidity, suggesting that underpricing includes a liquidity risk premium. We measured country-year market liquidity by the ratio of a country’s total trading volume over year-average market capitalization; see Beck et al. (2000: 604).

*Market return:* We controlled for the market return in the 90 days before an IPO, since there is evidence that the market return before an IPO is positively associated with the extent of underpricing (Bradley et al., 2004: 522; Hanley & Hoberg, 2012: 239; Banerjee et al., 2011: 1296). Since market return has a skewed distribution, we used its natural logarithm  $\ln(\text{market return} + 1)$ .

*Shareholder rights index:* The World Bank’s<sup>4</sup> Doing Business database reports this index on a country-year basis. The index measures the monitoring and decision rights of shareholders, including

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<sup>4</sup> Originally, Djankov et al. (2008: 432-437) developed the shareholder rights index.

the firm's disclosure requirements on, e.g. related-party transactions, executive compensation, and significant shareholders (see Table A2 in the appendix). The stronger shareholder rights are, the lower the expropriation risk of future profits is (LaPorta et al., 2002: 1147). Therefore, the problems arising from asymmetric information are mitigated, and shareholders supposedly have a greater willingness to pay for new shares. Underpricing should therefore be lower. The index takes values from 0 to 10, where a higher value indicates stronger shareholder rights.

We also controlled for the origin of the *legal system*, because there is evidence suggesting that firms in common law countries exhibit higher firm values than in civil law countries due to better investor protection (LaPorta et al., 1997: 1138-40, LaPorta et al., 1998: 1129-1134). We should then also expect lower levels of underpricing.

### **3.4. Measurement of IPO-specific control variables**

*IPO size:* We controlled for IPO size as measured by the number of issued shares times the offering price in 2010 US\$, and then adjusted by the World Bank's Purchasing Power Index. We expected there to be more information around larger IPOs, such that underpricing should be lower (Ritter, 1987). Since IPO size has a very skewed distribution, we used its natural logarithm.

*IPO firm's age:* The age is measured by the difference in years between the date of going public and the date of the firm's foundation. Age is a proxy for information asymmetries as there is more public information available for more mature firms. We expect less underpricing with more mature IPO firms (Loughran & Ritter, 2004: 25; Engelen & van Essen, 2010: 1965).

*Volatility:* The market return volatility after going public has been found to indicate information and pricing uncertainty, which suggests a positive association with underpricing (Loughran & MacDonald, 2013: 319). Volatility was measured as variance of the IPO-related market return in the first 30 days after the first day of trading.

*TopTierUnderwriter* is a binary variable taking the value of 1 if the bookrunner belongs to the Top 25 banks with highest market share according to the SDC Global League Table in the year of the IPO (Boulton et al., 2017: 784) and with a value of zero otherwise. If no bookrunner was mentioned, we assumed a value of zero. Underwriters with a higher reputation are usually associated with lower underpricing.

*Firm Commitment* is an indicator variable with value 1 when the underwriting bank guaranteed to buy the issued stock at a pre-determined price. This variable takes the value of 0 when the underwriter did not commit to taking over the stock, but assured “best efforts” to sell the shares within a pre-determined price range to investors. With a guarantee, the underwriter takes a higher risk, and thus underpricing might be expected to be higher. However, Loughran et al. (1994: 173) found evidence that it is lower in these cases.

The *Equity Carve-out* variable is binary, which takes the value of 1 if the parent company remains a major shareholder after the subsidiary’s IPO. Prezas et al. (2000: 130-132) found that underpricing is significantly lower with equity carve-outs than without.

*LockupDays* measures the number of days of lockup after IPO. If there were different lockup types (e.g. management lockup, selling shareholder lockup), we used the longest period. If no information was provided, we assumed a lockup length of zero. A longer lock-up period is considered to be a costly signal of firm quality, reducing information asymmetries (Arthurs, Busenitz, Hoskisson & Johnson, 2009). We therefore expected lower underpricing with longer lock-up periods.

*Offer Price Revision* is defined as the percentage deviation of the offer price from the middle of the latest available filing range (Kennedy et al. 2006: 61). We expected a positive sign.

*Foreign IPO* is a binary variable with a value of 1 if the IPO took place in a foreign country, that is, a different country to where the firm’s headquarters are located. When the shares are issued in a foreign capital market, e.g. in the US, the costs associated with an IPO are higher. Again, these cost can be interpreted as a costly signal of firm quality (Francis, Hasan, Lothian & Sun, 2010).

### 3.5. Data selection

We started with all IPOs covered in the Thomson Reuters New Issues Database between January 1, 2011 and December 31, 2017 from 29 OECD countries, 22 emerging countries including the BRICS countries, and the remaining Member States of the EU (Bulgaria, Rumania and Cyprus). Following the literature, we omitted observations for various reasons (Lowry & Shu, 2002: 314; Schenone, 2004: 2912; Boulton et al., 2017: 769): First, we deleted so-called “unit offerings”, since the combined offer of stocks and options may distort underpricing. Second, we eliminated offers with subscription rights, since incumbent shareholders are likely to suffer less from information asymmetries, which is likely to affect underpricing. Third, we eliminated IPOs from so-called “Real Estate Investment Trusts” and similar funds, because these are only investment vehicles, rather than actual firms. Fourth, we deleted IPOs of financial institutions (SIC codes 60, 61, 62, 67) and of “limited partnerships”, which are often venture capitalists or private equity firms. The information environment is different here, since financial firms may employ analysts on their own or may issue the IPO on their own, both of which makes the information environment specific and different to “normal” IPOs. After those selection steps, we were left with 6,208 IPOs.

We then deleted 809 Chinese IPOs from 2014-2017 because of severe price regulation. Since 2014, regulators have typically required issuers to sell IPO shares at no more than 23 times their net earnings to ensure that each deal is successful, but cap first-day gains at 44% to rein in speculation.<sup>5</sup> In fact, 685 out of 809 IPOs experienced underpricing in the 40%-45% range, rendering price regulation effective.

For 3,902 IPOs, we found exchange share prices in Datastream, but 178 of them announced their first closing price after 30 days. We deleted another 19 IPOs from countries where we had less than five IPOs. Finally, we deleted observations with underpricing less than the 1% percentile and more

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<sup>5</sup> See <https://www.scmp.com/business/china-business/article/3040792/has-chinas-ipo-bonanza-fizzled-out-amid-oversupply-subdued> (accessed on May 24, 2020).

than the 99% percentile to mitigate the effects of extreme outliers and possible data errors (see Banerjee et al., 2011: 1295; Boulton et al., 2011: 488).<sup>6</sup>

We also lost considerable observations because data availability for some variables was rather limited, especially concerning the firm's age, offer price revision and market return. Moreover, the accounting enforcement index of Brown et al. (2014) is only defined for a limited number of countries. Table 1 provides an overview of the sample selection.

--Insert Table 1 about here--

## **4. Results**

### **4.1. Descriptive statistics**

Table 2 shows that there is significant variation across countries with regard to the number of IPOs, the mean underpricing, the average number of financial analysts per firm, the ease of shareholder litigation and, last but not least, the level of accounting enforcement (*AccEnforce*).

--Insert Table 2 about here--

Table 2 also shows that most of the IPOs in the sample were from the US (648), followed by China (451), Japan (421) and India (301). Even though we ignored Chinese IPOs in the period 2014-2017 due to price regulation, they still represent a major share of our sample. Median underpricing is highest in Japan (46.3%) and Thailand (31.3%). Median underpricing is lowest in Norway, where it was even negative in the 2011-2017 period. Other studies have documented low underpricing in Norway as well (Banerjee et al., 2011: 1297; Boulton et al., 2011: 491). In sum, the extent of underpricing is comparable to other studies (Engelen & van Essen, 2010: 1963; Loughran et al., 1994: 168).

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<sup>6</sup> Maximum and minimum underpricing before deleting outliers was 15,867% and -93.75%, respectively.

Analyst coverage is highest in the Netherlands and in the US (7.3 and 6.7, respectively) and lowest in Poland and Russia (0.62 and 0.40, respectively). Shareholders have the strongest litigation rights in Hong Kong, New Zealand, Poland, Singapore and the US, (mean index value over the 2011-2017 period: 9), while they are weak in Indonesia (mean index value: 2).

The level of accounting enforcement according to Brown et al. (2014) is highest in the US, Australia, Belgium, Denmark, Hong Kong, Norway, Switzerland and the United Kingdom, while Chile, India, Indonesia and Russia have the lowest scores.

Table 3 provides summary statistics. The average (median) underpricing is 23.9% (8.5%); however, underpricing varies a great deal. There is significant country-level variation in accounting enforcement. The country-level average number of analysts per publicly listed firm varies from 0.29 to 7.6, with a mean of 3.02. The median of the *EaseSuits* variable is 8 (out of 10), suggesting that many countries provide a relatively favorable litigation framework for shareholders.

--Insert Table 3 about here--

The descriptive statistics on market returns, IPO activity and trading volume is consistent with other studies (Banerjee et al., 2011: 1299; Boulton et al., 2017: 770). On the IPO level, IPO firms have an average age of 11.5 years when going public. 34.5% of IPOs have a top tier underwriter, and the average lockup period is 144 days.

The correlation matrix (not tabulated) reports significantly ( $p < 1\%$ ) negative correlation coefficients of accounting enforcement and analyst coverage with underpricing (-0.16 and -0.09, respectively) while *EaseSuits* exhibits a positive sign (0.08). The correlation coefficients between analyst coverage and accounting enforcement and between analyst coverage and *EaseSuits* are relatively high (0.76 and 0.35, respectively). Otherwise, correlation coefficients do not suggest severe multicollinearity problems.

Figure 2 displays the relationship between the strictness of accounting enforcement and mean underpricing on a country-year level. We have 32 countries and (at most) seven years per country,

resulting in 202 country-year observations. We grouped the observations into five quintiles. Underpricing tends to increase with lower levels of accounting enforcement.

--Insert Figure 2 about here--

#### **4.2. The direct effect of accounting enforcement on underpricing (Hypothesis 1): Multivariate analysis**

Table 4 shows the results of the multivariate analyses, where we regressed underpricing on the level of accounting enforcement. It transpires that stricter accounting enforcement implies significantly lower underpricing ( $p < 1\%$ ). This result is robust towards the exclusion of the important driver *Offer Price Revision* (Column 3), the exclusion of insignificant variables (Column 4), the exclusion of US IPOs (Column 6) and a different measurement of underpricing (Column 5). Adjusted  $R^2$  is relatively high, in the 31%-32% range (compared to, e.g. 9% with Banerjee et al., 2011 and 19-20% with Boulton et al., 2011).

--Insert Table 4 about here--

The association of accounting enforcement with IPO underpricing is also significant in economic terms. A standard deviation increase in *AccEnforce* results in a 9.3%-point decrease in underpricing ( $-0.014 * 6.63$ , see Table 3 and Column 5 in Table 4).

We are unable to confirm the result found in Boulton et al. (2011) that country-level earnings quality is significantly negatively associated with underpricing, even when we drop the *AccEnforce* variable (Column 2). However, Boulton et al. (2011) also used a larger sample from a different time period (1998-2008,  $N = 10,700$ ) and with a different and smaller set of 13 control variables. In particular, Boulton et al. (2011) were unable to control for accounting enforcement since this variable was not available before Brown et al. (2014).

Regarding the other country-level variables, less favorable shareholder litigation and higher values of the shareholder rights index are significantly associated with lower levels of underpricing. Higher

financial analyst coverage relates to lower underpricing, albeit not always at a significant level. IPOs in common law countries tend to exhibit lower levels of underpricing.

With regard to IPO-level characteristics, larger IPO size, higher firm age and lower return volatility in the 30 days after the IPO are associated with lower underpricing, all of which are in line with the idea that lower information asymmetries should result in less underpricing. However, we find no robust significant evidence for underwriter reputation and the Firm Commitment variable.

Does the impact of the Brown et al. (2014) measurement of accounting enforcement differ from other (legal) enforcement measurement mechanisms suggested in the literature? Table 5 provides the regression results on this question. To avoid redundancy, from now on, the tables display the main variables of interests, even though we still include all the control variables we used before.

--Insert Table 5 about here--

The results in Table 5 suggest that many measurements of legal enforcement are not significantly associated with underpricing, such as the private enforcement index by Djankov et al. (2008) and the rule of law index based on Kaufmann, Kraay & Mastruzzi (2010)'s work and using World Bank data from 2011-17. The financial resources of the securities market regulator (Jackson & Roe, 2009) are significantly negatively associated with underpricing, but not its human resources.

#### **4.3. The indirect effects of accounting enforcement on underpricing via financial analyst coverage and shareholder litigation (Hypotheses 2a and 2b): Multivariate analysis**

Table 6 provides the results on Hypothesis 2a. Columns 1-6 confirm that accounting enforcement is significantly negatively associated with underpricing, regardless of how we measure underpricing and whether we exclude US IPOs or not. Table A3 in the appendix indicates that variance inflation factors are moderate. Country-level earnings quality (EQAggr) does not exhibit a significant coefficient.

Higher financial analyst coverage implies lower underpricing in countries with higher earnings quality. However, the interaction of *Analysts*  $\times$  *AccEnforce* is not significant, suggesting that country-

level earnings quality seems to support the work of financial analysts, while accounting enforcement does not. We have to reject Hypothesis 2a.

--Insert Table 6 about here--

We obtain a different result when we look at shareholder litigation (see Table 7). Again, accounting enforcement is significantly and robustly negatively associated with underpricing, mostly at  $p < 1\%$ . However, unlike in Table 6, accounting enforcement also *indirectly* mitigates the effect of shareholder litigation on underpricing (Columns 2, 4, 6). With stricter accounting enforcement, shareholders may expect excessive earnings management to be less likely to occur, such that shareholders are less inclined to bring a lawsuit. In turn, IPO firms become less conservative in fixing the offering price. This evidence supports Hypothesis 2b. There is no significant indirect effect of country-level earnings quality.

## 5. Summary

Based on a sample of up to 2,488 IPOs in 32 countries in the years 2011-2017, we find robust and significant evidence that stricter accounting enforcement is associated with lower levels of underpricing, directly and *indirectly*. Indirectly, stricter accounting enforcement mitigates the positive association between shareholder litigation rights and underpricing.

Our analysis is subject to a number of limitations. Since we focused on the country-level financial reporting environment and were constrained by data limitations, we ignored individual IPO firms' earnings quality before going public. Furthermore, we were unable to prove that accounting enforcement affects underpricing, and not vice versa. From a theoretical point of view, it does not seem plausible that underpricing affects the level of accounting enforcement. Even though we controlled for many variables, we still cannot rule out the possibility that omitted variables drive the association between accounting enforcement and underpricing.

Future research may address those issues and may also be better able to answer the regulatory question of whether further improvements in accounting enforcement are warranted to reduce underpricing. This is an important question, since lower levels of underpricing are likely to enhance innovative activity in an economy. An IPO is an attractive exit strategy of venture capitalist firms and other private equity investors, and the perspective of an IPO drives the decision to invest in innovative firms in the first place. An interesting question is to *what extent* improvements in accounting enforcement would result in lower levels of underpricing. Recent theoretical research by Ewert & Wagenhofer (2019) suggests that enforcement levels beyond an “optimal” level may cause overly strong negative side effects, such as impaired auditor incentives and an overall decrease in financial reporting quality.

## Appendix 1: Measurement of Earnings Quality

As Dechow, Ge & Schrand (2010) have noted, higher earnings quality increases the informativeness of earnings for investor decisions. Evidence indicates that earnings quality is impaired by the firm's intention and discretion to manage earnings (Healy & Wahlen, 1999). Following this line of argument, earnings quality decreases with more earnings management.<sup>7</sup>

Since there are different ways to measure earnings management (EM), we used a composite scoring method based on four measures, as suggested by Leuz et al. (2003: 509-511). The four EM measures include two proxies for earnings smoothing, one proxy for discretionary accruals, and the propensity to avoid reporting small losses. We obtained the data from the Datastream Worldscope Fundamentals Database.

We measured each EM proxy based on the financial data of all publicly listed firms in Datastream in the last five years ( $t-4$  to  $t$ ) in the respective country. If there was a time series of less than five years, we also took four or three years. If the time series was shorter, we omitted the observation. For each earnings management proxy, we took the average over all listed firms as well as over the five years. Thus, we obtained a proxy for EM which reflects the average level of earnings management and, thus, average earnings quality in the respective country at that point of time (Boulton et al., 2011: 485).

The first measure of earnings management refers to the extent of earnings smoothing measured by the median ratio in country  $j$  of the firm-level standard deviations of operating earnings over standard deviations of the cash flow from operations, both scaled by lagged total assets (Leuz et al., 2003: 509). If this ratio is 1, the volatility of operating earnings equals the volatility of cash from operations, suggesting that, on the country average, there is no earnings smoothing. If this ratio is 0, all the volatility of cash from operations is offset by earnings management. Thus, higher median values of this ratio indicate higher earnings quality (EQ1).

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<sup>7</sup> However, earnings management may sometimes also improve the informativeness of earnings, e.g. if it is used to properly assign expenses and income to their economic use in the respective periods (Healy & Wahlen, 1999).

We determined cash flow from operations as the difference between operating earnings and accruals. Accruals are defined according to Dechow, Sloan & Sweeney (1995: 203):

$$(2) \quad \text{Acc}_t = \Delta \text{CA}_t - \Delta \text{CL}_t - \Delta \text{Cash}_t + \Delta \text{STD}_t - \text{Dep}_t$$

with  $\Delta \text{CA}_t$ : change in current assets from  $t-1$  to  $t$ ;  $\Delta \text{CL}_t$ : change in current liabilities from  $t-1$  to  $t$ ;  $\Delta \text{Cash}_t$ : change in cash and cash equivalents from  $t-1$  to  $t$ ;  $\Delta \text{STD}_t$ : change in short-term liabilities from  $t-1$  to  $t$ ; and  $\text{Dep}_t$ : depreciation expenses in period  $t$ .

The second proxy (EQ2) refers to earnings smoothing as well, as measured by the cross-sectional rank correlation in country  $j$  in year  $t$  between the change in accruals and the change in cash flow from operations, both scaled by lagged total assets (see Leuz et al., 2003: 510). All publicly listed firms in year  $t$  for each country were considered. Higher correlation values correspond to higher earnings quality. For instance, if the correlation were  $-1$ , a more negative change in cash flows would be “offset” by a more positive change in accruals.

The third proxy for earnings quality (EQ3) is the extent of absolute accruals, which we defined as the median in country  $j$  and year  $t$  of the absolute differences between operating earnings and cash flow from operations, scaled by cash flow from operations. With higher absolute accruals, earnings and cash flows differ more, indicating a higher extent of earnings management. Similar to EQ2, we calculated each country’s median value of the absolute value of firms’ accruals, scaled by the absolute value of cash flow from operations (see Leuz et al., 2003: 510; Boulton et al., 2011: 497). We transformed this ratio by multiplying its value by  $-1$ , such that higher values correspond to less earnings management and higher earnings quality.

EQ4 measures the propensity of a country’s listed firms to avoid reporting small losses. Earnings management usually allows the transformation of small negative cash flows from operations into slightly positive earnings (Leuz et al., 2003: 511). We measured loss avoidance behavior by the ratio of the number of firms reporting small profits over the sum of the number of firms reporting small losses or small profits (Burgstahler & Dichev, 1997). The term “small profit” is defined as a ratio of net income to lagged total assets in the interval  $[0.00; 0.01]$ ; small losses imply a ratio of net income to lagged total assets in the interval  $[-0.01; 0)$  (Leuz et al., 2003: 511). A higher ratio shows a higher

propensity for loss avoidance. We therefore multiplied this ratio by  $-1$ , such that higher values correspond to higher earnings quality.

Finally, we defined a composite score of the four earnings quality measures for each country for each of the four earnings quality measures, and calculated the average ranking, *EQAggr* (Leuz et al., 2003: 511). A higher average ranking thus indicates higher earnings quality. The benefit of this aggregate measure is that it covers different aspects of earnings quality and tends to reduce measurement errors related to one EQ measure or the influence of outliers within countries with regard to one measure.

# Appendix 2

Table A1: Definitions of variables

| Variable                       | Definition   | Measurement  | Source   |
|--------------------------------|--|--|--|
| Underpricing                   | Stock return on first trading day  | $\frac{\text{Closing stock price on first day of trading}_i}{\text{Offering price}_i} - 1$   |  |
| AcceEnforce                    |  | Score on country-level accounting enforcement in 2008  | Brown et al. (2014)  |
| <b>Country-level variables</b> |  |  |  |
| # Analysts                     | Average number of sell-side financial analysts that forecast earnings per share (EPS), per listed firm in country $j$                                  | $\frac{\text{Number of EPS Forecasts}_{j,t}}{\text{Number of listed firms}_{j,t}}$   | I / B / E / S  |
| EaseSuits                      | Index indicating shareholder litigation rights   | Index value of Ease of Shareholder Suits Index for country $j$ in year $t$ .   | World Bank, <i>Doing Business</i> database                                 |
| EQAggr                         | Composite score based on the mean rankings using four earnings quality measures (see Appendix 1)*  | Average of the four ranks with regard to the earnings quality measures EQ1, EQ2, EQ3 and EQ4   | DataStream and Leuz et al. (2003)  |
| Shareholder Rights Index       | Level of investor protection based on investors' decision-making and oversight rights and by the transparency on corporate governance (see Appendix 3) | Index value of Shareholder Rights Index for country $j$ in year $t$ .  | World Bank, <i>Doing Business</i> database, based on Djankov et al. (2008) |
| Common Law                     | Dummy variable indicating origins of the legal system  | Dummy variable with value 1 if common law, and value 0 if civil law  | LaPorta et al. (2008)  |
| Market return                  | Market return in country $j$ in the 90 trading days before IPO + 1   | $\ln \left( \frac{P_{t-1}(\text{market}_j)}{P_{t-91}(\text{market}_j)} \right)$  | DataStream   |
| IPO Activity                   | Indicates the relevance of IPOs in country $j$ and year $t$  | $\ln \left( \frac{\text{Number of IPOs}_{j,t}}{\text{Number of listed firms}_{j,t}} \right)$   | Thomson Reuters New Issues Database  |
| Trading Volume                 | Trading volume in country $j$ and year $t$ over average market capitalization  | $\ln \left( \frac{\text{Market value of traded securities}_{j,t}}{\frac{\text{market capitalization}_{i,t;\text{beginning}}}{2} + \text{market cap}_{i,t;\text{end}}} \right)$ | Beck et al. (2000)   |

| IPO-specific variables                           |  |  |                                     |
|--|--|--|-------------------------------------|
| IPO Size   | Proceeds from initial public offering in 2010 US\$, adjusted by purchasing power index                                 | $\frac{(Offering\ price\ in\ 2010\ US\$_i * \#Issued\ shares_i) * VP_{j,2010}}{VP_{j,t}}$  | Thomson Reuters New Issues Database |
| Age  | Maturity of the firm going public  | Difference in years between the date of going public and the date of the firm's foundation.  | Thomson Reuters New Issues Database |
| Volatility                                       | Level of return volatility in the first 30 trading days after IPO according to the standard deviation of daily returns | $\sigma_i(daily\ return_{t,t+30})$   | Thomson Reuters New Issues Database |
| TopTierUnderwriter                               | Reputation of underwriter  | Dummy variable with value 1 if underwriter belongs to the Top 25 banks with highest market share according to the SDC Global League Table in the IPO year, and with value 0 otherwise. If no underwriter was mentioned, we assumed a value of 0. | Thomson Reuters New Issues Database |
| Firm Commitment                                  | Commitment of underwriter bank in IPO  | Dummy variable with value 1 if underwriter guaranteed to buy issued stock at a pre-determined price, and 0 if not  | Thomson Reuters New Issues Database |
| Equity Carve-out                                 | Dummy variable indicating whether parent company remains a major shareholder after the IPO                             | Dummy variable with value 1 if equity carve-out, and value 0 if not  | Thomson Reuters New Issues Database |
| LockupDays                                       | Lockup length for insider sales  | Number of days of lockup after IPO. If there were different lockup types (e.g. management lockup, selling shareholder lockup), we used the shortest period. If no information was provided, we assumed a lockup period of zero days.             | Thomson Reuters New Issues Database |
| OfferPrice Revision                              | Difference between offer price and filing range  | Percentage deviation of the offer price from the middle of the latest available filing range.  | Thomson Reuters New Issues Database |
| Foreign IPO                                      |  | Dummy variable with value 1 if IPO took place in a foreign country, and value 0 otherwise.   | Thomson Reuters New Issues Database |
| with country $j$ , IPO firm $i$ and year/day $t$ |  |  |                                     |

\* The earnings quality measures that enter the EQAggr composite score are measured as follows (Leuz et al., 2003): EQ 1 (Earnings smoothing): Median ratio of firm-level standard deviations of operating earnings over firm-level standard deviations of cash flow from operations. EQ 2 (Earnings smoothing): Earnings smoothing: Rank correlation in country  $j$  in year  $t$  between change in accruals and change in cash flow from operations, both scaled by lagged total assets. EQ 3 (Extent of absolute accruals): Country-year median of absolute differences between firm-level operating earnings and cash flow from operations scaled by cash flow from operations. EQ 4 (Propensity to avoid reporting small losses): Number of firms in country  $j$  with  $0 \leq ROA \leq 1\%$  over number of firms with  $-1\% \leq ROA \leq 1\%$ .

### Appendix 3

Table A2: Content of the Shareholder Rights Index according to the World Bank's Doing Business Database<sup>8</sup>

|  |
|--|
| <b>Extent of shareholder rights index (0–10)</b>   |
| Shareholders' rights and role in major corporate decisions   |
| <b>Extent of ownership and control index (0–10)</b>  |
| Governance safeguards protecting shareholders from undue board control and entrenchment  |
| <b>Extent of corporate transparency index (0–10)</b>   |
| Corporate transparency on significant owners, executive compensation, annual meetings and audits                                 |
| <b>Extent of shareholder governance index (0–10)</b>   |
| Simple average of the extent of shareholder rights, extent of ownership and control and extent of corporate transparency indices |

### Appendix 4

Table A3: Variance-inflation factors

| Variables               | Hyp. 2a | Hyp. 2b |
|-------------------------|---------|---------|
| AccEnforce              | 10.19   | 6.29    |
| # Analysts              | 10.51   | 5.13    |
| # Analysts x AccEnforce | 6.34    |         |
| EaseSuits               | 2.78    | 5.06    |
| EaseSuits x AccEnforce  |         | 3.52    |

<sup>8</sup> See World Bank (Doing Business Database): <http://www.doingbusiness.org/en/methodology/protecting-minority-investors>.

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Figure 1: Information asymmetries with an IPO

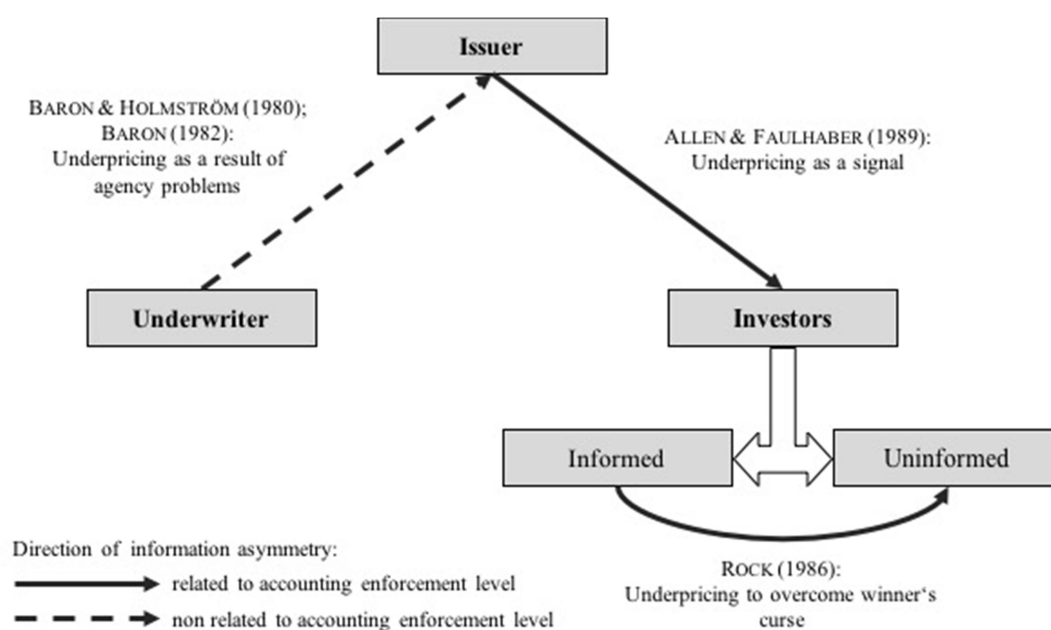


Figure 2: Country-level accounting enforcement and underpricing

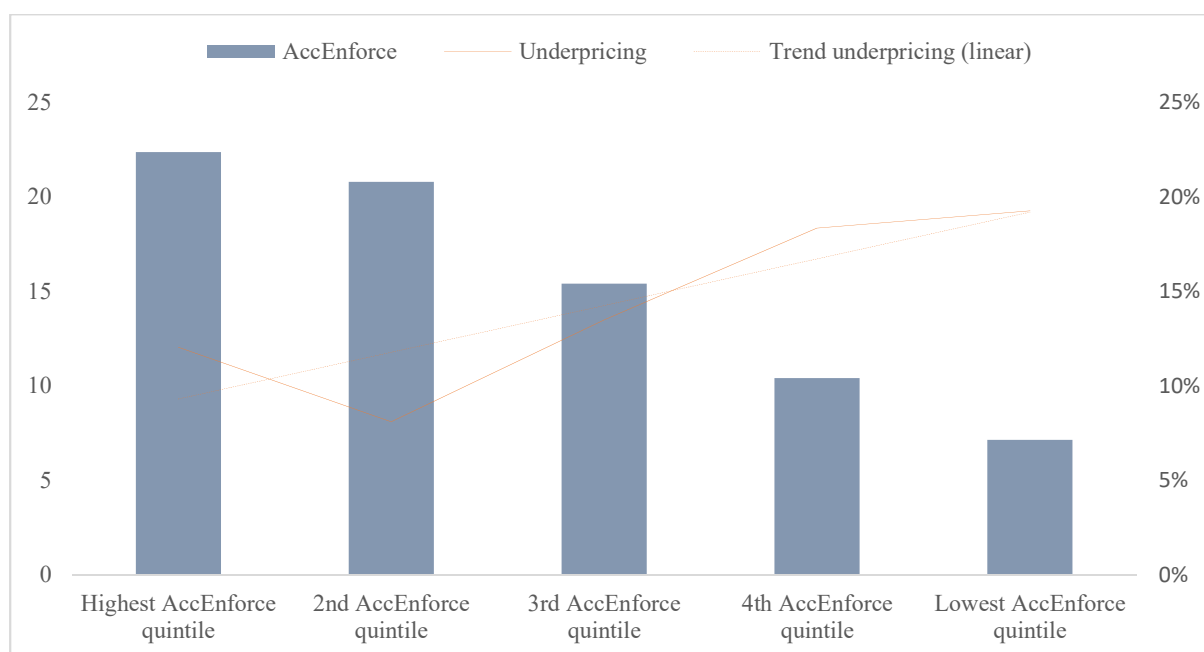


Figure 2 depicts the association between country-level accounting enforcement and underpricing. Countries are ranked according to accounting enforcement level, and then grouped into quintiles. The right-hand vertical axis quantifies the extent of mean underpricing in %; the left-hand axis shows the country-level of accounting enforcement (AccEnforce).

Table 1: Sample selection

| Selection step   | IPOs<br>dropped | Remaining<br>IPOs | Countries |
|--|-----------------|-------------------|-----------|
| IPOs from Thomson Reuters New Issues Database excluding:<br>IPOs with unit offerings, IPOs with subscription rights to<br>incumbent shareholders, IPOs of “Real Estate Investment Trusts”<br>or financial institutions |                 | 6,208             | 41        |
| - Price regulation in China (2014 – 2017)  | 809             | 5,399             |           |
| - Matching with stock price data in Datastream according to ISIN<br>Code   | 1,497           | 3,902             |           |
| - First closing prices > 30 days after IPO   | 178             | 3,724             |           |
| - IPOs from countries with fewer than 5 IPOs   | 19              | 3,705             |           |
| - Elimination of IPOs with underpricing < 1% or > 99% percentile   | 74              | <b>3,631</b>      | <b>32</b> |
| - No data available for the Age variable   | 975             | 2,656             |           |
| - No data available for the Market Returns variable  | 168             | 2,488             |           |
| - No data available for the Offer Price Revision variable  | 558             | <b>1,930</b>      | <b>32</b> |

Table 2: Country-level data on IPOs, underpricing, analyst coverage, shareholder litigation and accounting enforcement level

| Country      | Number<br>IPOs | Mean<br>under-<br>pricing | Median<br>under-<br>pricing | # listed firms<br>per year (for<br>EQAggr) | #Analysts<br>/ firm | Mean<br>Ease Suits | AccEn-<br>force |
|--------------|----------------|---------------------------|-----------------------------|--|---------------------|--------------------|-----------------|
| Australia    | 210            | 14.2%                     | 5.5%                        | 606.6                                      | 1.44                | 8.00               | 22              |
| Belgium      | 9              | 3.0%                      | 1.0%                        | 63.1                                       | 1.67                | 7.00               | 22              |
| Brazil       | 27             | 1.8%                      | -0.3%                       | 187.0                                      | 3.04                | 4.00               | 8               |
| Canada       | 63             | 18.1%                     | 4.1%                        | 164.6                                      | 1.95                | 8.54               | 22              |
| Chile        | 5              | 3.0%                      | 2.0%                        | 98.3                                       | 0.84                | 7.00               | 5               |
| China        | 451            | 18.8%                     | 12.0%                       | 1,311.4                                    | 2.17                | 4.00               | 16              |
| Denmark      | 15             | 5.3%                      | 0.2%                        | 64.8                                       | 3.74                | 8.00               | 22              |
| Finland      | 24             | 6.0%                      | 5.4%                        | 77.3                                       | 4.51                | 8.00               | 12              |
| France       | 110            | 4.8%                      | 0.4%                        | 364.0                                      | 3.18                | 6.00               | 16              |
| Germany      | 54             | 8.1%                      | 1.6%                        | 312.6                                      | 4.20                | 5.00               | 21              |
| Hong Kong    | 104            | 21.1%                     | 5.1%                        | 107.8                                      | 4.50                | 9.00               | 22              |
| India        | 301            | 9.9%                      | 4.4%                        | 1,697.0                                    | 1.10                | 7.00               | 6               |
| Indonesia    | 96             | 19.1%                     | 11.1%                       | 295.9                                      | 1.38                | 2.00               | 6               |
| Italy        | 61             | 9.0%                      | 4.6%                        | 147.3                                      | 2.97                | 6.00               | 19              |
| Japan        | 421            | 77.4%                     | 46.4%                       | 1,926.1                                    | 1.68                | 8.00               | 8               |
| Mexico       | 10             | 4.2%                      | 1.2%                        | 72.7                                       | 3.13                | 5.00               | 13              |
| Netherlands  | 25             | 3.2%                      | 3.1%                        | 58.0                                       | 7.28                | 6.00               | 19              |
| New Zealand  | 24             | 4.2%                      | 4.3%                        | 51.5                                       | 2.52                | 9.00               | 19              |
| Norway       | 30             | -0.7%                     | -1.1%                       | 76.2                                       | 3.35                | 8.00               | 22              |
| Philippines  | 22             | 9.5%                      | 1.6%                        | 119.8                                      | 1.30                | 7.00               | 16              |
| Poland       | 40             | 2.6%                      | 0.5%                        | 195.0                                      | 0.62                | 9.00               | 9               |
| Russia       | 12             | 4.9%                      | 1.0%                        | 230.8                                      | 0.40                | 7.00               | 6               |
| Singapore    | 89             | 28.1%                     | 15.0%                       | 243.9                                      | 1.79                | 9.00               | 12              |
| South Africa | 16             | 10.3%                     | 7.9%                        | 122.7                                      | 2.46                | 8.00               | 10              |
| South Korea  | 172            | 29.7%                     | 16.0%                       | 1,263.4                                    | 1.49                | 8.00               | 10              |
| Spain        | 25             | 5.1%                      | 2.6%                        | 96.9                                       | 4.29                | 6.00               | 16              |
| Sweden       | 113            | 14.1%                     | 10.3%                       | 175.6                                      | 1.46                | 7.00               | 9               |
| Switzerland  | 20             | 7.4%                      | 5.1%                        | 114.0                                      | 5.62                | 5.00               | 22              |
| Thailand     | 135            | 54.0%                     | 31.3%                       | 385.3                                      | 1.88                | 7.00               | 12              |
| Turkey       | 61             | 7.9%                      | 1.7%                        | 206.1                                      | 1.54                | 4.52               | 9               |
| UK           | 238            | 9.9%                      | 6.7%                        | 676.3                                      | 3.90                | 8.00               | 22              |
| USA          | 648            | 19.1%                     | 11.1%                       | 1,459.0                                    | 6.74                | 9.00               | 24              |

For definitions of underpricing, EaseSuits and AccEnforce, see Table A1 in the appendix.

Table 3: Summary statistics

|                                  | N =   | Mean   | 1 <sup>st</sup><br>quartile | Median | 3 <sup>rd</sup><br>quartile | Min.   | Max.   | Stand.<br>dev. |
|----------------------------------|-------|--------|-----------------------------|--------|-----------------------------|--------|--------|----------------|
| Underpricing in %                | 3,631 | 23.9   | -0.2                        | 8.5    | 28.8                        | -32.9  | 353.8  | 47.5           |
| ln (Underpricing +1)             | 3,631 | 0.166  | -0.002                      | 0.082  | 0.253                       | -0.399 | 1.512  | 0.285          |
| <b>Country-level variables</b>   |       |        |                             |        |                             |        |        |                |
| AccEnforce                       | 3,631 | 15.60  | 9                           | 16     | 22                          | 5      | 24     | 6.63           |
| # Analysts                       | 3,631 | 3.02   | 1.57                        | 2.13   | 4.05                        | 0.29   | 7.60   | 2.04           |
| EaseSuits                        | 3,631 | 7.16   | 6                           | 8      | 9                           | 2      | 9      | 1.86           |
| EQAggr                           | 3,631 | -16.63 | -24.50                      | -17.25 | -8.25                       | -32.25 | -1.75  | 9.33           |
| Shareholder Rights<br>Index      | 3,631 | 6.05   | 5                           | 6      | 7                           | 4      | 8.7    | 1.23           |
| Common Law                       | 3,631 | 0.50   | 0                           | 1      | 1                           | 0      | 1      |                |
| ln (Market Return+1)             | 3,422 | 0.024  | -0.024                      | 0.031  | 0.072                       | -0.293 | 0.367  | 0.078          |
| ln (IPO Activity)                | 3,631 | -3.32  | -3.71                       | -3.28  | -2.97                       | -6.43  | -0.24  | 0.76           |
| ln (Trad_Vol)                    | 3,631 | -0.219 | -0.617                      | -0.172 | 0.132                       | -2.107 | 0.885  | 0.577          |
| <b>IPO-specific controls</b>     |       |        |                             |        |                             |        |        |                |
| ln (IPO size in million<br>US\$) | 3,631 | 3.419  | 2.146                       | 3.714  | 4.708                       | -8.725 | 9.638  | 2.038          |
| Age                              | 2,656 | 11.454 | 3.379                       | 8.774  | 14.958                      | 0      | 101.85 | 11.97          |
| Volatility                       | 3,629 | 0.054  | 0.021                       | 0.033  | 0.051                       | 0.000  | 3.170  | 0.116          |
| TopTierUnderw                    | 3,631 | 0.345  | 0                           | 0      | 1                           | 0      | 1      |                |
| Firm Commitment                  | 3,631 | 0.800  | 1                           | 1      | 1                           | 0      | 1      |                |
| Equity Carve-out                 | 3,631 | 0.218  | 0                           | 0      | 0                           | 0      | 1      | 0.413          |
| LockupDays                       | 3,631 | 144.17 | 0                           | 179    | 180                         | 0      | 1,095  | 141.49         |
| OfferPriceRevision               | 2,952 | -0.004 | 0                           | 0      | 0.033                       | -0.456 | 0.701  | 0.091          |
| Foreign IPO                      | 3,631 | 0.063  | 0                           | 0      | 0                           | 0      | 1      |                |

Table 3 shows descriptive statistics. For definitions of the variables, see Table A1 in the appendix. Underpricing is trimmed at the 1% and 99% percentiles.

Table 4: Hypothesis 1: The direct effect of country-level accounting enforcement on underpricing: pooled OLS for 32 countries, 2011-17

|                             |               | ln (underpricing + 1) |                           |                              |                                       |  |                        |
|-----------------------------|---------------|-----------------------|---------------------------|------------------------------|---------------------------------------|--|------------------------|
|                             |               | Coeff.                |                           |                              |                                       |  |                        |
|                             |               | (t-value)             |                           |                              |                                       |  |                        |
|                             | Pred.<br>sign | (1) All<br>variables  | (2) without<br>AccEnforce | (3) without<br>OfferPriceRev | (4) with significant<br>controls only | (5) with “underpricing”<br>as dependent variable | (6) without US<br>IPOs |
| AccEnforce                  | —             | -0.0083***<br>(-2.79) |                           | -0.0082***<br>(-3.12)        | -0.0091***<br>(-3.48)                 | -0.014***<br>(-2.65)                             | -0.0101***<br>(-3.34)  |
| # Analysts                  | —             | -0.014*<br>(-1.67)    | -0.027***<br>(-3.32)      | -0.020**<br>(-2.47)          | -0.010<br>(-1.49)                     | -0.033**<br>(-2.37)                              | 0.012<br>(1.11)        |
| EaseSuits                   | +             | 0.027***<br>(3.47)    | 0.024***<br>(3.00)        | 0.030***<br>(4.23)           | 0.031***<br>(4.20)                    | 0.045***<br>(3.45)                               | 0.023***<br>(3.00)     |
| EQAggr                      | —             | 0.003<br>(1.02)       | 0.000<br>(0.08)           | -0.000<br>(-0.06)            | 0.003<br>(1.24)                       | 0.005<br>(1.03)                                  | 0.003<br>(1.05)        |
| Shareholder Rights<br>Index | —             | -0.058***<br>(-4.75)  | -0.055***<br>(-4.39)      | -0.070***<br>(-5.27)         | -0.062***<br>(-6.02)                  | -0.099***<br>(-4.71)                             | -0.065***<br>(-5.11)   |
| Common Law                  | —             | -0.096***<br>(-3.72)  | -0.109***<br>(-3.79)      | -0.076***<br>(-2.67)         | -0.098***<br>(-3.99)                  | -0.183***<br>(-3.98)                             | -0.045<br>(-1.50)      |
| ln (Market Return<br>+1)    | +             | 0.195**<br>(2.13)     | 0.202**<br>(2.25)         | 0.109<br>(0.89)              | 0.210**<br>(2.25)                     | 0.295*<br>(1.91)                                 | 0.216**<br>(2.49)      |
| ln (IPO Activity)           | +             | 0.025<br>(1.53)       | 0.005<br>(0.31)           | 0.035**<br>(2.30)            | 0.029*<br>(1.82)                      | 0.023<br>(0.83)                                  | 0.015<br>(0.89)        |
| ln (Trad_Vol)               | —             | 0.030<br>(0.87)       | 0.056*<br>(1.77)          | 0.060*<br>(1.79)             |                                       | 0.075<br>(1.27)                                  | 0.094**<br>(2.24)      |
| ln (IPO Size)               | —             | -0.024***<br>(-2.88)  | -0.027***<br>(-3.22)      | -0.023***<br>(-2.65)         | -0.025***<br>(-3.03)                  | -0.038***<br>(-2.65)                             | -0.025***<br>(-2.92)   |
| Age                         | —             | -0.002***<br>(-2.95)  | -0.002**<br>(-2.41)       | -0.002**<br>(-2.11)          | -0.002***<br>(-2.93)                  | -0.004***<br>(-2.91)                             | -0.003***<br>(-3.25)   |
| Volatility                  | +             | 0.514***<br>(3.86)    | 0.576***<br>(4.56)        | 0.450***<br>(3.69)           | 0.492***<br>(3.94)                    | 0.738***<br>(3.15)                               | 0.536***<br>(3.80)     |
| TopTierUnderwr              | —             | -0.002<br>(-0.13)     | 0.000<br>(-0.01)          | -0.009<br>(-0.55)            |                                       | -0.009<br>(-0.31)                                | 0.005<br>(0.24)        |
| Firm Commitment             | —/+           | 0.043**               | 0.067***                  | 0.032                        | 0.041**                               | 0.063*   | 0.044**                |

|  |   |                     |                     |                      |                     |                      |                    |
|--|---|---------------------|---------------------|----------------------|---------------------|----------------------|--------------------|
|  |   | (2.10)              | (3.55)              | (1.54)               | (2.01)              | (1.94)               | (2.16)             |
| Equity Carve-out                                       | – | -0.020<br>(-1.01)   | -0.022<br>(-1.10)   | -0.027<br>(-1.33)    |                     | -0.046<br>(-1.35)    | -0.030<br>(-1.28)  |
| LockupDays   | – | -0.000<br>(-0.44)   | -0.000<br>(-0.35)   | -0.000*<br>(-1.70)   |                     | -0.000<br>(-0.14)    | -0.000<br>(-0.18)  |
| OfferPriceRevision                                     | + | 0.810***<br>(12.11) | 0.816***<br>(11.95) |                      | 0.835***<br>(12.05) | 1.102***<br>(10.54)  | 0.815***<br>(6.45) |
| Foreign IPO  | – | -0.070*<br>(-1.77)  | -0.082**<br>(-2.07) | -0.099***<br>(-2.73) | -0.073*<br>(-1.86)  | -0.105**<br>(-12.16) | -0.071<br>(-1.54)  |
| Constant   |   | 0.578***<br>(3.23)  | 0.325**<br>(2.33)   | 0.633***<br>(3.66)   | 0.641***<br>(4.43)  | 0.884***<br>(2.82)   | 0.525***<br>(2.97) |
| Industry and year fixed effects                        |   | included            | included            | included             | included            | included             | included           |
| Robust standard errors clustered at country-year level |   | included            | included            | included             | included            | included             | included           |
| N =  |   | 1,930               | 1,930               | 2,488                | 1,930               | 1,930                | 1,630              |
| Adj. R <sup>2</sup>                                    |   | 31.3%               | 30.8%               | 25.3%                | 31.3%               | 29.7%                | 32.4%              |
| F-Stat. (p-value)                                      |   | 24.94<br>(0.000)    | 19.06<br>(0.000)    | 26.91<br>(0.000)     | 23.22<br>(0.000)    | 22.85<br>(0.000)     | 27.53<br>(0.000)   |

Table 4 reports the results of multivariate regressions with  $\ln(\text{underpricing} + 1)$  as the dependent variable; in column 5, underpricing is the dependent variable. \*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, using a two-tailed test. Controls include variables at the IPO level ( $\ln(\text{IPO Size})$ , Age, Volatility, TopTierUnderwriter, Firm Commitment, Equity Carve-out, LockupDays, OfferPriceRev, Foreign IPO) and country level (#Analysts, EaseSuits, EQAggr, Shareholder Rights Index, Common Law,  $\ln(\text{Market return} + 1)$ ,  $\ln(\text{IPO Activity})$ ,  $\ln(\text{Trad\_Vol})$ ). The underpricing variable is trimmed at the 1% and 99% percentiles. For definitions of variables, see Table A1 in the appendix.

Table 5: Hypothesis 1: Different enforcement measures and underpricing: pooled OLS for 32 countries, 2011-17

| Pred. sign   | ln (underpricing + 1)<br>Coeff.<br>(t-value) |   |  |  |  |
|--|--|---|--|--|--|
|  | (1) Acc Enforce, Brown et al. (2014)         | (2) Public Enforcement, Djankov et al. (2008) | (3) Staff per million population, Jackson & Roe (2009) | (4) Budget per billion US\$ of GDP, Jackson & Roe (2009) | (5) Rule of Law, Kaufmann et al. (2011-17) |
| Dependent Variable: ln (underpricing + 1)              |  |   |  |  |  |
| Enforcement Measure –                                  | -0.0083***<br>(-2.79)                        | -0.0173<br>(-0.53)                            | -0.0002<br>(-0.18)                                     | -0.0000013**<br>(-2.16)                                  | 0.015<br>(0.55)                            |
| Controls   | included                                     | included                                      | included   | included   | included                                   |
| Industry and year fixed effects                        | included                                     | included                                      | included   | included   | included                                   |
| Robust standard errors clustered at country-year level | included                                     | included                                      | included   | included   | included                                   |
| N =  | 1,930  | 1,874   | 1,874  | 1,593  | 1,930                                      |
| Adj. R <sup>2</sup>                                    | 31.3%  | 31.1%   | 31.0%  | 33.6%  | 30.8%                                      |
| F-Stat. (p-value)                                      | 24.94<br>(0.000)                             | 18.54<br>(0.000)                              | 18.58<br>(0.000)                                       | 19.03<br>(0.000)   | 18.88<br>(0.000)                           |
| Dependent Variable: underpricing                       |  |   |  |  |  |
| Enforcement Measure –                                  | -0.0137***<br>(-2.65)                        | -0.0405<br>(-0.72)                            | -0.0004<br>(-0.25)                                     | -0.0000028***<br>(-2.79)                                 | 0.044<br>(1.25)                            |
| Controls   | included                                     | included                                      | included   | included   | included                                   |
| Industry and year fixed effects                        | included                                     | included                                      | included   | included   | included                                   |
| Robust standard errors clustered at country-year level | included                                     | included                                      | included   | included   | included                                   |
| N =  | 1,930  | 1,874   | 1,874  | 1,593  | 1,930                                      |
| Adj. R <sup>2</sup>                                    | 29.6%  | 29.4%   | 29.3%  | 31.6%  | 29.2%                                      |
| F-Stat. (p-value)                                      | 23.13<br>(0.000)                             | 17.57<br>(0.000)                              | 18.00<br>(0.000)                                       | 19.75<br>(0.000)   | 17.95<br>(0.000)                           |

Table 5 reports the results of multivariate regressions with ln (underpricing + 1) and underpricing as the dependent variables, using different measurements for legal enforcement. \*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, using a two-tailed test. Controls include variables at the IPO level (ln (IPO Size), Age, Volatility, TopTierUnderwriter, Firm Commitment, Equity Carve-out, LockupDays, OfferPriceRev, Foreign IPO) and country level (#Analysts, EaseSuits, EQAggr, Shareholder Rights Index, Common Law, ln (Market return + 1), ln (IPO Activity), ln (Trad\_Vol)). The underpricing variable is trimmed at the 1% and 99% percentiles. The index values for the Kaufmann et al. index are taken from the World Bank, see [www.govindicators.org](http://www.govindicators.org). For definitions of variables, see Table A1 in the appendix.

Table 6: Hypotheses 2a: The indirect impact of country-level accounting enforcement on underpricing via financial analyst coverage: pooled OLS, 2011-17

|   | Pred.<br>sign | ln (underpricing + 1)<br>Coeff.<br>(t-value) |                      |  |                      |                       |                      |
|---|---------------|--|----------------------|--|----------------------|-----------------------|----------------------|
|   |               | Full sample                                  |                      | Full sample, dependent<br>Variable: Underpricing |                      | without US IPOs       |                      |
|   |               | (1)  | (2)                  | (3)  | (4)                  | (5)                   | (6)                  |
| AccEnforce  | —             | -0.0105***<br>(-3.37)                        | -0.0106**<br>(-2.57) | -0.0175***<br>(-3.24)                            | -0.0178**<br>(-2.58) | -0.0105***<br>(-3.51) | -0.0081**<br>(-1.97) |
| # Analysts  | —             | 0.011<br>(1.08)                              | -0.005<br>(-0.34)    | 0.010<br>(0.59)                                  | -0.016<br>(-0.69)    | 0.016<br>(1.47)       | 0.007<br>(0.52)      |
| # Analysts x<br>AccEnforce                                | —             |  | -0.0016<br>(-0.90)   |  | -0.0030<br>(-0.99)   |                       | 0.0018<br>(0.87)     |
| EQAggr  | —             | -0.0001<br>(-0.02)                           | 0.003<br>(1.08)      | -0.0001<br>(-0.02)                               | 0.005<br>(1.09)      | -0.000<br>(-0.06)     | 0.002<br>(0.98)      |
| # Analysts x EQAggr                                       | —             | -0.0029***<br>(-2.95)                        |                      | -0.0050***<br>(-3.07)                            |                      | -0.0030**<br>(-2.21)  |                      |
| EaseSuits   | +             | 0.027***<br>(3.61)                           | 0.026***<br>(3.21)   | 0.044***<br>(3.61)                               | 0.042***<br>(3.19)   | 0.024***<br>(3.31)    | 0.025***<br>(3.06)   |
| Shareholder Rights<br>Index                               | —             | -0.059***<br>(-5.11)                         | -0.057***<br>(-4.72) | -0.100***<br>(-5.04)                             | -0.097***<br>(-4.69) | -0.061***<br>(-5.07)  | -0.067***<br>(-5.31) |
| Other controls  |               | included                                     | included             | included   | included             | included              | included             |
| Industry and year fixed effects                           |               | included                                     | included             | included   | included             | included              | included             |
| Robust standard errors<br>clustered at country-year level |               | included                                     | included             | included   | included             | included              | included             |
| N =   |               | 1,930  | 1,930                | 1,930  | 1,930                | 1,630                 | 1,630                |
| Adj. R <sup>2</sup>                                       |               | 31.8%  | 31.3%                | 30.2%  | 29.7%                | 32.6%                 | 32.4%                |
| F-Stat. (p-value)   |               | 27.55<br>(0.000)                             | 24.85<br>(0.000)     | 27.76<br>(0.000)                                 | 22.65<br>(0.000)     | 28.28<br>(0.000)      | 27.08<br>(0.000)     |

Table 6 reports the results of OLS estimations where AccEnforce is interacted with the country-year-level average number of financial analysts per firm (#Analysts). \*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, using a two-tailed test. Other controls include variables at the IPO level (ln (IPO Size), Age, Volatility, TopTierUnderwriter, Firm Commitment, Equity Carve-out, LockupDays, OfferPriceRev, Foreign IPO) and country level (Common Law, ln (Market Return + 1), ln (IPO Activity), ln (Trad\_Vol)). The underpricing variable is trimmed at the 1% and 99% percentiles. For definitions of variables, see Table A1 in the appendix.

Table 7: Hypotheses 2b: The indirect impact of country-level accounting enforcement on underpricing via shareholder litigation: pooled OLS, 2011-17

|  | Pred.<br>sign | ln (underpricing + 1)<br>Coeff.<br>(t-value)<br>Full sample |                       | underpricing<br>Coeff.<br>(t-value)<br>Full sample, dependent<br>Variable: Underpricing |                       | ln (underpricing + 1)<br>Coeff.<br>(t-value)<br>without US IPOs |                       |
|--|---------------|---|-----------------------|---|-----------------------|---|-----------------------|
|  |               | (1)   | (2)                   | (3)   | (4)                   | (5)   | (6)                   |
| AccEnforce   | —             | -0.0081***<br>(-2.72)                                       | -0.0098***<br>(-3.33) | -0.0134**<br>(-2.57)  | -0.0163***<br>(-3.18) | -0.0105***<br>(-3.47)   | -0.0104***<br>(-3.49) |
| # Analysts   | —             | -0.013<br>(-1.61)   | -0.007<br>(-0.84)     | -0.032**<br>(-2.30)   | -0.020<br>(-1.55)     | 0.014<br>(1.25)   | 0.006<br>(0.60)       |
| EaseSuits  | +             | 0.020*<br>(1.80)  | 0.003<br>(0.33)       | 0.031*<br>(1.78)  | 0.003<br>(0.16)       | 0.031***<br>(2.75)  | 0.010<br>(0.87)       |
| EaseSuits x AccEnforce                                 | —             |   | -0.0039***<br>(-3.24) |   | -0.0069***<br>(-3.36) |   | -0.0024*<br>(1.68)    |
| EQAggr   | —             | 0.003<br>(1.14)   | 0.006**<br>(2.01)     | 0.005<br>(1.17)   | 0.010**<br>(2.02)     | 0.002<br>(0.84)   | 0.004<br>(1.57)       |
| EaseSuits x EQAggr                                     | —             | -0.0009<br>(-0.77)  |                       | -0.00016<br>(-0.88)   |                       | 0.0009<br>(0.79)  |                       |
| Shareholder Rights Index                               | —             | -0.060***<br>(-4.90)  | -0.056***<br>(-4.86)  | -0.103***<br>(-4.86)  | -0.095***<br>(-4.85)  | -0.063***<br>(-5.05)  | -0.062***<br>(-5.25)  |
| Other controls   |               | included  | included              | included  | included              | included  | included              |
| Industry and year fixed effects                        |               | included  | included              | included  | included              | included  | included              |
| Robust standard errors clustered at country-year level |               | included  | included              | included  | included              | included  | included              |
| N =  |               | 1,930   | 1,930                 | 1,930   | 1,930                 | 1,630   | 1,630                 |
| Adj. R <sup>2</sup>                                    |               | 31.3%   | 31.8 %                | 29.6%   | 30.2%                 | 32.4%   | 32.5%                 |
| F-Stat. (p-value)                                      |               | 24.82<br>(0.000)  | 26.23<br>(0.000)      | 22.94<br>(0.000)  | 24.59<br>(0.000)      | 26.99<br>(0.000)  | 27.36<br>(0.000)      |

Table 7 reports the results of OLS estimations where AccEnforce is interacted with the country-year index of the ease of shareholder suits index of the World Bank's "Doing Business" database (EaseSuits). \*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, using a two-tailed test. Other controls include variables at the IPO level (ln (IPO Size), Age, Volatility, TopTierUnderwriter, Firm Commitment, Equity Carve-out, LockupDays, OfferPriceRev, Foreign IPO) and country level (Common Law, ln (Market Return + 1), ln (IPO Activity), ln (Trad\_Vol)). The underpricing variable is trimmed at the 1% and 99% percentiles. For definitions of variables, see Table A1 in the appendix.

