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Title	The impact of shareholders and creditors rights on IPO performance: An international study
Authors	Espenlaub, Susanne;Goyal, Abhinav;Mohamed, Abdulkadir
Publication date	2019-11-09
Original Citation	Espenlaub, S., Goyal, A. and Mohamed, A. (2019) 'The impact of shareholders and creditors rights on IPO performance: An international study', The British Accounting Review, 52(1), 100872 (22pp). https://doi.org/10.1016/j.bar.2019.100872
Type of publication	Article (peer-reviewed)
Link to publisher's version	http://www.sciencedirect.com/science/article/pii/S0890838919300976 - 10.1016/j.bar.2019.100872
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Download date	2026-11-07 03:16:42
Item downloaded from	https://hdl.handle.net/10468/9472



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The impact of shareholders and creditors rights on IPO performance: An international study

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Abstract

This paper examines the impact of cross-country variation in shareholders' and debt holders' rights on post-IPO performance and survival of newly listed stocks across the globe. Using a sample of 10,490 initial public offerings (IPOs) in 40 countries between 2000 and 2013, we find that post-IPO performance and survival is better in countries with stronger shareholder protection, but the impact of creditor protection is negative *i.e.* stronger creditor protection leads to poor post-IPO performance and survival. This effect is driven by rules requiring creditors' consent for company reorganization and allowing creditors to replace incumbent managers. Reputable IPO advisors exacerbate the positive impact of shareholder rights and the negative impact of creditor rights.

JEL classification: G15, G3, F3, K4
Keywords: investor protection; shareholder rights; anti-director rights index (ADRI); creditor rights; IPO delisting; long-term performance; security law.

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We appreciate the helpful comments from the editors Nathan L. Joseph and Alan Lowe and two anonymous referees in significantly improving our paper. We also appreciate the suggestions Alessandro Zattoni and Lucio Sarno. We are grateful to the authors' respective institutions for financial support. We are responsible for all remaining errors.

1. Introduction

This paper examines the impact of cross-country variations in investor protection on post-IPO term performance. We test whether stronger shareholder rights and creditor rights result in longer survival times (in terms of the time from IPO to delisting) and better operating performance.[1]

The law and finance literature based on the seminal work of La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1997; 1998; 2006) focuses on the positive effect of legal institutions on financial-market development (e.g., Djankov, McLiesh and Shleifer, 2007). This literature highlights the positive aspects of investor protection. Better country-level legal protection offered to outside investors is expected to enhance the development of national capital markets (see, La Porta et al., 1997; 1998; 2006) and stimulate economic growth. Stronger legal investor protection can help reduce agency conflicts between companies and providers of finance thereby increasing the supply and reducing the costs of external finance. (e.g., Shleifer and Wolfenzon 2002; La Porta et al., 2006). By stimulating the supply of capital, better investor protection helps to relax financial constraints faced by companies and stimulates corporate investment and innovation. Country–level governance complements corporate governance mechanisms that are internal to the company, such as board structure and shareholder activism, and also market-based external mechanisms such as hostile takeovers and the market for corporate control.

As a result, strengthening investor rights is expected to lead to positive outcomes such as higher firm values, greater market liquidity, more developed financial markets and stronger economic growth (e.g., La Porta et al. 1998; Baek et al., 2004; Chung et al., 2010, Qi et al. 2017). Djankov et al. (2007), Qian and Strahan (2007), and Bae and Goyal (2009) focus

[1] Our measure of creditor protection is the creditor-rights index of Djankov et al. (2007). We measure shareholders' rights using the *'revised anti-directors rights index'* of Djankov et al. (2008). We examine robustness of our results using Spamann's (2010) '*corrected anti-directors rights index'.*

on creditor protection laws, and show that stronger creditor protection is associated with greater availability of credit, lower cost of debt, and longer debt maturity.

On the other hand, stronger investor protection may negatively affect firms. Stronger creditor rights, in particular, may negatively affect firms' use of debt because managers and shareholders may limit leverage to avoid losing control of the company in the event of financial distress (Cho, El Ghoul, Guedhami, and Suh, 2014). Countries differ in the extent to which their rules, practices and institutions empower managers (or shareholders) relative to creditors. Countries with rules that favour managers (e.g. Chapter 11 in the US) grant them the exclusive right to reorganize companies that default on loan payments. By contrast, in countries with strong creditor protection (e.g. the UK), managers of defaulting companies are typically dismissed and reorganization requires creditor approval. Threat of loss of control and premature liquidation in bankruptcy may deter companies from using debt (Cho et al. 2014) and investing in profitable and innovative projects (Acharya and Subramanian, 2009).

Boulton et al. (2010) points out that investor protection limits insiders' extraction of private benefits at the expense of outside investors. This should reduce the cost of capital faced by companies and increase corporate investment and value. Yet, stricter protection may cause insiders to make dysfunctional decisions. Stricter investor protection may excessively restrict managerial flexibility and prevent efficient decision- making. This has been shown in the context of debt covenants, where more restrictive covenants are associated with lower company performance. Stricter investor protection may also cause companies engaging in earnings manipulation to switch from accruals management to real-earning management (Enomoto et al., 2015). This is a dysfunctional choice as real earnings management is likely to have more severe economic costs than accruals management. Overall, more dysfunctional decision-making is likely to result in lower firm value, poorer long-term performance and lower chances of survival.

In the context of the IPO market, previous studies (La Porta et al. 1997; 1998) suggest that stronger investor protection may deter low-quality firms from entering the IPO market and reduce adverse selection (Akerlof, 1970). However, Boulton et al. (2010) report that shares issued in IPOs tend to be more underpriced in countries with stronger investor protection. As higher underpricing reflects a higher cost of external equity for IPO firms, this is another example of investor protection adversely affecting IPO and company performance. Against the background of these findings, our study focuses more closely on the various aspects of investor protection and their impact of IPO performance. We find that while some aspects of investor protection improve performance, others have detrimental effects.

As companies rely on both equity and debt finance, it is interesting to explore whether there are differences between the impact of protecting the interests of shareholders, on one hand, and those of creditor, on the other. The findings of previous studies suggest that shareholder rights may affect companies differently from creditor rights. For example, Cho et al. (2014) find that stronger creditor rights reduce companies' long-term debt issuance, while shareholder rights have the opposite effect. Our analysis examines this issue and similarly finds a differential impact of shareholder and creditor protection.

Our analysis employs commonly used long-run IPO performance measures: (i) operating performance and (ii) survival times. These measures have been used in IPO studies of individual countries, *e.g.*, focusing on IPOs in the US, Jain and Kini (1999) examine operating performance and Hensler et al. (1997) and Jain and Kini (2000) study survival time. We examine the robustness of our results using market-based measures of performance such as buy and hold returns, cumulative abnormal returns and Tobin's Q.

Our results show that the overall effect of stronger country-level shareholder protection is to significantly improve post-IPO performance and survival. Our analysis pinpoints the specific rights of shareholders that drive this result. In countries with rules that

result in better representation of minority shareholders on company boards, where there are safeguards against minority-shareholder oppression, and where shareholders have pre-emptive rights, IPOs are likely to remain listed (*i.e.* survive) longer and exhibit higher operating performance. By contrast, the overall effect of creditor protection is negative. We find that provisions that empower creditors and restrict managers' freedom drive the negative impact of creditor's rights. These include rules requiring creditors' consent for company reorganization and the mandatory replacement of incumbent managers. Our results suggest that these rules restrict or deter managers from pursuing risky, yet profitable investment projects, and hence reduce IPO long-term performance and survival.

We further examine the channels through which investor protection impacts IPO performance and survival. Examining the certification of IPOs by reputable auditors and underwriters, we find that a significant interaction effect between investor protection and IPO certification. The involvement of reputable advisors in the IPO exacerbates both the positive impact of shareholder rights and the negative impact of creditor rights Our results have important lessons for investors, issuing firms, practitioners and policymakers seeking to understand the relative importance of shareholder and creditor protection on the performance of newly listed firms.

To our knowledge, this is the first study that examines the effects of shareholder and creditor protection on post-IPO performance across the globe. Studying the impact of investor protection typically requires a cross-country setting, as institutional settings determining the strength of investor protection tend not to vary much over time within individual countries (Levine, 1999). We study the influence of shareholders and creditors rights on IPO performance across 40 countries between 2000 and 2013. Our paper fills the gap between the multi-country study of *short-term* IPO performance by Boulton et al (2010) and the *single-country* study of long-term performance by Cattaneo et al. (2015). Boulton et

al. (2010) show that stronger investor protection increases short-term IPO performance as measured by the listing day returns. Cattaneo et al. (2015) find that improvements in investor protection over time in a single country (Italy) increases IPO survival. We substantially extend these studies by investigating the various channels through which investors' rights impact post-IPO performance. We also explore the significant and surprising differences between shareholders and creditors protection, and between the various provisions that protect these stakeholders in terms of their impact on IPO performance.

The rest of the paper is organised as follows. Section 2 discusses the theoretical framework and related literature. Sample and methodology is in Section 3. Empirical results and robustness tests are reported in Section 4 and 5, and conclusion in Section 6.

2. Theoretical framework

2.1 The Role of IPOs

Our analysis focuses on IPOs for several reasons. The long-term performance and survival of individual IPO stocks determine the activity and performance of IPO markets. Primary stock markets represent an important source of external equity for growing firms. At the time of listing, firms can raise external equity through IPOs, and post-listing seasoned firms can make subsequent issues through so-called seasoned equity offerings (SEOs). IPOs also act as crucial exit routes for individual and institutional pre-IPO investors, including venture capitalists and private-equity providers, who are key sources of finance for firm growth in the pre-IPO stages of their development. Thereby, IPO markets facilitate the existence and recycling of venture capital and private equity (Black and Gilson 1998).

In many countries, policymakers recognize the economic importance and contribution of IPOs. The US government passed the 2012 JOBS Act to encourage funding for small businesses by easing many of the country's securities regulations. The main objective of the

Act was to promote employment and allow small companies to raise capital through IPOs. Many countries have sought to stimulate venture creation and growth by establishing primary market segments such as the UK Alternative Investment Market (AIM) specifically designed for younger, smaller, and more speculative stocks.

La Porta et al. (1997, 1998) focuses on the number of IPOs and listed companies in order to assess the impact of legal and institutional framework on the valuation and development of capital markets. They find that countries with stronger investor protection have more IPOs per capita. The development of IPO and other primary capital markets facilitate the efficient allocation of finance and risk, and thus contribute to macroeconomic development and growth. In countries with better legal and political regulation and institutions, the link between finance and economic growth tends to be stronger, as shown in a survey of recent literature by Allen et al. (2018).

A large body of literature on IPOs has established several stylised facts. One of the most widely observed fact is that the stock prices of IPOs typically rise above the IPO offer price on the first trading day. This has been interpreted as showing that IPOs are 'underpriced'. In an international study of IPO short-term returns, Loughran et al. (1994) find that investors can expect to earn significant positive initial returns on IPOs with results ranging from 4 up to 80% depending on the country of issuance. In a cross-country study, Boulton et al (2010) show that underpricing is high in countries with stronger creditors rights. They argue that this is because pre-IPO insiders underprice their IPOs deliberately in order to generate excess demand for shares, which allows them to allocate these shares selectively to maximise the dispersion of outside ownership and reduce outside investors' incentives to interfere with insiders' day-to-day company management.

The seminal paper by Ritter (1991) shows that IPOs underperform the market in the long run, and Loughran et al. (1994) find that the long-run underperformance of IPOs is a

global phenomenon. Loughran and Ritter (1995) estimate that US IPOs issued between 1975 and 1992 underperform the market by 30%, while Ritter and Welch (2002) report long-run underperformance of 23.4%. However, the results of Gompers and Lerner (2003) suggest that the finding of IPO underperformance is sensitive to the methods used to measure benchmark, expected performance. Using a range of methods, Carter et al. (2011) conclude that IPOs do not underperform the market, specifically when IPOs are matched with similar seasoned stocks. To our knowledge, there are to date no cross-country studies examining the impact of investor protection on long run IPO performance.

Consistent with previous studies, we define IPO survival as the continued listing of IPO stocks on a stock market. Examining the determinants of IPO survival sheds light on the life cycle of listed companies by showing which types of IPOs mature into seasoned companies. IPO survival matters to a range of stakeholders in the firm including, but not limited to the company owners, investors, employees as well as policymaker and regulators and even to stock market itself (Espenlaub et al., 2016). Survival implies strong firm performance and therefore serves as a measure of post-IPO performance (e.g., Espenlaub et al., 2012). It complements return-based measures of post-IPO performance that are typically difficult to quantify. Companies, investors and policymakers are interested in IPO survival because as long as a stock remains listed, the issuing company has access to external equity through stock issues. This impacts the company's cost of capital and investment, and in turn benefits its non-financial stakeholders including employees.

Most prior research on IPO performance and survival focuses on individual countries. The seminal papers by Hensler et al. (1997) and Jain and Kini (2000) examine the survival of US IPOs, and Espenlaub et al. (2012), among others, examine UK IPOs. These papers show the impact on IPO survival of issue-, firm- and market-characteristics such as firm size, age, underwriter reputation, and market conditions (Demers and Joos 2007) among others. Pan-

European evidence on IPO performance and survival is presented in Vismara et al. (2012). Our paper is most closely related to Espenlaub et al. (2016) who examine IPO survival worldwide, and find that IPO survival is positively affected by the quality of the legal system. To date, almost nothing is known about the impact of investor protection on IPO performance and survival. Our study is the first to examine this issue in a cross-country setting.

2.2 IPOs and Investor protection

La Porta et al. (1997; 1998) finds that countries with stronger investor protection tend to have greater IPO activity. However, recent studies show that the impact of investor protection on IPO numbers (per capita) may not be statistically significant (Djankov et al. 2008; Spamann 2010). Nevertheless, it is reasonable to expect that investor protection impacts the performance of individual IPO stocks and companies post-listing.

A system that empowers outside investors is likely to reduce the cost of capital and improve corporate decision-making post-IPO. The choice to remain listed depends on the trade-off between the costs and benefits of being public. As easier access to external equity and debt financing constitutes a substantial benefit, all else equal, we expect IPO companies to remain listed for longer duration in countries with better investor protection. On the other hand, greater regulatory costs (in the form of disclosure costs and restrictions to managerial freedom) due to stronger investor protection are likely to increase companies' costs of being public and may result in delisting of IPO stocks. This is demonstrated by the increase in delisting numbers following SOX (Abdioglu et al., 2015), and the intent of the JOBS Act to stimulate IPO markets by reducing regulatory costs (Dambra et al., 2015). Hence, we may expect better investor protection to result in better post-IPO (operating) performance but not necessarily longer IPO survival.

Compared to seasoned companies, the protection of minority shareholders (*e.g.* by granting existing shareholders with pre-emptive rights) is of particular importance to IPO

firms, because they are more likely; than mature firms to rely on the contributions of new investors not just during the IPO phase but also for the subsequent SEO phase. Hence, we expect that stronger shareholder rights will have a positive impact on post-IPO performance.

It is reasonable to expect a substantial difference between the impact of creditor protection and that of shareholder protection. Compared to shareholder protection, stronger creditor protection is less likely to have a positive impact, and may even have a negative impact, on post-IPO performance.[2] Shareholder protection indices mostly capture minority shareholders' relative power in shareholders' meetings and elections of directors. By contrast, creditor protection focuses the minds of corporate decision makers on minimizing downside risk, and is likely to make them more conservative and risk averse. Indicators of creditor protection measure the power of creditors relative to that of management. They focus on managers' freedom to pursue shareholders' objectives at the expense of creditors, *e.g.*, by 'playing for time' or gambling with creditors money through asset substitution and risk shifting (Smith and Warner, 1979). One component of the creditor rights index is the restriction of managers' freedom to restructure distressed firms without creditors' consent. In the US, managers are relatively unrestricted and protected from creditors in their decisions to reorganize distressed companies under Chapter 11. In the UK, by contrast, companies require creditors' approval for reorganization. Another component of the creditor-rights index measures whether incumbent managers are replaced or not during the reorganization of the company. While managers stay in place in the US, they are replaced by third parties appointed by the courts or creditors in other countries including the UK. This threat of dismissal clearly enhances creditors' power relative to managers' power. However, the dismissal of management may have severely adverse effects on company performance. This is likely to be particularly true for IPO companies where managers hold a great deal of firm-

[2] We are grateful to the anonymous reviewer for suggesting this argument.

specific information and human capital. In the past Steve Jobs of Apple and more recently Mark Zuckerberg of Facebook are prime examples.

Predicting the impact of creditor rights on IPOs is also more complex than in the case of shareholder rights, especially given the greater diversity of creditor types as compared to shareholders. Shareholder protection indices measure the protection of voting shareholders, who are the predominant type of shareholder in most companies and countries. By contrast, in many companies and countries, there are various types of creditors (junior, senior, secured or unsecured creditors) with different rights and potentially conflicting interests. The creditor-rights index of La Porta et al. (1998) and Djankov et al. (2007) explicitly focuses on the interests and protection of *senior secured* creditors relative to those of company management. Their focus on senior secured debt may be justified for mature companies where '*much of the debt in the world has that character*' (La Porta et al. 1998, p1134). However, the potentially conflicting interests of other creditors such as trade creditors, employees or government are likely to be of particular significance in the context of IPO companies.

Both shareholder and creditor protection may affect firms in both positive (by reducing agency costs and increasing access to external finance) and negative manner (by limiting managerial flexibility and protecting one category of investor at the expense of others). Nevertheless, in the case of minority-shareholder protection, we expect the overall effect on post-IPO performance and survival to be positive.

By contrast, we expect stronger creditor protection to be less likely to have an overall impact that is positive. The negative effects of creditor protection (restricting managerial restructuring and risk-taking decisions) are likely to reduce or even offset the positive effects (such as lower agency costs of debt). Examining the separate provisions that make up the creditor-protection index, we may expect that some components (notably the replacement of defaulting company's managers and restrictions on managerial freedom to restructure

distressed companies) may even have negative impacts on post-IPO performance.[3] We test the following null hypotheses:

Hypothesis 1a: *The creditor rights index (Djankov et al. 2007) has no impact on post-IPO performance and IPO survival.*

Hypothesis 1b: *None of the legal and institutional provisions that make up the components of the creditor rights index (Djankov et al. 2007) impacts post-IPO performance and IPO survival.*

Hypothesis 2a: *The anti-directors' rights index (Djankov et al. 2008) has no impact on post-IPO performance and IPO survival.*

Hypothesis 2b: *None of the legal and institutional provisions that make up the components of the anti-directors' rights index (Djankov et al. 2008) impacts post-IPO performance and IPO survival.*

3. Data and Methodology

3.1 Data and Sample Selection

Following recent studies on IPO and governance (Boulton et al., 2010; Espenlaub et al., 2016; Chen et al., 2020; *etc.*), the initial sample of IPOs is collected from Thomson Financials Securities Data Companies (SDC) Platinum New Issues database between Jan: 2000 to Dec: 2013. In order to ensure broadly comparable listing requirements, we only include in our sample IPOs that are listed on the main stock markets in their respective countries.

We use country-specific index values for shareholder rights (Djankov et al., 2008) and creditor rights (Djankov et al., 2007). We also include indicators of securities law (La Porta et

[3] The creditor- and shareholder-rights indices are defined in Appendix A1. Figures on the 'index components' in terms of the individual provisions that are considered in constructing the indices are shown in Appendix A2. The likely impacts of the index components on IPO survival and performance are discussed in further detail in Section 4.

al., 2006). More specifically, we use three measures of governance at country level: (i) an index of creditor (or debt-holder) rights, (ii) an index of anti-director (minority shareholders) rights and (iii) an index of security law. We obtain the creditor rights index from Djankov et al. (2007). The index value ranges from 0 (weak creditor rights) to 4 (strong creditor rights). Our minority-shareholders rights measure is the 'revised anti-directors rights index' of Djankov et al. (2008) based on data for May 2003. The index value ranges from 0 (weak shareholder rights) to 6 (strong shareholder rights).[4] We conduct robustness tests using the 'corrected anti-director rights index' reported in Spamann (2010), which is constructed using data for 2005. Based on La Porta et al. (2006), we measure the quality of security law in a country based on the quality and strength of disclosure requirements, liability standards and public enforcement. The security-law index is collected from the World Bank 'Ease of Doing Business' database, and is constructed for each sample year.[5]

We collect firm-level financial data from SDC Platinum, Worldscope and Datastream. Our initial sample comprises of 15,209 IPOs from 49 countries similar to Djankov et al. (2007; 2008) and La Porta et al. (2006). First, we exclude cross-listed IPOs, financial intermediaries, spin-offs private placements, closed-end funds, right-offerings, and unit-offerings.[6] Next, we require information on total assets, earnings, sales, market-to-book ratio, debt level and first-day returns to be readily available. Finally, we exclude countries with less than ten IPOs. This filtration leads to a final sample of 10,490 IPOs for 40 countries between January 2000 and December 2013. We use DataStream, stock-market lists, Worldscope and Google search to identify whether IPO firms are listed or delisted by the end of December 2016. Firm-level accounting and market variables are winsorized at one percent (in both tails)

[4] In Appendix A1, we define our variables including the investor-protection and security law indices. In Appendix A2, we outline the country-specific provisions that are taken into account in constructing the creditor- and shareholder-rights indices.
[5] See Djankov et al. (2007) for the detailed construction of the creditor rights index and Djankov et al. (2008) for shareholder rights index.
[6] Our sampling criteria are similar to Boulton et al. (2011) and more recently Chen et al. (2020).

by country. We provide a comprehensive overview of the key dependent variables and the measures of investor protection used in this study in Appendix A1.

3.2 Methodology

In examining the impact of investor protection, we measure post-IPO performance in a wide variety of ways. Our baseline analysis examines long-term post-IPO operating performance and delisting. Our approach is based on Jain and Kini (1999), which is widely adopted in the IPO literature. Post-IPO operating performance is defined as the average of the industry-adjusted net income over the first three years post-IPO scaled by total assets of the firm.[7] We use the Fama-French 10-industry classification to estimate industry performance.

We examine what determines which IPO stocks are delisted and which '*survive*'. Following Espenlaub et al. (2016), we define IPO stocks as survivors if they continue to trade on the stock market or move to a different market (segment).[8] Each IPO firm is tracked from its IPO until the end of our study period (the end of 2016) or until it drops out of the study due to delisting or other reasons.[9] To examine the delisting of IPO stocks, we use survival analysis and employ both the Cox (1972) hazard model and the Accelerated Failure Time (AFT) model. The Cox approach models the hazard (or instantaneous probability) of delisting and is used among others by Demers and Joos (2007) and Espenlaub et al. (2012; 2016). The AFT model is typically expressed in terms of a log-linear model that expresses the natural logarithm of the time between the IPO and delisting as a function of various explanatory

[7] In a robustness check, we use raw operating performance in lieu of industry-adjusted performance. The results are qualitatively similar and available upon request.

[8] Non-survivors are those delisted from the stock market due to poor performance, liquidation, voluntary delisting excluding delisting due to M&A. M&A delisting of well-performing companies are classified as censored survivors if they rank above median based on three company performance measures in the year prior to the M&A delisting – cash to total assets and operating income to total asset, and below the median for total liability to total asset.

[9] IPOs that drop out of the study but continue to survive are treated as right-censored survivors. M&A delisting of well-performing companies are classified as censored survivors if they rank above median based on the three company performance measures in the year prior to the M&A delisting – cash to total assets and operating income to total asset, and below the median for total liability to total asset.

variables. It is used in the IPO literature by, e.g., Hensler et al. (1997), Jain and Kini (2000) and Espenlaub et al. (2012; 2016).

Unlike the Cox (1972) model, AFT allows the effect of independent variable on survival time to vary overtime depending on the length of time since listing. Furthermore, the AFT model accounts for the determinants of IPO survival that are more pronounced in the period soon after the IPO and those in the longer term. The following is the AFT model specification:

$$\mathrm{Ln}(\mathrm{T_j}) = \beta_0 + \beta_\mathrm{i} X_i + \varepsilon_\mathrm{j} \qquad (1)$$

where Ln(T_j) is the natural logarithm of the survival time, X_i is an array of independent variables i with coefficient β_i. The covariates extend or shrink the length of survival time by a constant relative amount $\exp\sum\beta_\mathrm{i}\mathrm{X_i}$.

Our robustness checks examine additional long-term performance measures: (i) Buy and Hold Returns, (ii) Cumulative Abnormal Returns and (iii) Tobin Q. These measures are calculated over three years after the offer or up to the delisting date, whichever is earlier.[10]

4. Empirical Results

4.1 Univariate analysis

Table 1 shows the distribution of IPOs by country issued from 2000 to 2013. During this sample period, the US, China and Japan had more than 1000 IPOs, while Hungary, Portugal and Argentina had only about 10 IPOs. Table 1 reports the number of IPOs that survive for three years after their IPO. The table reports values for initial returns, operating performance, shareholders and creditors rights, and security law by country of incorporation for the IPO firms. Averages are reported at the bottom of the table. Average industry-adjusted operating performance is 4.63% over the first three years post-IPO. Approximately 75% of

[10] The results of these analyses are not tabulated but are available from the authors upon request.

our sample-IPOs survive for at least three years post-IPO. This is consistent with previous (single-country) studies of IPO survival (Hensler et al. 1997; Espenlaub et al. 2012). The mean initial returns are 27% during our sample period. The fact that initial returns are highest in China is consistent with previous studies (Tian, 2011).[11]

Creditor and shareholder rights differ widely across countries. La Porta et al. (1998) note that both shareholder and creditor rights are typically stronger in common-law countries. This is true for the UK, where both shareholder- and creditor-rights indices take the highest possible values (5 and 4, respectively). However, in the US, both shareholder and creditor rights are weaker despite the country's common-law origin. In particular, the rights of creditors in the US are weak with an index value of just 1 according to Djankov et al. (2007). The creditor rights index is lowest (at zero) for France and Mexico. On the other hand, both the US and the UK score among the highest countries (alongside Hong Kong, Ireland, Malaysia and Singapore) in terms of the security-law index.[12]

[Please insert Table 1 about here]

4.2 Multivariate analysis

4.2.1 Investor rights and post-IPO survival and performance

In testing our hypotheses (outlined above), we use an AFT model to investigate the impact of creditors' rights, shareholders' rights and security law on IPO performance. In Model 1 of Table 2 we consider only creditors' rights, in Model 2 only shareholders' rights, in Model 3 both creditor and shareholder rights, and in Model 4 we further include security law. In all four models, we control for a range of IPO firm characteristics and market conditions including hot-issue markets (Demers and Joos, 2007), pre-IPO stock-market

[11] Tian (2011) points to regulatory intevention with IPO pricing and government control of IPO share supplies as potential drivers of high first-day returns of Chinese IPOs.
[12] Appendix A3 provides detailed descriptive statistics for all the variables used in our analysis.

returns (Chen et al., 2020) and dummies for issue year and industry.[13] We also include a dummy for the region in which the IPO is located.[14] The standard errors in our AFT model are clustered by country of the IPO firms.

Our results in Table 2 show that creditor rights have a negative and significant impact on IPO survival times, whereas shareholder rights have a positive and significant impact. Based on the AFT coefficients, we see that a one-unit increase in the creditor rights decreases the natural logarithm of survival times by 10.4% (in Model 1). In terms of the *time ratio*, which shows the impact of the variable on unlogged survival time and is defined as the exponential of the coefficient, this corresponds to a decrease of almost 10%. A one-unit increase in the shareholder-rights index increases Ln (*Survival time*) by 3.6 % (in Model 2). The negative impact of creditor rights rises to 13.4% when we control for shareholders right in Model 3, but declines to 4.8% when we control for security law (Model 4). By contrast, controlling for security law boosts the positive impact of shareholders right on survival times from 2.7% in Model 3 to 5.4% in Model 4. A one-unit increase in the security-law index increases the (natural logarithm of) survival times by 45%, which is an order of magnitude higher than the impact of shareholders rights.

The coefficients of the control variables are qualitatively similar to those in recent international IPO studies, specifically Espenlaub et al. (2016) and Chen et al. (2020). Hotness of IPO markets has a negative impact on IPO survival times. In other words, firms listed in countries during periods where the IPO market is vibrant have lower survival post listing. This evidence is significant at 5% conventional level. This evidence is consistent with previous studies of IPOs (Demers and Joos, 2007; Bhattacharya et al., 2010). High initial returns, size and sales at the time of listing significantly increases the survival time.

[13] Appendix A1 provides the definitions of the variables including data sources.

[14] The regions are North-America (Canada, US), Europe (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, UK), BRICS (Brazil, China, India, Russian Federation, South Africa), and Asia-Pacific (Australia, Hong Kong, Japan, Malaysia, New Zealand, Singapore, South Korea, Taiwan, Thailand).

Interestingly, the leverage at the time of listing has a negative impact on the survival times and is economically and statistically significant. In fact, the natural logarithm of survival time decreases by 60% for a one-unit increase in leverage.

Overall, the results of Table 2 show that strong creditor rights decrease the survival times, while strong shareholder rights and high-quality security laws increase IPO survival times significantly while controlling for IPO characteristics and market conditions. The results for the control variables are consistent with previous studies (Espenlaub et al., 2016).[15]

[Please insert Table 2 about here]

Table 3 reports the results for operating performance measured over three years following the IPO. We use the same set of explanatory variables as in Table 2. Model 1 shows that a one-unit increase in the creditor-rights index decreases operating performance by 0.002 (equivalent to 4.3% relative to average operating performance of 0.046 shown in Table 1, i.e. 0.002/0.046). In Model 2, a one-unit increase in the shareholder-rights index increases operating performance by 0.004 (equivalent to 8.6% = 0.004/0.046). The negative impact of creditors' rights on performance persists after controlling for shareholders' rights (in Model 3) and for security law (in Model 4). The country's security-law quality positively affects post-IPO operating performance. A one-unit increase in security law increases performance by 0.027 (equivalent to 58% relative to average operating performance).

Overall, our results show that creditors and shareholders rights as well as the quality of a country's security law influence the long-run operating performance of the IPO firms. Their impacts are statistically and economically significant.[16]

[Please insert Table 3 about here]

[15] We find qualitatively similar results using the Cox (1972) model.

[16] Our results are consistent after controlling for additional IPO-level characteristics such as age, venture capital backing and proceeds generated during the IPO process. For the purpose of brevity, the results are not reported but available from the authors upon request.

4.2.2 IPO certification and investor rights

Next, we examine the effects of IPO certification by reputable advisors, specifically, by auditors or underwriters. Previous studies (e.g., Jain and Kini 1999; 2000; Espenlaub et al. 2012) have shown that reputable auditors and underwriters improve IPO survival and long-run performance.[17] Based on this reduced sample of 9,543 observations, Table 4 reports models of investor protection that control for advisor reputation. Our earlier results in terms of the negative impact of creditor rights and positive impact of shareholder rights and security law remain qualitatively unchanged after controlling for advisor reputation in Table 4. In line with extant literature, we find positive, significant impacts of auditor and underwriter reputation on IPO survival times (Model 1) and IPO operating performance (Model 2).

In Table 5, we examine both the direct impact of IPO certification by auditors and underwriters (as in Table 4) and the indirect impact as mediated by investor protection. Models 1 and 2 in Table 5 show that the direct impacts of shareholder and creditor rights remain robust. In countries with strong shareholder protection, the certification effects of reputable auditors or underwriters on IPO survival and performance remain positive. By contrast, in countries with stronger creditor protection, the involvement of reputable auditors and underwriters in fact exacerbates the negative (direct) impact of creditor rights on IPO survival and performance. In countries with strong creditor rights, reputable auditors and underwriters reduce survival times by 5.5% and 13.5%, respectively.[18] Taken together, the results in Tables 4 and 5 show that shareholder rights positively affect IPO survival and performance, but creditor rights have a negative impact. We find that these effects are exacerbated by the presence of reputable advisors. This suggests that reputable advisors further empower investors with stronger institutional protection relative to other stakeholders.

[17] The models of Tables 2 and 3 do not include advisor reputation, as data on reputable auditors and underwriters are only available for *circa* 90% of our sample

[18] These figures were calculated by taking the exponential of the sums of the coefficients of interacted and un-interacted *High Creditor Rights* variables.

[Please insert Tables 4 and 5 about here]

Next, we test Hypotheses 1b and 2b to gain a better understanding of the reasons for the impact of investor protection, particularly the negative effect of creditor protection, on IPO survival and performance. We examine the separate impacts of each of the legal provisions that make up the investor-rights indices. We examine creditors' rights in Panel A of Table 6 and shareholders' rights in Panel B. The creditor-rights index is a function of four different provisions. The first provision is "Restrict Re-organization", which equals one if creditors' consent is required to file for reorganization, and zero if management can seek protection from creditors unilaterally by filing for reorganization, without creditor consent (e.g., Chapter 11 in the US). Unrestricted reorganization gives management substantial power. While creditors can get their money or collateral only with a delay, if at all, managers are able to continue the firm as a going concern. We expect this provision to have a negative effect on IPO performance as it prevents the managers of defaulting firms from pursuing risky, yet profitable projects and thereby reduces the value of a defaulting company.

The second component of creditor rights is "*Management Not Stay*", which equals one if creditors or courts can replace company's incumbent management during bankruptcy proceedings. This provision may have a negative effect because the newly appointed management is likely to lack valuable firm-specific information and human capital. They may also have dysfunctional incentives to liquidate rather than reorganize firms.

Third is *"No Auto Stay"* which equals one if secured creditors are able to gain possession of their collateral once the reorganization petition has been approved by the court, and zero if the reorganization procedure imposes an automatic stay on the assets, thereby preventing secured creditors from getting possession of loan collateral. The *No Auto Stay* provision empowers secured creditors relative to other stakeholders and is likely to reduce the cost of secured debt. All else equal, this increases IPO survival and performance.

The fourth provision is "*Secured Credit First*" and equals one if secured creditors are given absolute priority during bankruptcy compared to other claimants such as the government or employees. It equals zero for countries that do not assure secured creditors' rights to collateral in reorganization. In such countries, e.g. in France, secured creditors rank behind the claims of government and/or workers, rendering creditors neither 'senior' nor 'secured' and with no assets to back up their claims. Ensuring that secured creditors rank first, reduces the cost of debt and increases its availability, and is likely to impact positively on IPO survival and performance.

All these provisions are intended to limit the expropriation of creditors' wealth by managers and controlling shareholders. Our null hypothesis, Hypothesis 1b, predicts that none of these provisions affects post-IPO survival and performance. Panel A of Table 6 shows the results of our AFT and operating-performance models including each of the creditor-rights provisions separately. Model 1 of Table 6 (Panel A) shows that restrictions on re-organization and the provision that existing managers can be replaced have significant, negative impact on both performance measures. By contrast, *No Auto Stay* (the provision that secured creditors are able to gain possession of their collateral) and the provision that secured creditors have first claim in case of liquidation positively impact performance. The results are broadly similar in Model 2 of Table 6, and in this analysis the negative impact is particularly large for restrictions on reorganizing the firm. This component of creditor rights is likely to limit managerial flexibility and deter highly leveraged firms from investing in risky investment opportunities.

Next, we examine the shareholder-rights index and test Hypothesis 2b. This index is a function of six provisions. Two provisions deal with rules on calling and participating at shareholder meetings ("*Min Share Cap"* and "*Share No Deposit"*, respectively). A further two provisions deal with shareholders' voting rights: "*Cumulative Vote"* and "*Proxy Vote*

Mail". "*Oppress Minority"* equals one for countries that provide legal mechanisms protecting minority shareholders against perceived oppression by directors. Examples include the right to challenge directors' decisions in court to force the company to repurchase shares of dissatisfied minority shareholders who object to significant corporate decisions such as asset disposals or M&As. The sixth provision "*Pre-Empt Rights"* equals one in countries where shareholders are granted pre-emptive right to buy new issues of stock, which can be waived only by shareholder vote (e.g., in the UK and Singapore). Pre-emptive rights are intended to protect shareholders from dilution or expropriation if shares are issued to specific investors at a discount.

Our null hypothesis, Hypothesis 2b, predicts that none of these provisions affects post-IPO survival and performance. Panel B of Table 6 shows the results of our AFT and operating-performance models including each of the shareholder provisions separately. Consistent with our null hypothesis, we find two provisions (*Share No Deposit* and *Proxy Vote Mail*) to be insignificant. By contrast, four provisions are significant, of which three have positive impacts (*Cumulative Vote, Oppress Minority* and *Pre-Empt Rights*), and one (*Min Share Cap*) has a negative effect. The positive effects on post-IPO survival and performance of mechanisms empowering minority shareholders are not surprising given that minority shareholders benefit from company survival and strong performance. By contrast, the negative coefficient of "*Min Share Cap"* needs some explanation. This indicator equals one if the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholder meeting is less than or equal to 10 percent. "*Min Share Cap"* might have a negative impact on post-IPO survival and performance if this provision grants small shareholders excessive powers. For instance, the provision may allow small shareholders pursuing their own interests to call unnecessary board meetings that disrupt company management, waste management time and reduce performance.

Next, we examine whether the impact of investor protection is captured by the origin and quality of a country's legal system. Espenlaub et al. (2016) show that the quality and origin (common versus civil law) of the legal system positively affect IPO survival. We control for the Berkowitz et al. (2003) legality index and a common-law dummy in the four models of Table 7. Our results for each of the investor-protection provisions in Table 6 remain qualitatively unchanged in Table 7. These results confirm that the legal system does not explain away the effect of creditors' and shareholders' rights on post-IPO survival and performance.

[Please insert Tables 6 and 7 about here]

5. Robustness tests

5.1 Further analysis

Next, we check the robustness of our results by varying our treatment of delisting due to a merger or acquisition (M&A). Throughout our earlier analysis, we treat M&As of underperforming firms as failures (or deaths) in our survival models, while well-performing companies that are merged or acquired are treated as survivors that drop out of our study for unrelated reasons (i.e. as 'right-censored' survivors). Since M&A may create value for shareholders, treating IPOs that are acquired as failures could be misleading and bias our results. To address this issue, we re-estimate our AFT model in Table 6 and treat all M&As as censored survivors *regardless of their pre-M&A performance*. The results of Model 1 and 2 in Table 8 are qualitatively similar to Table 6. Overall, the results of Table 8 confirm our earlier results on the impact of the individual components of creditor and shareholder rights on post-IPO survival and operating performance. In conclusion, we reject the null hypotheses 1b and 2b.

[Please insert Table 8 about here]

So far, we examine the impact of shareholders and creditors rights on post-IPO performance as measured by operating performance and survival time. Now, we extend our analysis by investigating alternative measures of performance that are based on market perceptions, specifically Buy and Hold Returns (BHR), Cumulative Abnormal Returns (CAR) and Tobin's Q.[19] Our (untabulated) results show that stronger creditor rights negatively and significantly impact all measures of IPO performance, while stronger shareholder rights improve all measures of performance.

Further, we examine how the impact of investor protection on survival, operating performance and market perceptions changes over time post IPO. To this end, we investigate the impact of investor protection on all post-IPO performance measures evaluated over one year, two year and three years after the IPO. Our results show that the effects of investors' rights on performance strengthen over time: the negative impact of creditor rights becomes more negative and the positive impact of shareholder rights more positive the longer the post-IPO test window. These results are robust using across all our performance measures.

Next, we exclude the first post-IPO year, as the level of uncertainty associated with IPO firms is higher in this first year following the listing. As a result, investor protection might influence post-IPO performance differently during this first year. We find that our results are robust and qualitatively unchanged when we exclude the first post-IPO year. Hence, the impact of investor protection on post-IPO performance is not driven by the first post-IPO year.

Finally, we investigate further channels through which investor protection might influence IPO performance. Specifically, we examine whether investor protection affects investment (as measured by capital expenditure) and financing decisions (measured by cash

[19] For brevity, the results are not reported, but available from the author upon request.

holdings). Preliminary analysis suggests that strong creditor rights affect corporate investment decisions and financing decisions.[20] In countries where creditors are well protected, IPO firms tend to hold more cash and engage less in capital expenditure. Higher cash holding and lower capital expenditure result in poorer long-term performance. This may be due to the fact that holding more cash and engaging in less capital expenditure stops companies from pursuing value-increasing investments and realizing growth opportunities, reducing performance in the long-run. Overall, our results show that the negative impact of creditor rights on IPO long-run performance may be channeled through strong creditors' adverse influence on firms' investment and financing decisions.[21]

5.2 Endogeneity

Previous studies have tended to treat variables describing the institutional framework as *exogenous* (Levine, 1999) given that institutional frameworks vary little over time. However, given the evolution of the capital markets and the opportunities for firms to list in foreign countries, it is possible that shareholder and creditor rights are endogenous as high-quality IPO firms may self-select into listing in countries with more favourable institutional frameworks, including shareholder and creditor rights.[22] We address these concerns using an instrumental-variable (IV) approach. In Stage I, we regress the respective index of investor protection (i.e., shareholders and creditors' rights, respectively) on IPO firm characteristics including a proxy of IPO-firm quality as instrument. Specifically, we measure IPO quality as the growth in EBITDA from the IPO year to the first post-IPO year (following Zheng and Stangeland, 2007). We measure EBITDA growth in the financial year when the

[20] The results are reported in Table A4 in the appendix.
[21] As noted by the anonymous referee, the impact of creditor rights may also be mediated through companies' accounting decisions including earnings management. A thorough analysis of this channel is of clear interest but unfortunately beyond the scope of this paper.
[22] For instance, Alibaba.com despite being a China based e-commerce firm was listed on NYSE due to stronger shareholder rights in US compared to China.

IPO is listed, while the dependent variable (operating performance) in Stage II is measured over three year's post-IPO. This method aims to ensure that the instrument is uncorrelated with the dependent variable. In Stage II, we use the predicted values of investor protection from stage I instead of the actual values to examine their impact on performance.

We use three diagnostic tests: (1) the Hansen j-test for over-identification of our instrumental variable, (2) the Relevance test to assess whether excluding the instrument from Stage II is valid, and (3) the Exclusion criteria, where we assess the orthogonality of the instrument to the error term. Failure to reject the null hypothesis in the Hansen j-test suggests that the instrument is over-identified. Rejecting the null hypothesis in the case of the Relevance test indicates that excluding the instrument from Stage II is consistent. The null hypothesis under the Exclusion Criteria test suggests that the instrumental variable is orthogonal to the error term. Overall, our tests for endogeneity suggest that shareholder and creditor rights are exogenous. This justifies treating investor-protection indices as exogenous in our earlier analyses.[23]

Despite our battery of tests, it may be argued that EBITDA growth affects subsequent operating performance and hence is not a suitable instrument. Unfortunately, a similar argument can be made for any IPO firm characteristic and hence we need to acknowledge this as a limitation of our study. However, to mitigate this concern, we re-examine the impact of investor protection for a subsample of IPOs that are listed in their country of incorporation. Excluding IPOs that list in countries other than the country of incorporation from our sample should reduce endogeneity due to self-selection by high-quality firms choosing to list in high-quality institutional frameworks. Overall, our results are qualitatively unchanged based on

[23] The results of our instrument variables analysis is reported in Appendix A5.

this reduced sample suggesting that endogeneity due self-selection is unlikely to drive our results.[24]

In our final robustness check we use the entropy-balancing method. Following Chapman, Miller and White (2019), we use entropy balancing to examine whether the impact of investors' protection is explained by observable differences in IPO characteristics.[25] Entropy balancing preserves our full sample and ensures covariate balance between treatment and control observations by re-weighting observations such that the post-weighting mean and variance for treatment and control group are identical based on the firm characteristics.[26] While the treatment observations are not re-weighted and retain their default weighting of one, the control observations are assigned a positive weight that may be greater or less than one. The entropy method works by first determining the distributional properties (i.e. mean and variance) of the treatment observations. These distributional properties become the target distributional properties of the post-weighting control sample (known as "*balance conditions*"). The algorithm proceeds by first assigning possible weights to control observations and then testing whether the balancing conditions have been satisfied (distributional properties of treatment and post-weighted control observations are identical). This process is repeated over multiple iterations until a set of weights is found that satisfies the balance conditions. Appendix A6 (Panel B) reports descriptive statistics for the distributional properties of the matching variables for the sample post entropy balancing.

In addition to preserving our full sample, entropy balancing also has higher model efficiency and less first-stage model dependency than propensity score matching (PSM) according to Hainmueller (2012). The results show that our variables of interest (shareholder and creditor

[24] For brevity, the results are not reported, but available from the author upon request.

[25] We appreciate the referee's comment on using entropy-balancing method to further address any potential endogenity issues.

[26] We choose entropy balancing method over propensity score matching approach, because the later reduces the sample size as compared to former, due to imbalance observations between treatment and control group.

rights) are significant and the results are consistent with our baseline analysis in Tables 2 and 3.[27]

6. Conclusions

Investors, practitioners and policymakers across the globe seek to understand what influences the performance of newly listed firms. This study examines the impact of cross-country variation in shareholders' and debt-holders' rights on post-IPO performance and the survival of newly listed stocks. Using a sample of 10,490 IPOs from 40 countries between 2000 and 2013, we find that post-IPO performance and survival is better in countries with stronger shareholder protection. By contrast, some aspects of creditor protection can adversely affect post-IPO performance including survival. Our analysis shows that rules requiring creditors' consent for company reorganization and provisions that allow creditors and courts to replace of incumbent managers negatively impact IPO performance. Our study suggests that rules aimed to protect creditors by limiting the ability of managers to restructure companies have negative effects on post-IPO performance and survival times. Hence, creditors who exercise their power to over-restrict managerial discretion could result in dysfunctional corporate decision-making. We explore a number of channels through which investor rights impact post-IPO performance including the interaction effect between investor protection and IPO certification by reputable auditors and underwriters. We find that reputable IPO advisors exacerbate the positive impact of shareholder rights and the negative impact of creditor rights. A battery of robustness tests shows that our main findings are robust.

[27] We are grateful to anonymous referees for suggesting these extensions.

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Table 1: **Sample distribution**

The table shows the sample distribution across countries. Our sample consists of 10,490 IPOs across 40 countries that were listed between Jan. 01st, 2000 and Dec. 31st, 2013. Obs. is the total number of IPOs listed on the local stock exchange during our sample period for which we have available listing time data. Survive is the total number of IPO firms that are not delisted from their respective domestic stock exchange. Day One Return is the return on the first day of listing, Operating Performance is industry-adjusted operating performance. Creditor Rights (Djankov et al., 2007), Shareholder Rights (Djankov et al., 2008), and Security Law are country specific investor protection variables. Construction and definition for all variables is explained in Appendix A1.

Country	Obs.	Survive	Day One Return	Operating Performance	Creditor Rights	Shareholder Rights	Security Law
Argentina	10	9	0.3206	0.0323	1.00	2.00	1.56
Australia	724	591	0.3017	0.0503	3.00	4.00	1.77
Austria	27	12	0.1681	0.0093	3.00	2.50	1.81
Belgium	45	28	0.1761	0.0403	2.00	3.00	2.15
Brazil	101	78	0.2016	0.0117	1.00	5.00	1.84
Canada	455	195	0.2714	0.0300	1.00	4.00	2.34
Chile	20	18	0.2401	0.0218	2.00	4.00	1.99
China	1,401	1,031	0.8183	0.0904	2.00	1.00	1.82
Denmark	33	22	0.3499	0.0128	3.00	4.00	1.89
Finland	16	12	0.0326	0.0429	1.00	3.50	1.75
France	304	204	0.1651	0.0289	0.00	3.50	1.97
Germany	223	139	0.0955	0.0210	3.00	3.50	1.76
Greece	95	64	0.0986	0.0192	1.00	2.00	1.20
Hong Kong	299	258	0.3707	0.0252	4.00	5.00	2.52
Hungary	11	7	-0.0353	0.0179	1.00	2.00	1.34
India	431	318	0.3002	0.0196	2.00	5.00	1.32
Indonesia	154	148	0.4507	0.0662	2.00	4.00	1.83
Ireland	22	7	0.9881	0.0186	1.00	5.00	2.44
Italy	128	82	0.1637	0.0200	2.00	2.00	1.52
Japan	1,139	910	0.4731	0.0200	2.00	4.50	1.99
Korea South	585	521	0.4100	0.0168	3.00	4.50	1.98
Malaysia	438	362	0.2850	0.0195	3.00	5.00	2.58
Mexico	17	14	0.3232	0.0255	0.00	3.00	1.87
Netherland	44	21	0.3122	0.0231	3.00	2.50	1.46
New Zealand	38	20	0.1302	0.0118	4.00	4.00	2.69
Norway	64	37	0.2737	0.0409	2.00	4.00	2.08
Philippines	28	23	0.4368	0.0436	1.00	3.00	1.03
Poland	149	126	0.4897	0.0321	1.00	2.00	1.48
Portugal	10	8	-0.0891	0.0167	1.00	2.50	1.78
Russia Fed.	48	37	0.1709	0.0356	2.00	4.00	1.56
Singapore	288	217	0.3141	0.0243	3.00	5.00	2.80
South Africa	21	17	0.4911	0.0407	3.00	5.00	2.24
Spain	35	22	0.1495	0.0255	2.00	5.00	1.73
Sweden	61	41	0.1593	0.0391	1.00	3.50	1.77
Switzerland	48	36	0.1321	0.0244	1.00	3.00	1.21
Taiwan	712	662	0.1833	0.0153	2.00	3.00	1.81
Thailand	199	175	0.2727	0.0167	2.00	4.00	2.25
Turkey	45	42	0.0463	0.0244	2.00	3.00	1.96
The U.K.	834	551	0.1551	0.0390	4.00	5.00	2.38
The USA	1,188	751	0.1848	0.0303	1.00	3.00	2.37
Total / Average	10,490	7,816	0.2695	0.0463	2.18	3.60	2.03

Table 2: **Accelerated Failure Time Model (AFT)**
The table reports the AFT model using the logarithm of the survival time of the IPO firm as a dependent variable. Following Espenlaub et al. (2016), IPO firms are classified as survivors if they continue to trade on the stock market or move to a different market. M&A delistings of well-performing companies are classified as censored survivors if they rank above median based on the two company performance measures in the year prior to the M&A delisting – cash to total assets and operating income to total asset, and below the median for total liability to total asset. We control for year, industry, and regional fixed effects. Robust standard errors are clustered by country. P-Values have been adjusted for heteroskedasticity using White's (1980) process, and are shown in parenthesis below the co-efficients. Pseudo R-square and sample size for each model is reported in the last two rows. Construction and definition for all variables is explained in Appendix A1. ***, **, * indicates significance at 1%, 5% and 10% levels, respectively.

Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Creditor Rights	-0.104***		-0.134***	-0.048***
	[0.000]		[0.000]	[0.000]
Shareholder Rights		0.036***	0.027**	0.054***
		[0.002]	[0.038]	[0.000]
Security Law				0.450***
				[0.000]
Day One Return	0.071***	0.067**	0.072***	0.052**
	[0.006]	[0.011]	[0.006]	[0.046]
Ln Total Assets	0.030***	0.021***	0.029***	0.006*
	[0.000]	[0.002]	[0.000]	[0.078]
Sales to TA	0.059***	0.052***	0.069***	0.064***
	[0.000]	[0.001]	[0.000]	[0.000]
MTB	0.0013	0.0015	0.001	0.001
	[0.628]	[0.795]	[0.992]	[0.739]
Debt to TA	-0.614***	-0.635***	-0.599***	-0.353***
	[0.000]	[0.000]	[0.000]	[0.000]
Hot IPO	-0.094**	-0.149***	-0.088*	0.276***
	[0.037]	[0.001]	[0.052]	[0.000]
Market Return	0.118	0.092	0.209	0.231
	[0.563]	[0.644]	[0.301]	[0.264]
Constant	1.356***	1.404***	1.117***	1.161***
	[0.000]	[0.000]	[0.000]	[0.000]
Year and Ind. Dummy	Yes	Yes	Yes	Yes
Region Dummy	Yes	Yes	Yes	Yes
Pseudo R-square	0.188	0.194	0.199	0.251
Observations	10,490	10,490	10,490	10,490

Table 3: Operating performance

The table reports the results of the operating performance. The dependent variable is the operating performance adjusted by the industry. All variables are as defined in Table 2 and Appendix A1. We control for year, industry, and regional fixed effects. Robust standard errors are clustered by country. P-Values have been adjusted for heteroskedasticity using White's (1980) process, and are shown in parenthesis below the co-efficients. Adjusted R-square and sample size for each model is reported in the last two rows. ***, **, * indicates significance at 1%, 5% and 10% levels, respectively.

Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Creditor Rights	-0.002**		-0.008***	-0.006***
	[0.040]		[0.000]	[0.000]
Shareholder Rights		0.004***	0.004***	0.007***
		[0.001]	[0.002]	[0.000]
Security Law				0.027***
				[0.000]
Day One Return	0.006**	0.004*	0.019***	0.019***
	[0.015]	[0.081]	[0.000]	[0.000]
Ln Total Assets	0.001	0.002	0.009***	0.009***
	[0.556]	[0.811]	[0.000]	[0.000]
Sales to TA	0.015***	0.015***	0.019***	0.019***
	[0.000]	[0.000]	[0.000]	[0.000]
MTB	0.0001	0.0002	0.001***	0.001***
	[0.986]	[0.954]	[0.000]	[0.000]
Debt to TA	-0.037***	-0.035***	-0.018**	-0.018**
	[0.000]	[0.000]	[0.025]	[0.026]
Hot IPO	-0.005	-0.006	-0.004	-0.007
	[0.204]	[0.132]	[0.388]	[0.148]
Market Return	0.024	0.026	0.012	0.006
	[0.162]	[0.137]	[0.587]	[0.784]
Constant	0.307***	0.299***	0.166***	0.125***
	[0.000]	[0.000]	[0.000]	[0.000]
Year and Ind. Dummy	Yes	Yes	Yes	Yes
Region Dummy	Yes	Yes	Yes	Yes
Adjusted R-square	0.181	0.185	0.196	0.201
Observations	10,490	10,490	10,490	10,490

Table 4: **The impact of reputable advisors on performance**

The table reports the results for the impact of IPO certification measures (auditor and underwriter reputation of the IPO firm) on the newly listed firm's survival (Model 1: AFT) and industry-adjusted operating performance (Model 2: Operating Performance). All regressions control for firm-level and market controls consistent with regressions in Table 2. All variables are as defined in Table 2 and Appendix A1. Robust standard errors are clustered by country. P-Values have been adjusted for heteroskedasticity using White's (1980) process, and are shown in parenthesis below the co-efficients. Pseudo / Adjusted R-square and sample size for each model is reported in the last two rows. Construction and definition for all variables is explained in Appendix A1. ***, **, * indicates significance at 1%, 5% and 10% levels, respectively.

Variables	**Model 1: AFT**	**Model 2: Operating Performance**
Creditor Rights	-0.060***	-0.004***
	[0.000]	[0.007]
Shareholder Rights	0.055***	0.002**
	[0.000]	[0.047]
Security Law	0.423***	0.011**
	[0.000]	[0.013]
Auditor Rep	0.063**	0.009***
	[0.040]	[0.008]
Underwriter Rep	0.091***	0.002*
	[0.004]	[0.072]
Constant	2.304***	0.071***
	[0.000]	[0.000]
Firm-Level and Market Controls	Yes	Yes
Year and Ind. Dummy	Yes	Yes
Region Dummy	Yes	Yes
Pseudo / Adjusted R-square	0.167	0.172
Observations	9,543	9,543

Table 5: **Indirect impact of reputable advisors**

The table reports the impact of investor (creditor / shareholder) rights and IPO certification measures (auditor and underwriter reputation of the IPO firm) on the newly listed firm's survival (model 1: AFT), and industry-adjusted operating performance (model 2: Operating Performance). *High Creditor* (*Shareholder*) Rights is a dummy variable, equal to one of the country-specific Creditor (Shareholder) Rights is above the sample median of 40 countries, otherwise zero. All regressions control for firm-level and market controls consistent with regressions in Table 2. All variables are as defined in Table 2 and Appendix A1. Robust standard errors are clustered by country. P-Values have been adjusted for heteroskedasticity using White's (1980) process, and are shown in parenthesis below the co-efficients. Pseudo / Adjusted R-square and sample size for each model is reported in the last two rows. ***, **, * indicates significance at 1%, 5% and 10% levels, respectively.

Variables	**Model 1: AFT**	**Model 2: Operating Performance**
High Creditor Rights x Auditor Rep	-0.025*	-0.003*
	[0.071]	[0.087]
High Creditor Rights x Underwriter Rep	-0.114**	-0.020***
	[0.036]	[0.005]
High Shareholder Rights x Auditor Rep	0.059*	0.015*
	[0.089]	[0.057]
High Shareholder Rights x Underwriter Rep	0.113**	0.019**
	[0.031]	[0.017]
High Creditor Rights	-0.031*	-0.012***
	[0.058]	[0.007]
High Shareholder Rights	0.197***	0.025***
	[0.000]	[0.000]
Security Law	0.422***	0.023***
	[0.000]	[0.000]
Auditor Rep	0.072*	0.001
	[0.072]	[0.826]
Underwriter Rep	0.088*	0.012*
	[0.084]	[0.097]
Constant	1.078***	0.154***
	[0.000]	[0.000]
Firm-Level and Market Controls	Yes	Yes
Year and Ind. Dummy	Yes	Yes
Region Dummy	Yes	Yes
Pseudo / Adjusted R-square	0.165	0.184
Observations	9,543	9,543

Table 6: **Impact of components of creditors and shareholders rights**

The table reports the impact of creditors rights (Panel A) and shareholders rights (Panel B) components. The Four components of Creditor Rights variable are – (1) the country imposes restrictions, such as creditors' consent or minimum dividends to file for reorganization – *Restrict Re-organization*; (2) the debtor does not retain the administration of its property pending the resolution of the reorganization – *Management Not Stay;* (3) secured creditors are able to gain possession of their security once the reorganization petition has been approved – *No Auto Stay*; and (4) secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm – *Secured Credit First*. Shareholders rights have six components and they are as follow: (1) cumulative voting or proportional representation of minorities in the board of directors is allowed – *Cumulative Vote*, (2) an oppressed minorities mechanism is in place – *Oppress Minor*; (3) the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10 percent (the sample median) – *Min Share Cap*; (4) shareholders have pre-emptive rights that can be waived only by a shareholders' vote – *Pre-Empt Rights*; (5) shareholders are not required to deposit their shares prior to the general shareholders' meeting – *Share No Deposit*; and (6) the country allows shareholders to mail their proxy vote to the firm – *Proxy Vote Mail*. All regressions control for firm-level and market controls consistent with regressions in Table 2. All variables are as defined in Table 2 and Appendix A1. Robust standard errors are clustered by country. P-Values have been adjusted for heteroskedasticity using White's (1980) process, and are shown in parenthesis below the co-efficients. Pseudo / Adjusted R-square and sample size for each model is reported in the last two rows. ***, **, * indicates significance at 1%, 5% and 10% levels, respectively.

	Panel A: Creditors rights			**Panel B: Shareholders rights**	
Variables	**Model 1: AFT**	**Model 2: Operating Performance**	**Variables**	**Model 1: AFT**	**Model 2: Operating Performance**
Restrict Re-organization	-0.241***	-0.014***	Cumulative Vote	0.377***	0.007**
	[0.000]	[0.000]		[0.000]	[0.048]
Management Not Stay	-0.341***	-0.004	Oppress Minority	0.299***	0.043***
	[0.000]	[0.973]		[0.000]	[0.000]
No Auto Stay	0.192***	0.002***	Min Share Cap	-0.311***	-0.234***
	[0.000]	[0.000]		[0.000]	[0.000]
Secured Credit First	0.109***	0.007**	Pre-Empt Rights	0.194***	0.011***
	[0.002]	[0.026]		[0.000]	[0.002]
			Share No Deposit	0.073	0.006
				[0.193]	[0.238]
			Proxy Vote Mail	-0.022	-0.007
				[0.684]	[0.167]
Security Law	0.492***	0.021***	Security Law	0.091**	0.010**
	[0.000]	[0.000]		[0.034]	[0.044]
Auditor Rep	0.048	0.012***	Auditor Rep	0.016	0.009**
	[0.109]	[0.000]		[0.596]	[0.013]
Underwriter Rep	0.075**	0.041**	Underwriter Rep	0.061**	0.004**
	[0.016]	[0.044]		[0.049]	[0.030]
Constant	2.035***	0.159***	Constant	2.676***	0.211***
	[0.000]	[0.000]		[0.000]	[0.000]
Firm-Level and Market Controls	Yes	Yes	Firm-Level and Market Controls	Yes	Yes
Year and Ind. Dummy	Yes	Yes	Year and Ind. Dummy	Yes	Yes
Region Dummy	Yes	Yes	Region Dummy	Yes	Yes
Pseudo / Adjusted R-square	0.177	0.173	Pseudo / Adjusted R-square	0.181	0.178
Observations	9,543	9,543	Observations	9,543	9,543

Table 7: **Impact of legal system versus investor's protection**

The table reports the results of creditors (Panel A) and shareholders rights (Panel B) components controlling for the country-specific Legality Index (Berkowitz et al., 2003), legal origin of the country of listing (Common Law). All regressions control for firm-level and market controls consistent with regressions in Table 2. All variables are as defined in Table 2 and Appendix A1. Robust standard errors are clustered by country. P-Values have been adjusted for heteroskedasticity using White's (1980) process, and are shown in parenthesis below the co-efficients. Pseudo / Adjusted R-square and sample size for each model is reported in the last two rows. ***, **, * indicates significance at 1%, 5% and 10% levels, respectively.

	Panel A: Creditors rights			**Panel B: Shareholders rights**	
Variables	**Model 1: AFT**	**Model 2: Operating Performance**	**Variables**	**Model 1: AFT**	**Model 2: Operating Performance**
Restrict Re-organization	-0.260***	-0.014***	Cumulative Vote	0.299***	0.043***
	[0.000]	[0.000]		[0.000]	[0.000]
Management Not Stay	-0.347***	-0.004	Oppress Minority	0.256***	0.042**
	[0.000]	[0.374]		[0.001]	[0.043]
No Auto Stay	0.067**	0.018***	Min Share Cap	-0.421***	-0.188**
	[0.041]	[0.000]		[0.000]	[0.035]
Secured Credit First	0.027	0.012**	Pre-Empt Rights	0.201***	0.013***
	[0.579]	[0.041]		[0.000]	[0.005]
			Share No Deposit	0.106	0.057
				[0.451]	[0.124]
			Proxy Vote Mail	-0.103	-0.002
				[0.275]	[0.784]
Security Law	0.424***	0.036***	Security Law	0.058**	0.038***
	[0.000]	[0.000]		[0.029]	[0.000]
Legality Index	0.241***	0.017***	Legality Index	0.243***	0.039***
	[0.000]	[0.000]		[0.000]	[0.000]
Common Law	0.103**	0.038***	Common Law	0.496***	0.101***
	[0.019]	[0.000]		[0.000]	[0.000]
Auditor Rep	0.028	0.007**	Auditor Rep	0.027	0.005*
	[0.348]	[0.043]		[0.382]	[0.064]
Underwriter Rep	0.017*	0.031*	Underwriter Rep	0.025*	0.001*
	[0.057]	[0.088]		[0.088]	[0.085]
Constant	2.609***	0.122***	Constant	2.757***	0.062***
	[0.000]	[0.000]		[0.000]	[0.001]
Firm-Level and Market Controls	Yes	Yes	Firm-Level and Market Controls	Yes	Yes
Year and Ind. Dummy	Yes	Yes	Year and Ind. Dummy	Yes	Yes
Region Dummy	Yes	Yes	Region Dummy	Yes	Yes
Pseudo / Adjusted R-square	0.177	0.167	Pseudo / Adjusted R-square	0.166	0.171
Observations	9,543	9,543	Observations	9,543	9,543

Table 8: **M&A is censored**

The table shows the results when M&A is treated as censored. All regressions control for firm-level and market controls consistent with regressions in Table 2. All variables are as defined in Table 2 and Appendix A1. Robust standard errors are clustered by country. P-Values have been adjusted for heteroskedasticity using White's (1980) process, and are shown in parenthesis below the co-efficient. Pseudo / Adjusted R-square and sample size for each model is reported in the last two rows. ***, **, * indicates significance at 1%, 5% and 10% levels, respectively.

Variables	**Model 1: AFT (Creditors)**	**Variables**	**Model 2: AFT (Shareholders)**
Restrict Re-organization	-0.072**	Cumulative Vote	0.329***
	[0.017]		[0.000]
Management Not Stay	-0.297***	Oppress Minority	0.294***
	[0.000]		[0.000]
No Auto Stay	0.040*	Min Share Cap	-0.281**
	[0.084]		[0.011]
Secured Credit First	0.141***	Pre-Empt Rights	0.151***
	[0.000]		[0.007]
		Share No Deposit	0.157***
			[0.006]
		Proxy Vote Mail	-0.063
			[0.474]
Security Law	0.314***	Security Law	0.022*
	[0.000]		[0.061]
Auditor Rep	0.047	Auditor Rep	0.027
	[0.140]		[0.399]
Underwriter Rep	0.069**	Underwriter Rep	0.065**
	[0.035]		[0.047]
Constant	2.779***	Constant	2.605***
	[0.000]		[0.000]
Firm-Level and Market Controls	Yes	Firm-Level and Market Controls	Yes
Year and Ind. Dummy	Yes	Year and Ind. Dummy	Yes
Region Dummy	Yes	Region Dummy	Yes
Pseudo R-square	0.168	Pseudo R-square	0.171
Observations	9,543	Observations	9,543

Appendix A1: **Definition of the variables**

The table provides definitions of the variables and the source of data for all the variables in our study.

Variables	Definition
Survive	Is the proportion of IPO firms that are not failed / delisted from their respective domestic stock exchange. Following Espenlaub et al. (2016), IPO firms are classified as survivors if they continue to trade on the stock market or move to a different market. M&A delisting of well-performing companies are classified as censored survivors if they rank above median based on the two company performance measures in the year prior to the M&A delisting – cash to total assets and operating income to total asset, and below the median for total liability to total asset. *Source: SDC Platinum Database / Datastream / Worldscope.*
Operating Performance	Average of the 3-years post listing industry-adjusted net income scaled by total assets of the IPO firm. We use Fama-French 10 industry classification to estimate operating performance. *Source: Datastream / Worldscope.*
Creditor Rights	Creditor rights index ranges from zero to four and is formed by adding 1 when (1) *Restrict Re-organization* – the reorganization procedure in the country imposes restrictions, such as creditors' consent, to file for reorganization. (2) *Management Not Stay* – an official appointed by the court, or by the creditors, is responsible for the operation of the business during reorganization. (3) *No Auto Stay* – secured creditors are able to gain possession of their loan collateral once the reorganization petition has been approved by the court. (4) *Secured Credit First* – secured creditors have the highest priority in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm. The index ranges from zero to four. *Source: La Porta et al. (1998), Djankov et al. (2007).* Note: we use the index values constructed by Djankov et al. (2007) for the years 2000, 2001, 2002 and 2003 for our respective sample years. We use the 2003 index values for subsequent sample years (2004-2013).
Shareholder Rights	Shareholder rights index ranges from zero to six and is formed by adding 1 when, (1) *Cumulative Vote* – cumulative voting or proportional representation of minority shareholders in the board of directors is allowed. (2) *Oppress Minor* – grants minority shareholders (with 10% or less equity) to avail judicial venue to challenge the decisions of management. (3) *Min Share Cap* – the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10 percent. (4) *Pre-Empt Rights* – shareholders have the first right to buy new issues of stock, and this right can be waived only by a shareholders' vote. (5) *Share No Deposit* – shareholders are not required to deposit their shares prior to the general shareholders' meeting. (6) *Proxy Vote Mail* – the country allows shareholders to mail their proxy vote to the firm. The index ranges from zero to six. *Source: La Porta et al. (1998), Djankov et al. (2008)*. Note: we use the revised Anti-director Rights Index of *Djankov et al. (2008)* based on data for May 2003 for all our sample years.
Security Law	Security-law index is formed by adding 3 factors: (1) the extent to which firms disclose security information when issuing securities (disclosure requirements), (2) the ease with which investors recover their losses from misleading or omitted information (liability standards), and (3) the extent of public enforcement of good practices in security issuance (public enforcement). *Source: World Bank Ease of Doing Business Database*
Auditor Rep	A dummy variable equal to one if the auditor of the IPO firm is one of the Big 4 Accounting and Auditing Firms, otherwise zero. *Source: SDC Platinum Database*
Underwriter Rep	A dummy variable equal to one if the IPO Underwriter is in the top quartile of the underwriter ranking, otherwise zero. Ranking is assigned based on the number of deals and total proceeds by an investment bank in a specific year and market. *Source: SDC Platinum Database*
Day One Return	First day secondary market closing price divided by the final offer price, minus one. *Source: SDC Platinum Database, Datastream / Worldscope.*
Ln Total Assets	Natural logarithm of the listing-time total assets of the firm measured in million US$. *Source: Datastream / Worldscope.*
EBIT to TA	Earnings before interest and tax divided by total assets for the financial year when the IPO firm is listed. *Source: Datastream / Worldscope.*
Sales to TA	Total sales divided by total assets for the financial year when the IPO firm is listed. *Source: Datastream / Worldscope.*
MTB	Market value of equity divided by the book value of equity at the time of the IPO firm listing. *Source: SDC Platinum Database / Datastream / Worldscope.*
Debt to TA	Sum of short-term and long-term debt divided by the total assets for the financial year when the IPO firm is listed. *Source: Datastream / Worldscope.*
Hot IPO	Country-specific average initial return of IPOs issued during past three months prior to the month of the IPO listing (similar to a measure used by Demers and Joos, 2007).
Market Return	Country-specific quarterly average returns of the domestic benchmark index during the three months prior to the month of the IPO issuance. *Source: Datastream*
Legality Index	The index of the quality of the legal system in the country of origin of the IPO firm (Berkowitz et al., 2003) in the calendar year of listing; the index is constructed as the weighted average of separate indicators, used in La Porta et al. (1998), of the efficiency of the company's judicial system, the rule of law, corruption, the risk of expropriation, and the risk of contract repudiation. The Legality index = 0.381*(Efficiency of Judiciary) + 0.5778*(Rule of Law) + 0.5031*(Corruption) + 0.3468*(Risk of Expropriation) + 0.3842*(Risk of Contract Repudiation).
Common Law	A dummy variable, which indicates whether a company originates from a common law country; Common = 1, otherwise zero. *Source: La Porta et al. (1998).*

Appendix A2: Distribution of creditors and shareholders' components

The table shows details of the individual provisions that are taken into account in constructing the Creditor Rights index (Djankov et al., 2007) and Shareholder Rights index (Djankov et al., 2008). The construction of the two indices is explained in Appendix A1.

Country	Creditor Rights	Restrict Re-organization	Management Not Stay	No Auto Stay	Secured Credit First	Shareholder Rights	Cumulative Vote	Oppress Minority	Min Share Cap	Pre-Empt Rights	Share No Deposit	Proxy Vote Mail
Argentina	1.0	0.0	0.0	0.0	1.0	2.0	0.0	0.0	1.0	1.0	0.0	0.0
Australia	3.0	0.0	1.0	1.0	1.0	4.0	0.0	1.0	1.0	0.0	1.0	1.0
Austria	3.0	1.0	0.0	1.0	1.0	2.5	0.0	0.5	1.0	1.0	0.0	0.0
Belgium	2.0	0.0	1.0	0.0	1.0	3.0	0.0	1.0	0.0	1.0	0.0	1.0
Brazil	1.0	0.0	0.0	1.0	0.0	5.0	1.0	1.0	1.0	1.0	0.0	1.0
Canada	1.0	0.0	0.0	0.0	1.0	4.0	0.0	1.0	1.0	0.0	1.0	1.0
Chile	2.0	0.0	0.0	1.0	1.0	4.0	1.0	0.0	1.0	1.0	1.0	0.0
China	2.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0
Denmark	3.0	0.0	1.0	1.0	1.0	4.0	0.0	1.0	1.0	1.0	1.0	0.0
Finland	1.0	0.0	0.0	0.0	1.0	3.5	0.0	0.5	1.0	1.0	1.0	0.0
France	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.5	1.0	1.0	0.0	1.0
Germany	3.0	0.0	1.0	1.0	1.0	3.5	0.0	0.5	1.0	1.0	0.0	1.0
Greece	1.0	1.0	0.0	0.0	0.0	2.0	0.0	0.0	1.0	1.0	0.0	0.0
Hong Kong	4.0	1.0	1.0	1.0	1.0	5.0	0.0	1.0	1.0	1.0	1.0	1.0
Hungary	1.0	1.0	0.0	0.0	0.0	2.0	0.0	0.0	1.0	0.0	1.0	0.0
India	2.0	1.0	0.0	0.0	1.0	5.0	0.0	1.0	1.0	1.0	1.0	1.0
Indonesia	2.0	0.0	1.0	0.0	1.0	4.0	0.0	1.0	1.0	1.0	1.0	0.0
Ireland	1.0	0.0	0.0	0.0	1.0	5.0	0.0	1.0	1.0	1.0	1.0	1.0
Italy	2.0	1.0	1.0	0.0	0.0	2.0	0.0	0.0	1.0	1.0	0.0	0.0
Japan	2.0	0.0	1.0	0.0	1.0	4.5	1.0	0.5	1.0	0.0	1.0	1.0
Korea South	3.0	0.0	1.0	1.0	1.0	4.5	1.0	0.5	1.0	1.0	0.0	1.0
Malaysia	3.0	1.0	0.0	1.0	1.0	5.0	0.0	1.0	1.0	1.0	1.0	1.0
Mexico	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	1.0	1.0	1.0	0.0
Netherland	3.0	0.0	1.0	1.0	1.0	2.5	0.0	0.5	1.0	1.0	0.0	0.0
New Zealand	4.0	1.0	1.0	1.0	1.0	4.0	0.0	1.0	1.0	1.0	1.0	0.0
Norway	2.0	1.0	0.0	0.0	1.0	3.5	0.0	0.5	1.0	1.0	1.0	0.0
Philippines	1.0	0.0	0.0	0.0	1.0	3.0	0.0	0.0	0.0	1.0	1.0	1.0
Poland	1.0	0.0	1.0	0.0	0.0	2.0	0.0	0.0	1.0	1.0	0.0	0.0
Portugal	1.0	0.0	0.0	0.0	1.0	2.5	0.0	0.5	1.0	1.0	0.0	0.0
Russia Fed.	2.0	1.0	1.0	0.0	0.0	4.0	1.0	0.0	1.0	1.0	1.0	0.0
Singapore	3.0	0.0	1.0	1.0	1.0	5.0	0.0	1.0	1.0	1.0	1.0	1.0
South Africa	3.0	1.0	1.0	0.0	1.0	5.0	0.0	1.0	1.0	1.0	1.0	1.0
Spain	2.0	0.0	1.0	1.0	0.0	5.0	1.0	1.0	1.0	1.0	0.0	1.0
Sweden	1.0	0.0	0.0	0.0	1.0	3.5	0.0	0.5	1.0	1.0	1.0	0.0
Switzerland	1.0	0.0	0.0	0.0	1.0	3.0	0.0	1.0	1.0	1.0	0.0	0.0
Taiwan	2.0	0.0	1.0	0.0	1.0	3.0	1.0	0.0	1.0	1.0	0.0	0.0
Thailand	2.0	0.0	1.0	0.0	1.0	4.0	1.0	1.0	0.0	1.0	1.0	0.0
Turkey	2.0	1.0	0.0	1.0	0.0	3.0	0.0	0.0	1.0	1.0	0.0	1.0
The U.K.	4.0	1.0	1.0	1.0	1.0	5.0	0.0	1.0	1.0	1.0	1.0	1.0
The USA	1.0	0.0	0.0	0.0	1.0	3.0	0.0	1.0	0.0	0.0	1.0	1.0
Average	2.18	0.37	0.54	0.36	0.91	3.60	0.27	0.63	0.78	0.53	0.62	0.69

Appendix A3: Descriptive Statistics

The table shows the descriptive statistics for all the variables used in the analysis across 40 countries for IPOs listed between Jan. 2000 and Dec. 2013. The variables are reported by mean, median, standard deviation, 5th and 95th percentile. Detailed definitions of all variables are reported in Appendix A1.

Variable	Obs.	Mean	Median	Std. Dev.	Perc. 5th	Perc. 95th
Day One Ret	10,490	0.2695	0.2557	0.2001	0.0292	0.5074
Survive	10,490	0.7451	1.0000	0.4358	1.0000	0.0000
Operating Performance	10,490	0.0463	0.0216	0.1097	-0.0426	0.3974
Total Assets	10,490	602.79	109.87	1,614.06	7.3700	2,634.80
Sales to TA	10,490	0.7885	0.5782	0.8034	0.0000	2.4265
MTB	10,490	3.6606	2.3800	4.5242	0.6900	10.7100
Debt to TA	10,490	0.1157	0.0323	0.1836	0.0063	0.5186
Underwriter Rep	9,543	0.3428	0.0000	0.4747	1.0000	0.0000
Auditor Rep	9,543	0.3831	0.0000	0.4862	1.0000	0.0000
Shareholder Rights	10,490	3.6038	4.0000	1.3037	1.0000	5.0000
Creditor Rights	10,490	2.1801	2.0000	0.9864	1.0000	4.0000
Security Law	10,490	2.0308	1.9818	0.3560	1.3228	2.5827
Hot IPO	10,490	0.3679	0.3149	0.3506	-0.0681	0.9995
Market Return	10,490	0.0395	0.0229	0.0589	-0.0862	0.1023

Appendix A4: The impact of investor protection on CAPX and Cash holding

The table shows the results of preliminary analysis using cash holding and capital expenditure averaged over 3 years post IPO. In Panel A, the dependent variable in Models 1 and 2 is the natural logarithm of capital expenditure; in Models 3 and 4 the dependent variable is cash holding, and in Panel B Models 5 and 6 it is average operating performance over three years. We measure cash holding as a ratio of cash and marketable securities to net assets (defined as total assets minus cash and marketable securities). In Panel B, all regressions control for firm-level and market controls consistent with the models in Table 2. All variables are as defined in Appendix A1. Robust standard errors are clustered by country. P-Values have been adjusted for heteroskedasticity using White's (1980) method, and are shown in parentheses below the coefficients. Adjusted R-squared and sample size for each model are reported in the last two rows. ***, **, * indicates significance at 1%, 5% and 10% levels, respectively.

Variables: Panel A	*Dep: CAPX*		*Dep: Cash holding*	
	Model 1	**Model 2**	**Model 3**	**Model 4**
Creditor Rights	-0.102***	-0.106***	0.019***	0.021***
	[0.000]	[0.000]	[0.000]	[0.000]
Shareholder Rights	0.113***	0.122***	-0.019***	-0.016***
	[0.000]	[0.000]	[0.000]	[0.000]
Security Law		0.133***		-0.026***
		[0.001]		[0.000]
Day One Return	-0.018*	-0.015*	0.017*	0.016*
	[0.053]	[0.057]	[0.082]	[0.075]
Ln Total Assets	0.004	0.003	-0.005	-0.006
	[0.210]	[0.170]	[0.125]	[0.111]
Sales to TA	0.115***	0.115***	-0.089*	-0.101*
	[0.000]	[0.000]	[0.088]	[0.060]
MTB	0.125	0.145	0.050***	0.048***
	[0.184]	[0.127]	[0.000]	[0.000]
Debt to TA	0.078	0.045	-0.107*	-0.071*
	[0.183]	[0.208]	[0.083]	[0.091]
Hot IPO	-0.102***	-0.106***	0.019***	0.021***
	[0.000]	[0.000]	[0.000]	[0.000]
Market Return	0.113***	0.122***	-0.019***	-0.016***
	[0.000]	[0.000]	[0.000]	[0.000]
Constant	1.627***	1.291**	0.236***	0.186***
	[0.001]	[0.012]	[0.000]	[0.000]
Year and Ind. Dummy	Yes	Yes	Yes	Yes
Region Dummy	Yes	Yes	Yes	Yes
Pseudo R-square	0.193	0.221	0.182	0.185
Observations	8,695	8,695	9,860	9,860

Appendix A4 continues

Variables: Panel B	*Dep: Operating Performance*	
	Model 5	**Model 6**
High Creditor Rights x Cash holding	-0.016**	
	[0.071]	
High Shareholder Rights x Cash holding	0.021**	
	[0.036]	
High Creditor Rights x CAPX		-0.015**
		[0.039]
High Shareholder Rights x CAPX		0.019**
		[0.017]
Cash holding	-0.102**	
	[0.012]	
CAPX		0.082**
		[0.017]
High Creditor Rights	-0.021**	-0.018***
	[0.039]	[0.007]
High Shareholder Rights	0.023***	0.025***
	[0.000]	[0.000]
Security Law	0.032***	0.027***
	[0.000]	[0.000]
Constant	0.151***	0.156***
	[0.000]	[0.000]
Firm-Level and Market Controls	Yes	Yes
Year and Ind. Dummy	Yes	Yes
Region Dummy	Yes	Yes
Pseudo / Adjusted R-square	0.189	0.192
Observations	8,695	8,695

Appendix A5: Endogeneity

The table shows two-stage instrumental-variable (IV) models allowing creditors and shareholders rights to be endogenous. In Stage I, we estimate creditors or shareholders rights using all variables including indicators of IPO quality (sales growth and EBITDA growth) as instruments. We calculate the growth in sales and EBITDA between the Year of IPO and the first year after the IPO. All other variables are as defined in Table 2 and Appendix A1. ***, **, * indicates significance at 1%, 5% and 10% levels, respectively.

Variables	**Stage I**	**Stage II**	**Stage I**	**Stage II**
	Dep=Creditors Rights Model 1	Dep=Operating performance Model 2	Dep= Shareholder Rights Model 3	Dep= Operating performance Model 4
EBITDA growth	0.224***		0.186***	
	[0.000]		[0.000]	
Creditor Rights		-0.097***		
		[0.000]		
Shareholder Rights				0.0281***
				[0.002]
Security Law		0.397***		0.401***
		[0.000]		[0.000]
Day One Return	0.066**	0.052**	0.067**	0.041**
	[0.031]	[0.020]	[0.017]	[0.033]
Ln Total Assets	0.026**	0.022**	0.030**	0.005*
	[0.022]	[0.013]	[0.011]	[0.088]
Sales to TA		0.048***		0.061***
		[0.001]		[0.000]
MTB	0.0012	0.0013	0.001	0.001
	[0.558]	[0.672]	[0.872]	[0.810]
Debt to TA	-0.594**	-0.619**	-0.601**	-0.344**
	[0.012]	[0.014]	[0.020]	[0.014]
Hot IPO	-0.088**	-0.137***	-0.079*	0.257***
	[0.022]	[0.007]	[0.066]	[0.000]
Market Return	0.114	0.087	0.221	0.244
	[0.373]	[0.524]	[0.271]	[0.194]
Constant	1.106***	0.044***	1.101***	0.047***
	[0.000]	[0.000]	[0.000]	[0.000]
Hansen J-test	***1.132***		***1.870***	
Relevance test	***5.310***		***4.171***	
Exclusion Criteria test	***0.451***		***0.337***	
Year and Ind. Dummy	Yes	Yes	Yes	Yes
Region Dummy	Yes	Yes	Yes	Yes
Pseudo R-square	0.166	0.181	0.184	0.191
Observations	10,490	10,490	10,490	10,490

Appendix A6: Entropy Balancing

The table shows the results of addressing endogeneity and selection using the entropy balancing approach. Panel A shows the results of AFT and OLS models using the balanced sample. Panel B shows the descriptive statistics of distributional properties (mean and variance) post entropy balancing for the samples of survived and failed IPOs. All other variables are as defined in Table 2 and Appendix A1. ***, **, * indicates significance at 1%, 5% and 10% levels, respectively.

Panel A: Multivariate	Dep= AFT Model Model 1	Dep=Operating performance Model 2
Creditor Rights	-0.0634***	-0.0055***
	[0.000]	[0.000]
Shareholder Rights	0.0241**	0.0056***
	[0.018]	[0.000]
Security Law	0.241***	0.0259***
	[0.000]	[0.000]
Day One Return	0.0265**	0.0194***
	[0.023]	[0.000]
Ln Total Assets	0.0182**	0.00947***
	[0.013]	[0.000]
Sales to TA	0.0870***	0.0166***
	[0.000]	[0.000]
MTB	0.000518	0.0013***
	[0.647]	[0.000]
Debt to TA	-0.391***	-0.0157**
	[0.000]	[0.000]
Hot IPO	0.259***	-0.0073
	[0.000]	[0.149]
Market Return	0.287	0.0037
	[0.184]	[0.864]
Constant	1.039***	0.127***
	[0.000]	[0.000]
Year and Ind. Dummy	Yes	Yes
Region Dummy	Yes	Yes
Pseudo R-square	0.183	0.171
Observations	10,490	10,490

Panel B: Descriptive statistics for distributional properties post entropy balancing

	Mean			*Variance*		
	Survived	Failed	*Diff*	Survived	Failed	*Diff*
Security Law	1.989	1.989	0.000	0.125	0.125	0.000
Day One Return	0.231	0.231	0.000	0.108	0.108	0.000
Ln Total Assets	622.103	622.102	0.001	495.455	495.456	-0.001
Sales to TA	0.814	0.814	0.000	0.618	0.618	0.000
MTB	3.605	3.605	0.000	19.610	19.610	0.000
Debt to TA	0.121	0.121	0.000	0.034	0.034	0.000
Hot IPO	0.391	0.391	0.000	0.127	0.127	0.000
Market Return	0.010	0.010	0.000	0.004	0.004	0.000
Observations	*7,816*			*2,674*		