

Rights offerings, trading, and regulation: A global perspective

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Abstract

We study right offerings around the world, using a sample of 8,238 rights offers announced during 1995–2008 in 69 countries. Although shareholders prefer having the option to trade rights, issuers deliberately restrict tradability in 38% of the offerings. We argue that firms restrict rights trading in order to avoid the execution risk associated with strict prospectus requirements, a prolonged and uncertain transaction process, and the potentially negative information signalled via the price of traded rights. In line with this argument, we find that issuers restricting tradability are those with more to lose from reduced participation or that are more likely to face execution risk.

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Introduction

In a rights offering issuers give existing shareholders the right to buy new shares at a specified price. Because they allow current shareholders to avoid dilution, rights offerings are favorably regarded by regulators outside the United States and are mandatory in many European and Latin American countries (Spamann, 2010). In the context of growing international equity issuance, rights offerings have become increasingly important (Figure 1). In 2007, firms around the world raised \$175 billion through rights offerings, compared with \$346 billion through cash offerings and \$295 billion by going public.

[Insert Figure 1 about here]

However, rights offerings do not automatically protect existing shareholders from dilution. When shareholders *cannot* sell their rights, it is costly not to subscribe unless they sell their shares before the “ex rights” date. And though standard textbooks assume that shareholders can always trade their rights, even when rights are traded, the market for them is illiquid and they are often underpriced. More specifically, within a sample of 8,238 rights issues announced during the period 1995–2008, we find that the average right has zero returns on 55% of the trading days, as compared with 20% for the underlying stock. On 17% of the trading days, the rights are so undervalued relative to the stock that the quoted price violates the lower put–call parity (PCP) arbitrage bound.

Moreover, it is possible in many countries—including the United States, the United Kingdom, and Australia—for issuers to restrict the tradability of rights. We find that only 84% of offerings have tradable rights. In the group of countries that do not mandate the tradability of rights, issuers give shareholders that option in 62% of the offerings. Yet, shareholders have a strong preference for tradability. In countries where issuers have the choice, cumulative abnormal returns in the three-day window around the announcement of rights offerings are, on average, 2% higher for offerings with tradable versus nontradable rights.

In this paper we investigate why so many companies decide to restrict the tradability of their rights even when doing so is neither required by regulations nor desired by shareholders in the market. We use a sample of rights issues hand-collected from Bloomberg, which on dedicated screens for each transaction provides information such as trading tickers and trading restrictions (if any) on the rights.

In a Modigliani–Miller setting—with no transaction costs, liquidity constraints, information asymmetry, or control rights—tradability is irrelevant. Between the announcement and the ex rights date, shareholders can sell shares to investors who wish to exercise the right; and if shareholders wish to continue holding a certain fraction of the shares, they can buy them back after the offering. When there are frictions, however, this picture changes. In particular, three factors are relevant to the decision on making rights nontradable: trading costs, stock misvaluation, and execution risk. We shall investigate each of these frictions in turn.

First, the trading of rights is costly. Firms must provide a market for the rights and write a prospectus for external shareholders, and these costs should be especially burdensome to small firms. So if issuers make rights nontradable because of transaction costs, we should expect small firms to restrict tradability and display — thanks to the lower transaction cost — better returns to the announcement of such offerings. And indeed, consistent with

this *transaction costs hypothesis*, we find that small firms are more likely to restrict trading. However, we do not find that this is reflected in the market reaction. Offerings by small firms do not have higher announcement returns when the rights are not traded, and firm size does not explain the difference in announcement returns between tradable and nontradable offerings.

Second, firms may prefer to restrict tradability in the case of stock undervaluation. When shares are undervalued, managers concerned about maximizing the wealth of existing shareholders may be reluctant to issue shares to new shareholders in a cash offer. With a rights issue, undervaluation will not matter provided all shareholders exercise their rights. However, when rights are traded and not exercised, current shareholders can still lose if the rights are priced as a function of the stock price and therefore also undervalued. Making the rights nontradable, in contrast, can nudge stockholders toward subscribing. This “paternalistic” motive is more likely in firms with better alignment between shareholder and management interests. The implication is then that tradability is more likely to be restricted in firms with better governance, and consistent with this argument, trading restrictions are more common in countries with a higher anti-director index. The *paternalistic hypothesis* also implies that managers know that the stock is undervalued, so firms that restrict tradability should exhibit higher post-issuance profitability improvements than do firms with no restrictions on tradability. Such improvements would be reflected in higher returns—either commensurate with the announcement or over a longer period subsequent to the offering. However, we find no evidence to support this prediction. Firms actually become less profitable after nontradable rights offerings than after tradable ones. Investors anticipate this effect: announcement returns after nontradable rights issues are significantly lower than those after tradable rights issues. This negative reaction is typically *not* corrected, as long-run returns (i.e., two years after the offering) are not significantly different between issuers of tradable versus nontradable rights.

Finally, restrictions on tradability can reduce execution risk when the demand for new shares is limited and uncertain. There are three reasons why such execution risk can be reduced with nontradable rights. First, if rights are not tradable then shareholders’ wealth is diluted if they do not participate in the issue. This dynamic lends an element of coercion to the issue: as remarked by the chairman of an investment firm, “the company is holding a gun against your head.”¹ Some shareholders may still choose not to participate and thus accept the dilution, in which case the board of directors can give “oversubscription” privileges to existing investors and/or sell non-exercised rights to outside investors of its choice. Second, restricting tradability expedites the issuance. Indeed, the trading of rights requires additional time, prolonging the average period between announcement and effective date from 12 days to 21 days. During that extended time period, negative information about the firm or about market liquidity could leak and thereby reduce demand. The concern about the impact of negative information is exacerbated by the stricter prospectus requirements that apply to traded rights issues—namely, requirements to provide more detailed information about the planned use of proceeds and risks associated with the firm. Disclosing such information could have a significant negative effect, as when high levels of financial

¹ “Rights issues: Devil lies in detail,” *Financial Review*, 4 July 2012.

distress are presumed if a firm announces that issue proceeds will be used to repay debt. Third, restricting tradability reduces negative information spillovers. Indeed, shareholders may infer information from the trading activity in the rights market. We show that rights markets are usually illiquid and that rights are often undervalued relative to the stock. Such illiquid markets tend to be dominated by insiders (e.g., Cremers and Weinbaum, 2010). As such, low rights prices can amplify negative signals. Therefore, issuers may make rights nontradable in order to decrease the uncertainty about the offering (“execution risk”). Certain types of firms are especially concerned about execution risk: firms that need the proceeds urgently because they face difficult financial conditions, small risky firms with thinly traded stocks that are more sensitive to negative information, and firms that already possess negative information about the future. And indeed, we find that, in line with this *execution risk hypothesis*, firms with poor recent performance, relatively illiquid stock, and a low interest coverage ratio are more likely to make their issue rights nontradable. These firms are also less likely to find an underwriter that will guarantee the proceeds.² In line with the intuition that coercion is required when the firm has bleak prospects, the stock market on average reacts negatively to offerings with nontradable rights. The subsequent firm performance (ROA) after such offerings is inferior to firm performance subsequent to offerings with tradable rights. Uncertainty may not just be only about the firm, but about the market as well. And indeed, issuers are less likely to make rights tradable when the overall conditions are bad (i.e., markets whose index falls more than 10% in the 42 days prior to the offering), and the abnormal announcement returns are higher in such “crisis” markets when rights are not tradable.

It may be argued that execution risk can be reduced in other ways, such as offering deep discounts and underwriting. Yet discounts are costly to those who do not exercise or sell their rights—a substantial proportion of shareholders (34% of them, according to a survey of US-based issuers conducted by Holderness and Pontiff, 2012). Furthermore, a deep discount may signal the management’s belief that the stock is overvalued. Such signals can increase execution risk. Discounts also increase the number of new shares needed and thereby reduce the post-issuance earnings per share, a measure that determines the bonus of many executives. Underwriting may not be available to some issuers and may be costly as well: both regulators and customers often complain about fees that are too high with respect to the insurance they provide, which can be priced as a put option (Marsh, 1980; Office of Fair Trading, 2011).³ These circumstances can make nontradability a more attractive way to reduce execution risk.

Many firms outside the United States and the United Kingdom have controlling block owners, which may have different incentives and information than do minority shareholders. In particular, shareholders with large ownership stakes need to finance the purchase of a larger number of new shares if they want to exercise their

² Although we have no access to consolidated underwriting information in our sample, we manually collect information for a random sample of rights issues with nontradable rights announced in 2013. The majority of the sample issuers used no underwriter, and very few used standby underwriting by related parties (including board members).

³ Underwriters do also often refuse to take on offerings and/or insist on substantial discounts as a condition for their mandate. According to “Guidance for Rights Issues” (Australian Government Takeovers Panel, report no. 17): “For many companies a related party or a major shareholder is the only realistic source of underwriting.”

rights. Hence, we expect that blockholders will insist on having the option to sell their rights because they would suffer substantially more from not participating. In other words, controlling shareholders are unlikely to consent to nontradable rights unless they plan to subscribe. Therefore, the decision to make rights nontradable may be interpreted as a signal of their commitment or of their belief that the issue's proceeds will be invested wisely.⁴ We therefore explicitly control for blockholder stake. However, our results show that blockholder commitment does not affect the firm's decision to have rights traded, the announcement returns, or the firm's subsequent returns.

This paper is, as far as we know, the first comprehensive international study of rights markets. Our documentation of the existence and liquidity of the secondary rights market contributes to the discussion on the costs and benefits of rights offerings. Existing research on seasoned equity offerings (SEOs) is mainly country specific, which is due perhaps to the wide variation in regulations and incidences of rights offerings across countries. In the United States, only few companies have made rights offerings in recent decades. This “disappearing rights phenomenon” has been documented and discussed by Smith (1977), Hansen (1988), Eckbo and Masulis (1992), Kothare (1997), Armitage (1998), Heron and Lie (2004), and Ursel (2006). In an international study, McLean et al. (2008) documents a relation between country-wide governance standards and the choice between rights and cash offers. Holderness and Pontiff (2012) explain the lack of US rights issues by arguing that they do not offer sufficient protection to uninformed or irrational shareholders. In a direct survey of issuers, these authors document that fewer than two thirds of shareholders participate (via selling or exercising rights). Rantapuska and Knupfer (2008) find similarly low participation rates in Finland and also document that Finnish shareholders exercise rights too early or sell them below the intrinsic value. Balachandran et al. (2008, 2012) document takeup, liquidity and announcement returns for nontradable rights in Australia. We provide international evidence on both undervaluation and tradability of rights in a larger, international sample and describe how they are linked to the regulatory framework.

We also document long-run returns to rights offerings around the world. Previous research on long-run returns after SEOs is mostly country specific and focuses primarily on cash offers (e.g., Loughran and Ritter, 1995; Spiess and Affleck-Graves, 1995). These studies report negative long-run excess returns. The common interpretation is that companies—concerned about the interest of current shareholders—issue shares to new investors when the firm's shares are overvalued. Note that international studies on long-run returns after SEOs (e.g., Foerster and Karolyi, 1999; McLean et al., 2009) do not distinguish between rights and cash offerings. We use a large sample to document negative long-run returns after rights offerings. This finding runs counter to the argument that firms use rights issues (rather than cash offers) to avoid diluting existing shareholders when the shares are undervalued.

⁴ Consistently with the hypothesis that blockholder participation is a good signal, Larrain and Urzua Infante (2013) show that the positive long-term performance of Chilean rights offers are predicted by blockholder participation. That being said, Baek et al. (2006) and Atanasov et al. (2010) find that blockholders in Bulgaria and South Korea use nontradable rights offerings to squeeze out minority shareholders. Subsequently these firms are less subject to takeover risk and more likely to engage in self-dealing.

Finally, we add to the literature on law and finance. La Porta et al. (1998) list the countries where rights issues are mandatory, a feature that has been widely used—sometimes (see Spamann, 2010) in refined form—as a measure of shareholder protection. We show that the effect of rights offerings on shareholder protection is more complex than previously indicated, and we review the impact of regulations on the existence of secondary rights markets.

The paper proceeds as follows. Section 2 provides an overview of the institutional characteristics of markets for rights around the world. Section 3 describes the data and provides some descriptive statistics. Section 4 describes the rights market, and Section 5 tests for the determinants of the choice to make rights tradable. In Section 6 we examine whether tradability is associated with announcement returns, long-term excess returns, or long-term profitability. Section 7 concludes.

2. Institutional characteristics of rights offerings

2.1. Anatomy of a rights offering

The existence and nature of regulations on rights offerings vary widely across countries. In this section we provide an overview of the rights issue process.

The offering. In a rights offering, the issuer’s existing shareholders have the preemptive right to purchase a pro rata portion of the new shares. The subscription price is typically set at a discount to the recent market price in order to encourage participation. Some issuers (notably, US and Austrian firms) first announce a range for the subscription price or the discount and do not actually set the price until after the subscription period. This procedure ensures that the stock price does not fall below the subscription price. The number of rights given to shareholders is based on the number of shares owned on a specified “record date”. That is, shareholders have a window of time during which to sell their shares if they prefer not to participate. The record date is, on average, five days after announcement of the rights issue. In only 12 of the 1,249 nontradable rights offerings in our sample is the record date *before* the announcement.

Trading of rights. In tradable rights offerings, shareholders who choose not to exercise their rights can trade them in a secondary market during the offering period. Trading in the absence of a market is rare and costly, and it typically involves larger blocks of rights. Thus, issuers effectively restrict the trading of rights when they do not provide a market for them.

Non-exercised rights. After the subscription period, the issuer can sell any rights that were not exercised (or sell the nonpurchased new shares directly) to a so-called standby buyer or place them in the public market. Standby buyers are usually controlling shareholders, related parties, or underwriters. Public placements typically occur in an accelerated book-building process that is comparable to cash offerings. Issuers can also give shareholders an “oversubscription privilege” that entitles subscribers to a second preemptive right to the

unsubscribed shares. Very few countries (notably, Hong Kong and the United Kingdom) require issuers to reimburse non-exercising shareholders from the proceeds due to purchased new shares.

Regulations and discretion. Rights offerings, tradability, and reimbursements are regulated by securities laws and listing rules. By definition, preemptive rights are optional: hence shareholders can waive them (subject to country-specific limitations), typically in a majority vote. This fact makes rights offerings susceptible to possible conflicts of interest between groups of shareholders. For example, issuers in most countries exclude foreign shareholders from the distribution and/or tradability of rights. Further variants arise as a function of differences in brokerage agreements. In many European countries, most brokers will sell rights even when shareholders give no instructions to exercise or sell. Such behavior reduces the losses of the investors who do not actively decide about the subscription (e.g., Holderness and Pontiff, 2012).

Prospectus. Issuers must provide a prospectus that details the offering's characteristics (as just described) and that states its objectives and the risks involved. Exemptions to this rule typically apply to small offerings and offerings to a limited number of (new) shareholders. These exemptions apply to most offerings with nontradable rights.

2.2. Regulations and tradability

Regulations in different countries require, enable, or are silent on the tradability of rights. As a result, depending on the country, all, some, or none of the issued rights are traded. Following La Porta et al. (1998) and Spamann (2010), we use interviews to question lawyers, investment bankers, and regulators about the existence and regulation of secondary rights markets.⁵ Nontraded rights are the norm in only a few countries—most of them former communist countries that have seen a wave of privatization and in which the government still holds a large stake in public firms.⁶ At the other end of the spectrum are many countries in Europe and Asia (and in all of Latin America), where issuers are required to make a market for rights. We refer to such countries as “mandatory trading” countries.

In the rest of the world, companies can choose whether or not the rights will be traded. We refer to these as “choice” countries. Within the British Commonwealth, this choice is structured and regulated. In Hong Kong, Singapore, and the United Kingdom, offerings without tradable rights are called *open offers* and are subject to a

⁵ For general descriptions of regulations on rights offerings, see Myners (2005) for an overview of European regulations. See also Balanchandran et al. (2008) for Australia, Fung et al. (2008) for China, Rantapuska and Knupfer (2008) for Finland, Gajewski and Ginglinger (2002) for France, Stehle et al. (2000) for Germany, Tsangarakis (1996) for Greece, Ching et al. (2006) for Hong Kong, Marisetty et al. (2008) for India, Bigelli (1998) for Italy, Kang and Stulz (1996) for Japan, Salamudin et al. (1999) for Malaysia, Marsden (2000) for New Zealand, Bøhren et al. (1997) for Norway, Tan et al. (2002) for Singapore, Dhatt et al. (1996) for South Korea, Pastor-Llorca and Martin-Ugedo (2004) for Spain, Cronqvist and Nilsson (2005) for Sweden, Loderer and Zimmermann (1987) for Switzerland, Limpaphayom and Ngamwutikul (2004) for Thailand, Adaoglu (2006) for Turkey, and Armitage (1998) for the United Kingdom and the United States.

⁶ For example, Atanasov et al. (2010) give a detailed description of diluted minority shareholder value due to Bulgarian rights offerings before a 2002 reform that required rights to be tradable. As in Bulgaria prior to 2002, trading occurs only rarely in Russia and China.

separate set of regulations (Korteweg and Renneboog, 2002). In Australia and New Zealand, offerings without a secondary rights market are called *nonrenounceable* (Balachandran et al., 2008 and 2012). Open and nonrenounceable rights offers often have size or discount requirements. In the United Kingdom, for example, open offers are allowed unless the discount exceeds 10%. Open offers require only a simplified prospectus (or none at all). In contrast, US and Swiss firms are free to choose whether to make their rights tradable. In other countries (e.g., Germany, Austria, Belgium, and the Netherlands), rights are always tradable but issuers are not required to provide a market for them. It is typical in these countries for issuers to be (at least partially) exempt from prospectus requirements if existing shareholders are the only ones subscribing to the new rights.

3. Data and descriptive statistics

We now briefly describe the data to be used in this study and then provide some preliminary findings concerning the main stylized facts about international rights offerings.

3.1. Data

We use a sample of SEOs drawn from Bloomberg. Our sample starts in 1995 (when data on rights trading became available in Bloomberg) and ends in 2008. We exclude offerings of preferred stocks, loan stocks, shares in related companies, rights with warrant sweeteners, and poison-pill rights. If the offering extends to cross-listed securities, then we include only the main security. Bloomberg lists rights and cash offers in its corporate action calendar. Most of this information is listed on dedicated screens for each transaction that can be accessed from the corporate action calendar list. We collect this information by looking up the transaction window for each offering. These screens state whether the right is traded and also provide trading dates and sometimes tickers in addition to event dates, currency, subscription price, and distribution ratios. When no ticker is listed, we identify the rights ticker as the related security that was listed and delisted on the dates provided. These tickers are named after country-specific conventions and are usually identifiable as rights (e.g., by a suffix “R”). Accounting and market data on the underlying firm’s stock are obtained from Thomson Datastream.

Bloomberg lists announcements of 12,639 such rights offerings for which we are able to find accounting information from Thomson Datastream. For 8,238 rights offerings we can determine with certainty whether the rights could be traded. We find that only 6,918 (84%) of the offerings could be traded. Bloomberg provides rights trading data for most countries. South Korea is one of the few exceptions; in that country, rights are traded over the counter and no quotes are listed either on Bloomberg or on the stock exchange. For 3,942 of the 6,918 offerings, we are able to retrieve trading data. We lose observations because of Bloomberg’s policy of storing and reusing security tickers, which varies across countries. For example, Bloomberg recycles security tickers for rights in Hong Kong and does not maintain records of all their trading histories; hence we are able to retrieve trading data for only 10% of the traded Hong Kong rights offerings. Overall, our sample covers a wide range of 69 countries and is not dominated by the largest markets.

For stock exchanges that are large and more developed, the number of events per country is in line with data reported by the European study of Rinne and Suominen (2008) and also with other data sources such as the Securities Data Corporation (SDC). The SDC data includes more transaction details than are available from Bloomberg, but only for a selected sample of large offerings. The coverage of smaller, less developed markets (e.g., Panama, Turkey, Brazil) varies across databases. Appendix A compares the number of observations listed in Bloomberg and SDC (ordered by the number of transactions), and for this comparison we also obtain announcements of cash offers. Bloomberg lists cash offers as a corporate actions category separate from rights offerings; in contrast, SDC simply “flags” rights offerings within its single list of all offerings. As a consequence, mixed offers may appear in each Bloomberg list but only once in SDC (sometimes flagged as a rights offer), which may explain the discrepancy between the two databases as regards fraction of rights offers. On the one hand, SDC generally provides better coverage on cash offers. This advantage is consistent with its widespread use in the cash offer literature (for an overview, see Eckbo et al., 2007). On the other hand, Bloomberg offers a more comprehensive coverage of rights offerings in all countries but Japan (58, versus 70 covered by SDC). In total, Bloomberg describes 25,077 rights offerings worldwide, compared with 7,919 described by SDC, for the period 1995–2008.

3.2. Descriptive statistics

Table 1 lists our sample countries and the number of rights that were actually traded with Datastream data available. For the sake of comparison, we also document the number of cash offerings for which Datastream data is available. The number of offerings with a secondary rights market varies. In the United States and in most Commonwealth countries, a substantial portion of rights is not traded. In particular, the fraction of offerings without trading is: 56% in the United States, where issuers have a free choice;⁷ 8% in the United Kingdom, where such open offers are allowed only if the discount does not exceed 10%; and 29% and 68% in Hong Kong and Australia (respectively), where neither country has a discount limit. In Singapore, where the 10% discount limit does apply, companies provide a market for rights in all but 5% of the offerings. In Western Europe, issuers in several countries restrict trading in offerings: 38% of offerings in Germany provide no rights market; the fraction is 27% in Belgium and 21% in Switzerland. In most Scandinavian, Southern European, and Latin American countries, nearly all rights are traded with the (rare) exception of a few small offerings that involve controlling shareholders.

[Insert Table 1 about here]

Recall that we use the term “choice countries” when referring to those that allow the issuer to restrict the tradability of the rights. We identify these countries by observing the *de facto* incidence of secondary rights markets. Thus, choice countries are those in which each type (tradable and nontradable) accounts for more than 5% of the market. Actual trading incidences are important because they reflect a true market choice rather than

⁷ This figure is similar to the 51% reported by Holderness and Pontiff (2012).

merely a rule imposed by regulations, which may or may not actually be enforced. We employ a 5% threshold because there are exceptional cases where issuers deviate from their regulatory regime—for example, when they cater to foreign shareholders or to a controlling shareholder. A 1% threshold yields similar results, but it would misclassify certain countries as choice countries when both regulators and issuers regard trading as mandatory. A classification based on interviews with regulators and lawyers confirms our assessment for almost all countries. The only exceptions are Malaysia, where issuers have a choice yet 97% of all rights are traded, and Argentina, where we obtain trading data for only nineteen cases of which just one (5.3%) involved nontradable rights. None of our results changes qualitatively when we employ a 1% threshold.

In Table 2, we compare the characteristics of the offerings with and without rights markets. (See Appendix B for a description of all variables.) Panels A and B of the table report statistics for choice countries and all countries, respectively. The transaction costs of setting up a rights market are likely to be more relevant for small firms. Consistently with this argument, issuers that choose nontradable rights (in choice countries) tend to be smaller, with average assets of \$632 million versus \$2,300 million for offers with rights markets. A similar relationship holds when we compare tradable and nontradable offerings in all countries.

[Insert Table 2 about here]

Firms that are more opaque engender a greater dispersion of opinions. Such firms have a greater execution risk in general and so may wish to avoid the additional risk associated with rights trading. Consistent with this argument, we find that, in the choice countries, issuers with no tradable rights are likely to be less liquid (with a mean Amihud illiquidity measure of 3.62×10^{-5} , versus 1.76×10^{-5} for issuers with tradable rights) and to be covered by fewer analysts (12 versus 28). We again see a similar pattern in the all-country sample.

We can make a similar argument for firms in financial distress: the success of the transaction should be more important to such firms, but the distressed state will make it more difficult to convince investors to put in new equity capital (e.g., Myers, 1977). The univariate statistics on financial constraints and recent performance shown in Panel A of Table 2 are ambiguous. On the one hand, issuers with nontradable rights are on average less leveraged than are those with tradable rights (31% versus 48%). On the other hand, there is no significant difference between the number of issuers in financial distress as measured by the Altman Z-score (38% in both samples), and issuers with nontradable rights have significantly lower interest coverage (0.87 versus 1.58 in the sample with rights trading). Moreover, issuers with nontradable rights are far less profitable (ROA of -18% versus -3%). A significant portion of the offerings occurs after market crashes—defined as periods during which the stock market falls by more than 10% in the two preceding months—but there is no significant difference for the incidence of offerings with tradable and nontradable rights (15% and 17%) in such periods. The general sample is similar with two exceptions: firms with nontradable rights are significantly less likely to be distressed (39% versus 54%) but *not* significantly different in terms of interest coverage.

Past financial measures matter less than the future outlook, so new shares of firms with worse prospects are less attractive and face greater demand risk. We report the difference between the ROA in the year of the

transaction and the ROA in each of the three years after the transaction. Consistently with the argument that firms want to restrict rights trading to hide potentially bad information and coerce investors into subscribing to reduce the firm's execution risk, issuers with nontradable rights underperform after the offering. On average, their profitability declines by 10% in the first year after the offering and recovers only by 2% (1%) in the second (third) year after the offering. This performance is significantly worse than for issuers with tradable rights: in the first year after the offering, the ROA of issuers offering tradable rights is 6% higher than that of issuers offering nontradable rights, and this difference remains fairly stable throughout the subsequent two years. The general sample exhibits a similar pattern.

In rights offerings, shareholders with significant ownership face a trade-off between sustaining their ownership level and financing a large stake of new shares. Panel A of Table 2 shows that, in choice countries, tradable rights are associated with more blocks (11%, versus 8% in nontradable offerings), which runs counter to the argument that blockholders use nontradable rights to squeeze out minority shareholders but is consistent with the hypothesis that blockholders will demand liquidity.⁸ Conditional on owning a block of shares, full participation in the issuance is more expensive for those who seek to preserve their ownership. Consistent with this argument, we find that, in the choice countries, blocks are significantly larger in issues with tradable rights (53% versus 46%). No such difference is observed in the general sample, despite its exhibiting a similar percentage of block ownership.

The paternalistic hypothesis argues that firms with undervalued shares restrict trading in order to protect their shareholders from selling undervalued rights. It should therefore be more prevalent in firms with better governance. We focus on "corporate governance quality" index of Aggarwal et al. (2011)—a composite measure of board composition, auditing thoroughness, anti-takeover provisions, compensation policies, and ownership quality. Table 2 shows no governance differences between issuers of tradable versus nontradable rights in either the general or the choice-country sample.

Finally, we document transaction-specific characteristics. Recall that some countries allow nontradability only if the offer does not exceed certain size and discount limits. In line with such rules, offers with no rights trading in choice countries are smaller (27% versus 31%) and have smaller discounts (21% versus 25%). This finding is consistent also with the hypothesis that firms use nontradability to minimize execution risk without offering a deep discount. Trading takes time: on average, rights are traded over a span of 13 days in choice countries. Altogether, 21 days pass between the announcement and the effective date when rights are traded—9 days more (on average) than for offerings with no rights trading. Nine days can lead to considerably higher execution risk, especially during a financial crisis. The Australian Securities Exchange (2010, p. 25) points out that "during times of extreme market disturbances the longer timetable for completing a renounceable issue carries the potential for exposure of the issuer to greater market risk."

⁸ Note that we define an ownership "block" as a share exceeding 25% of all outstanding shares. We also report the percentage of shares owned by such blockholders.

Table 3 provides descriptive statistics of characteristics for countries with different trading regimes. Choice countries have significantly higher gross domestic product (GDP) per capita and a higher average market-to-book ratio. These differences reflect the prevalence of developed countries in this group, which includes most Commonwealth countries as well as the United States. However, choice and nonchoice countries do not differ in terms of real interest rate, government debt, size of the equity market, or inflow of foreign direct investment. This finding suggests that neither are they fundamentally different in terms of their equity markets or investor sophistication.

[Insert Table 3 about here]

Owing to the predominance of Commonwealth countries in the choice-country group, the legal system of the majority is of English origin. The other choice countries are mostly European, and 23% (resp., 15%) of them feature a legal system of French (resp., German) origin. Overall, the choice countries are less likely to be governed by civil law (only 24% of them are) than by common law. Table 3 also shows that, as a group, choice countries have better governance than countries where trading is mandatory; this difference is significant when governance is measured by judicial efficiency and the quality of accounting standards. The implication is that, in countries where stockholder rights are promoted, regulators will more likely support the freedom of companies to deny rights tradability. Regulators may well believe that there are good reasons—based on maximizing shareholder value (via reduced transactions costs, execution risk, or paternalistic policies)—for allowing nontradable rights.

4. The market for rights

Finance textbooks assume that investors are indifferent between exercising rights and selling rights to other investors. Such a stance presupposes that rights are liquid and priced correctly. In this section we address two fundamental questions. First, just how liquid are rights? Second, are rights priced close to their intrinsic value? If rights are typically mispriced and illiquid, this might explain why the firm believes making rights nontradable (and coercing shareholders to exercise them) is in its best interest.

4.1. Liquidity of the rights market

Panel A of Table 4 displays univariate statistics on the liquidity measures for the rights and for the underlying stocks. The average sample firm had zero returns (Lesmond et al., 1999; Bekaert et al., 2007) for 20% of the rights trading period and a bid–ask spread of 4%, which is in line with previous research on the liquidity of international firms (e.g., Lesmond, 2005; Lang et al., 2012). We also report the Amihud (2002) illiquidity measure; following Lesmond (2005), we exclude prices that exceed $\pm 50\%$ of the prior day's price. The mean of this measure is 3.40×10^{-5} , a value comparable to the estimates of Lesmond (2005).

[Insert Table 4 about here]

The rights are less liquid than the underlying shares. The mean bid–ask spread of rights is 28%, or 7 times the 4% spread of the underlying stock. Rights are not traded on a mean of 55% of all days listed—that is, on the majority of trading days. These values are 2 times the mean of the underlying stock’s trading days. The mean Amihud illiquidity measure is 4 times that of the stock.

4.2. Mispricing in the rights market

To compare the quoted and theoretical prices, we follow the methodology of Hietala (1994), Poitras (2002), and Rantapuska and Knupfer (2008) in counting the days on which the quoted price is lower (or higher) than the lower PCP bound. Violations of the PCP bound enable positive returns from an arbitrage strategy that involves shorting the stock and buying the right. Given that short selling is not possible in all countries, we compute an additional, more conservative lower bound. We therefore first assume an underlying risk arbitrage strategy of buying the right and exercising it only if the subsequent share price exceeds the exercise price. Then, we calculate the subsequent returns and count the number of days on which they are positive. To obtain an even more conservative estimate, we calculate the returns after transaction costs. Following Lesmond (2005), we use Bloomberg and various exchanges to find the commissions and fees paid; we use the worldwide average commission and transaction fee for countries with regard to which we cannot find (respectively) an estimate of commissions or a list of official fees. As a conservative proxy for price impact, we use the full bid–ask spread at the close of the trading day.

Panel B of Table 4 reports the statistics for our measures of undervaluation. The mean right is cheaper (by 58%, on average) than the lower bound on 17% of all days. (The results are not much affected if we consider bid–ask prices instead of closing prices.) Our estimates are on the low side when compared with single-country studies. For example, in his analysis of a 1977–1981 sample of Finnish rights, Hietala (1994) finds that rights are mispriced 58% of the time. Poitras (2002) documents violations on 91% of all days in a sample of Singaporean rights offers for the period 1992–1998. In a more recent Finnish sample spanning the years 1995–2002, Rantapuska and Knupfer (2008) find that rights are underpriced by 15% on average. These values are much higher than the 3% observed for US S&P 500 index options (Ackert and Tian, 2001), 1% for French CAC40 index options (Capelle-Blancard and Chaudhury, 2001), and 2% for Italian Mib30 index options (Brunetti and Torricelli, 2007).

The bound based on a risk arbitrage strategy reduces the proportion of positive-arbitrage days to 12%. Even after transaction costs, 5% of trading days still allow for positive arbitrage. Relative mispricing need not indicate that the rights are undervalued: it could be that the stock itself is overvalued and that rights traders have (negative) inside information. Regardless of where the mispricing lies, however, undervaluation means that existing shareholders who prefer not to exercise their right will not be fully compensated for the dilution entailed by selling those rights.

These findings document that rights markets are illiquid and often undervalued. Consequently, firms driven by paternalistic reasoning may argue that the best course of action is to restrict trading so that shareholders cannot sell undervalued rights, while firms with the goal of reducing the execution risk may exploit such illiquidity to coerce the shareholders to subscribe.⁹ This leads therefore to the question of the choice of tradability.

5. Choice of tradability

We now investigate why firms deliberately choose to make rights nontradable. Our three hypotheses make distinct predictions. Transaction costs should be more relevant for smaller firms. If such costs are the main motive for nontradability, then we should observe that smaller firms are associated with nontradable rights offerings. Execution risk should be higher for firms that are financially distressed, underperforming, and/or opaque. Hence nontradability should be more prevalent among such firms if it does, in fact, reduce execution risk. Finally, if issuers restrict trading because they want to protect shareholders from selling their undervalued right—this is the paternalistic hypothesis—then restrictions should be more common among better-governed firms.

We estimate the probability of making rights tradable as a Probit function of these firm, transaction, and country characteristics. Firms do not randomly choose rights offer rather than cash offers. We therefore control for this choice by using a Heckman (1979) model that incorporates firm size, market-to-book ratio, ownership, and profitability as main drivers of the choice between rights or cash offering. The variable *Preright* (Spamann, 2010) identifies countries in which waiving the preemptive right is subject to special conditions and therefore hard to implement. Given that this variable is probably unrelated to the tradability choice, we use it as identifying restriction for our first stage choice between cash or rights in the Heckman model. We control for year fixed effects. The regression results are reported in Appendix C.

The multivariate analysis of the choice of rights tradability, presented in Table 5, shows that tradability is affected by firm-specific characteristics, as issuers that restrict the trading of rights differ significantly in many aspects. Issuers with tradable rights are significantly larger. This is consistent with the univariate results and supportive of the argument that transaction costs are a key driver of trading restrictions. However, size is not the only determinant of tradability, which is also related to better recent performance (*Run-up*), higher valuation (*Market/book*), and greater liquidity (*Amihud*). These results are comparable to findings based on the Australian sample of Balachandran et al. (2008 and 2013).

The multivariate analysis differs from the univariate one in that tradability is not related to leverage, but it agrees with the univariate analysis in finding tradability to be associated with greater interest coverage. These results support the execution risk hypothesis: larger firms with more liquid stock, better performance, and better financial health face less execution risk and so have fewer incentives to restrict the trading of rights. Block holdings are not significantly related to the choice of tradability. This runs counter to the argument that firms use

⁹ Cremers and Weinbaum (2010) show that undervaluation in derivative markets—and especially any deviation from put–call parity—is indicative of informed trading and thus contains information about future stock returns. Therefore, a lack of liquidity does not imply a lack of attention to the rights market.

trading restrictions to consolidate ownership and thus evade the market of corporate control. Offerings with traded rights are larger and have greater discounts, in line with the rules on tradability in many countries and also with the hypothesis that nontradability allows firms to reduce execution risk with a smaller discount.

[Insert Table 5 about here]

In column 2 of Table 5, we replace the country fixed effects with country-specific variables related to the legal environment (the anti-director index, accounting standards index, and judicial efficiency measure of La Porta et al., 2000) and market development (GDP, the real interest rate, and ratios of debt, market capitalization, and foreign direct investment inflows to GDP). The legal environment is especially important for corporate governance and thus also for the paternalistic hypothesis, which predicts that issuers with nontradable rights are better governed. To test this hypothesis more precisely, we include the firm-specific governance index developed by Aggarwal et al. (2011). In line with the paternalistic hypothesis, nontradability is more common in countries with better governance (i.e., a higher anti-director index). Neither the Aggarwal et al. governance index nor accounting quality are significantly related to tradability. Block ownership is associated with more nontradable rights, which indicates that nontradability is more common in countries where block ownership is more prevalent. We remark that the negative association between equity market size and tradability is most likely driven by the United States and the United Kingdom, and this underscores the importance of controlling for economic conditions or country fixed effects.

Overall, firms that restrict trading differ from firms that allow rights to be traded freely—and especially with respect to size, performance, and financial health. These findings suggest that tradability is not irrelevant, and are generally consistent with the argument that issuers prevent trading in order to save transaction costs and reduce execution risk.

6. Profitability and performance

Contemporaneous firm characteristics may not suffice to explain the trading decision, since profitable firms may not have a rosy outlook and distressed firms may expect to recover. Moreover, management and blockholders may have inside information on which to base their decision. Hence, we measure the impact of tradability on both short-term and long-term shareholder value. As we argued above, firms with bad prospects will need to improve their capital structure, and for them a failed rights issue may be more costly. Such firms may therefore seek to lower execution risk by coercing investors into subscribing to a nontradable rights issue. If this is a predominant reason for trading restrictions, then we should observe inferior performance after nontradable offerings—in terms both of profitability and of financial market return. In contrast, if issuers restrict trading as a way of nudging shareholders toward subscribing to undervalued shares (paternalistic hypothesis), then we expect to see higher profitability and long-term returns for transactions with nontradable rights.

We begin by analyzing profitability. We then reexamine announcement returns and, finally, long-run returns after a rights offering.

6.1. Determinants of profitability

In this section, we study the profitability of the issuer after the offering. To account for self-selection into the trading regime, we use a two-step switching regression model with endogenous switching (as described in Li and Prabhala, 2007). We use the equation whose results are described in column 3 of Table 5 to model the choice of issuing tradable rights while restricting the sample to choice countries only. We model the change from the firm's last reported ROA before the offering to the firm's ROA in the three years after that offering as follows:

$$\Delta ROA^{Traded}_i = \beta_0 + \beta_1 \text{Transaction and firm characteristics}_i + \beta_3 \text{Year}_i + \varepsilon_i \quad (1a)$$

$$\Delta ROA^{Non-traded}_i = \beta_4 + \beta_5 \text{Transaction and firm characteristics}_i + \beta_6 \text{Year}_i + \gamma_i \quad (1b)$$

Here, we allow the residuals ε_i and γ_i to correlate with the residual of the selection equation. Because the error terms are correlated, the conditional expectations of the residuals ε_i and γ_i are nonzero. After augmenting equations (1a) and (1b) with generalized residuals obtained from the selection regression, via a straightforward extension of the Heckman (1979) procedure, we are able to correct for this and thus obtain consistent ordinary least-squares (OLS) estimators (Idson and Feaster, 1990).

For each offering i , the term Transaction and firm characteristics includes the following variables (defined, like all other variables, in Appendix B). The transaction costs hypothesis predicts that small firms are more likely to restrict trading; we include the logarithm of book assets to test whether size continues to have an effect on returns after the offering. We then argued that blockholders have more inside information about future prospects and that may affect the choice of tradability. If this is true, we should expect greater returns after nontradable rights offerings with blockholders. If, in contrast, blockholders restrict tradability to squeeze out minority shareholders to be less susceptible to takeover threats and be able to pursue self-dealing, we should expect returns to be lower after nontradable rights offerings with blockholders. We measure blockholdership with a dummy equal to 1 if any shareholder held more than 25% of all shares and the percentage held in blocks, and we measure squeeze-outs directly with the change in free float from the year-end before the effective date to the year-end after that date. Further, we argued that firms may restrict trading in difficult market conditions to reduce execution risk. To measure whether such behavior has positive long-term effects, we include a dummy equal to 1 only if the market index drops by more than 10% in the 42 days prior to the offering ("Crisis"). We control for cross-listing; the discount; the percentage sold as a fraction of the previous shares outstanding; the number of previous rights offers undertaken by the same issuer in the sample period; the ratio of capital expenditures to sales (CAPEX/sales); ROA; leverage; and the market-to-book ratio. For offerings with rights trading, we control for large discrepancies in rights prices and stock prices with a dummy variable for rights prices that were below the PCP bound.

The results are reported in Table 6. Columns 1–3 give the results for different years: the dependent variable in column 1 (resp., 2 and 3) is the difference between the ROA in the pre-offering year and the ROA in the first (second, third) year after the offering. Each column reports first the coefficients and z -statistics for the

offerings in which rights could not be traded, next the ones for offerings in which rights could be traded, and finally the difference between the two coefficients and the p -value for a Chow test that the two coefficients are equal. Column 4 reports the results of an OLS regression, which includes the same explanatory variables with the addition of an indicator for traded rights offerings and an inverse Mills ratio that controls for selection into a rights offering.

[Insert Table 6 about here]

Issuers perform better after offerings with tradable rights, as indicated by the significantly higher intercepts for such issuers. This effect persists throughout the three years following issuance and is evident also in the OLS specification (column 4). The differences are economically large: 23% for the first year, 55% for the second, and 83% for the third. These values are in stark contrast to a mean ROA of -3.5% for all issuers, -0.9% for issuers of traded rights, and -17.0% for issuers of nontraded rights (Table 2). A closer look at the coefficients reveals that ROA improves significantly (by an average 9 percentage points) after issuances with tradable rights whereas ROAs either decline or stay at about the same level after issuances with no tradability. This effect is also evident in the OLS regression (column 4), where the coefficient on traded rights is associated with statistically significant one-year changes in ROA of 4% . Such a positive relation between profitability and tradability is consistent with the argument that issuers with bad prospects restrict trading to reduce execution risk. However, it does not support the paternalistic hypothesis that issuers restrict trading when they believe the firm will perform better in the future.

Large firms perform better after offerings *without* rights trading; conversely, small firms perform better after offerings *with* rights trading. This suggests that even though small firms generally prefer nontradability because of concerns about transactions costs, they trade those off with execution risk concerns.

We find no evidence that, in the presence of blockholders, nontradable rights serve as either a good signal or a bad signal. The coefficients for *Block* and for *Percentage held in blocks* are not significantly different between tradable and nontradable offerings. The only significant coefficient for *Block* is positive (for nontradable offerings) in the third year after the offering; however, the difference with respect to tradable offerings is not significant even in that year. The results are similar for *Change in free float*—although here the only significant coefficient (also positive and for nontradable offerings) is in year two, not three. As with *Block*, the difference between nontradable and tradable offerings is not significant even in that year.

Issuers may restrict tradability to reduce execution risk in markets that are doing badly for reasons unrelated to company-specific events. In this case, nontrading may be less a sign of future bad prospects and more a sign of paternalistic behavior: if managers believe that markets are overreacting, then coercing investors to buy the new shares is a sensible course of action. In line with this argument, the coefficient for *Crisis* is significantly negative for firms that issue tradable rights, in contrast to the general premise that trading is a signal of good economic prospects. The coefficient for nontradable rights is not significant in the first two years after the offering but significantly positive in the third year.

Overall, performance patterns after the offering indicate that the decision on tradability reveals information about the issuer's prospects. Issuers with worse future performance tend to restrict trading, which is consistent with the execution risk hypothesis. However, this pattern is reversed if offerings coincide with markets in crisis: recovery appears smoother after crisis offerings with trading restrictions. The absence of results on concentrated ownership suggest that abuse of minority shareholders (as documented by Baek et al., 2006; Atanasov et al., 2010) is not a factor in our international sample.

6.2. *Determinants of announcement returns*

Do the markets reward tradability? To answer this question, we study the market reaction in this section. We define the reaction to the event announcement as the residual of a market model run through the 250 trading days ending 42 days before the announcement. We use the respective regional MSCI index as a proxy for the market index. We cumulate abnormal returns over the windows $(-1, 1)$, and $(-5, 5)$, where (x, y) denotes a window ranging from day x through day y relative to the announcement date. We use Datastream-adjusted returns for this exercise. Because Espenlaub et al. (2009) point out that Datastream does not always adjust correctly for ex rights and effective dates, we do not cumulate returns over longer windows and follow their recommendation to focus on the $(-1, 1)$ returns.

The results are reported in Panel A of Table 7. The market reacts positively to rights offerings in general—on average, 1.83% over the $(-1, 1)$ window; over the $(-5, 5)$ window, cumulated abnormal returns amount to 3.89%. These results are in contrast with those of numerous studies that have reported negative excess returns to *cash* offerings. One interpretation of this finding is that cash offers are made when firms want to issue overvalued stock to new investors. Given that rights offers involve shares being offered to existing shareholders, such timing considerations should be irrelevant.

[Insert Table 7 about here]

The positive returns to rights offer announcements are driven mainly by offers that allow rights to be traded. When focusing on choice countries, we find that average abnormal returns to offers with tradable rights are significantly positive: 1.48% for the $(-1, 1)$ window and 3.67% for the $(-5, 5)$ window. But if the rights are not traded, then the announcement returns are negative over both windows and significantly so for the $(-5, 5)$ window. The difference in abnormal returns over the $(-1, 1)$ window between offers with and without tradable rights is also significantly positive: on average, 2.00%.

Are the positive returns to tradable offerings due to the information conveyed by the choice to restrict rights trading or rather to the negative response of investors to a lack of trading? To address this question, we compare returns on offerings made in countries where issuers have no choice about tradability to the returns in countries in which issuers are free to decide. Table 7 shows that announcement returns in countries where trading is mandatory are much less than in countries where trading results from managerial choice: on average, abnormal returns in the former are not significantly different from zero for the $(-1, 1)$ window and 1.1% for the $(-5, 5)$

window. These excess returns are significantly lower than in the choice countries. This means that the choice of having rights traded—and not being subject to a coercive offer without trading—is appreciated by investors, and suggests that this choice may convey additional information.

In Panel B of Table 7, we report a comparison of our results on rights offerings with the extant (single-country) literature. The announcement returns are qualitatively comparable to those reported in most of the literature, despite differences in sample periods. The only notable discrepancy concerns Japan, a country with extremely few rights offers (52 in our sample) and for which Kang and Stulz (1996), in a study using earlier data, report positive whereas we report negative announcement returns.

Next, we regress the cumulated announcement returns (CAR) on transaction and firm characteristics. If a corporate event is voluntary and investors are rational, then the stock price reaction should incorporate their interpretation of the firm’s selected issuance type (Eckbo et al., 1990). We therefore use a switching regression similar to the one described in Section 6.1 to account for self-selection into the respective trading regimes:

$$CAR^{Traded}_i = \beta_0 + \beta_1 \text{Transaction and firm characteristics}_i + \beta_3 \text{Year}_i + \varepsilon_i \quad (2a)$$

$$CAR^{Non-traded}_i = \beta_4 + \beta_5 \text{Transaction and firm characteristics}_i + \beta_6 \text{Year}_i + \gamma_i \quad (2b)$$

Again, we allow the residuals ε_i and γ_i of the abnormal returns in equations (2a) and (2b) to correlate with the residual of the selection equation. The control variables of *Transaction and firm characteristics* are the same as those described previously with respect to equations (1a) and (1b). The only difference is that here we exclude the variables that are not known at the time of the announcement, change in free float, future CAPEX/sales, leverage, and market-to-book. Instead, we add the run-up to the offering and the interest coverage ratio of the issuer in order to measure the effect of contemporaneous valuation and distress effects. For a detailed description of the variable definitions please see Appendix B. For offerings with rights trading, we again control for large discrepancies in rights and underlying prices with a dummy variable for rights prices that were below the PCP bound.

The results for these regressions are reported in Panel C of Table 7. Columns 1–2 report the results for different return windows: column 1 for the three days between the day before the announcement to the day after (–1, 1), and column 2 for the 11 days between the fifth day before to the fifth day after (–5, 5). As in Table 6, each column reports first the results for the offerings in which rights could not be traded, then those for offerings in which rights could be traded, and finally the p -value for a Chow test that the two coefficients are equal; column 3 reports the results of an OLS regression. We see that the market reacts positively to offerings in which rights can be traded, as indicated by their significantly higher intercepts. When we control for selection and for firm and transaction characteristics, the difference between the residual announcement returns of issuers with and without tradable rights amounts to 21% for the (–1, 1) window and 31% for the (–5, 5) window.

These findings hold also when we use a multivariate framework that includes a dummy variable (*Trading*) for traded rights (column 3): the coefficient for a simple tradability indicator is a significant 2%, which is similar to the magnitudes found via the univariate analysis (Panel A). The positive reaction to rights tradability is in line

with the observed subsequent better performance. However, it is not consistent with the argument that undervalued issuers restrict trading: the market, at least, seems not to view nontradable rights as a positive signal. A closer look at the coefficients reveals that the returns to offerings with no rights trading are still positive (albeit not significant for the $(-1, 1)$ window). It is therefore unlikely that the difference between tradable and nontradable rights is driven by price pressure from investors selling their shares before the record date to avoid possible dilution.

For smaller firms, trading restrictions are associated with returns that are neither better nor significantly worse than the tradable scenario. That is, we find no evidence for the hypothesis that transaction costs drive restrictions on rights trading. Neither are the coefficients for ownership significantly different between traded and nontraded rights: apparently, investors do not interpret blockholder consent to nontradable rights as predicting either better or worse future performance.

The reported coefficients differ significantly during adverse market conditions. In crisis markets, the reaction to offerings without a rights market are significantly better than the reaction to offerings with a rights market—by 2.3% for the $(-1, 1)$ window (significant at the 10% level) and 6.6% for the $(-5, 5)$ window (significant at the 5% level). This difference is driven mainly by the significantly negative coefficients for offerings with tradable rights. The market reaction to those issuances indicates that the absence of rights trading *increases* the likelihood of a successful offering in the midst of a crisis.

The control variables show that issuers with cross-listed securities and greater discounts earn lower returns on traded rights offerings. Note that the market reaction to discounts is generally negative, consistent with the premise underlying the execution risk hypothesis: using a deep discount to enhance the prospects of a traded rights issue sends a negative signal. Firms with a greater number of past rights offer experience, less profitable firms, and firms with better interest coverage exhibit better announcement returns without rights trading, but significantly so only for the $(-1, 1)$ window. Other coefficients are not significantly different, including the one for rights prices below the put–call parity bound. The signs in the OLS regression (column 3) are almost always the same as in the switching regressions but the magnitudes are usually smaller.

In sum, we confirm the findings of Panel A that announcement returns are higher for offerings with tradable rights. This disproves the hypothesis that shareholders are impartial to the tradability of rights beyond their implied cost savings. Instead, the result is consistent with the observed subsequent development in profitability and therefore indicates that markets correctly interpret trading restrictions as a negative signal.

That being said, the market does not always react negatively to restrictions on rights trading. For instance, the generally positive returns to voluntary trading are reversed after market crashes. This positive effect of nontradability in unstable markets suggests that issuers restrict trading to protect investors from selling undervalued rights in the middle of a financial crisis. Also, although transaction costs may increase the reluctance of small firms to issue rights that are tradable, size alone does not explain the market response to trading restrictions.

6.3. Long-term returns

So far, we have found considerable evidence that argues against the paternalistic motive. In particular, firms that do not allow rights trading perform worse in terms of both profitability and announcement returns. If issuers restrict tradability to protect shareholders from selling undervalued rights, then issuers with trading restrictions should perform better. Even though they evidently perform worse, one should bear in mind that—when markets are not efficient—not all valuation effects will be visible in the announcement returns; furthermore, not all long-term valuation is apparent in profitability as assessed immediately after an offering. Thus paternalistic actions could generate positive long-term stock returns even after nontradable rights issues. To evaluate this possibility and to see whether other effects likewise take longer to materialize, we study monthly returns in the two years starting from the month after the *effective* date. We impose the one-month embargo to avoid any systematic Datastream mistakes in adjusting for the rights and new shares, as documented by Espenlaub et al. (2009) for UK open (i.e., nontradable) offers.

We plot the simple average cumulated monthly returns (in excess of the regional MSCI index) for choice countries in Figure 2. These returns are inconsistent with the paternalistic hypothesis: rights issues are followed by negative rather than positive excess returns. Returns of issuers of nontradable rights and those of tradable rights are similar: no group performs consistently better than the other.

[Insert Figure 2 about here]

However, simply subtracting the market index ignores differences in other factors. Hence we use a Fama and MacBeth (1973) regression model to forecast returns as a function of tradability. We control for the same variables described in Section 6.1, but now we add the contemporaneous return on assets, interest coverage, and size of the issuer (in the year that returns are assessed) as well as the market index returns and the SMB (small minus big), HML (high minus low), and momentum factors from Ken French's website. We use global factors in our base specification and test for whether local factors make a difference (following Fama and French, 2012). We estimate a cross-sectional regression for each month and then calculate the time-series average of the coefficients; we report *t*-statistics using the time-series standard error of the mean. As before, we restrict the analysis to choice countries.

The results are reported in Table 8. We use a dummy variable for tradable rights issues in order to measure the effect of rights trading. There is no significant difference in long-term returns between issuers that choose to make their rights tradable and those that do not—a finding that is inconsistent with the paternalistic hypothesis. There is no reversal; the long-term stock price performance is consistent both with investors' beliefs at announcement and with the observed development in profitability. The coefficient is equally insignificant when we augment the return window from 12 to 18 (column 2) and 24 months (column 3) or when we use local Fama–French factors instead of the global ones (column 4).

[Insert Table 8 about here]

There are only few other variables that explain returns. Returns are lower after offerings with deeper discounts—though only at the 5% level of significance when we use local factors—and higher after larger offerings. When rights prices violate the PCP bounds, 18-month returns are lower (significant at only the 10% level). Larger firms perform better in the first 12 months (also significant at only the 10% level). Firms with past rights offers perform better in 24-month returns. Returns are higher after offerings in financial crisis, but not significantly so unless we use local Fama–French factors.

To see how offering and firm characteristics affect returns after offerings with traded versus nontraded rights, we split the sample and repeat the analysis for the subsample of offerings without (column 5) and with (column 6) rights trading. None of the coefficients are significantly different from its counterpart. Whether the offering coincided with low market returns or was issued in the presence of block owners is not significantly related to returns in any specification.

To test for robustness, we also repeat our analysis of long-term returns with the “calendar time” portfolio return methodology advocated by Fama (1998) and by Mitchell and Stafford (2000). Thus, we form equal- and value-weighted portfolios for each month; these portfolios include all companies that have completed an offering within the prior 24 months (or in the prior 12 and 6 months, respectively). Portfolios are rebalanced monthly by dropping all companies that reach the end of the holding period and adding all companies that have just executed a transaction. The monthly portfolio excess returns are then regressed on the MSCI World Index returns in excess of the one-month US T-bill rate, and the intercept is reported as the average monthly abnormal return.

Table 9 shows the results. We first report the portfolio returns as intercepts measured against the MSCI World Index (Panel A). The returns for offerings are negative irrespective of rights trading, but they are significantly negative only for the traded rights sample over a period of two years. None of the differences between traded and nontraded rights offerings are statistically significant for equal-weighted or for value-weighted returns. We find no evidence for superior or inferior performance after issuance with or without rights trading. Note that the returns are not positive for any of the offering samples and that they are negative both for the mandatory countries and for the traded choice-country sample. These results indicate that rights offerings are not made only by undervalued firms.

[Insert Table 9 about here]

We compute the same return differentials for subsamples. Most of the subsample results are either comparable to the base sample results or not significant. The only exception is that issuers with rights prices trading below the PCP bound have significantly negative equally weighted returns in the two-year period; this result is consistent with our Fama–MacBeth analysis. Hence it may be less accurate to say that the rights were undervalued than that the underlying shares were overvalued.

We provide two final robustness checks. First, we regress the portfolio returns against the Fama and French (1998) global factors SMB, HML, and momentum; the results—which are virtually unchanged—are reported in Panel B of Table 9. The negative coefficient for the individual returns of the portfolios with trading

(voluntary), not trading (voluntary), and trading (mandatory) corresponds with gains in statistical significance, but there are no such gains with respect to differences in portfolio returns. In fact, the two-year return difference between voluntary and mandatory trading offers becomes insignificant while the other differences remain nearly unchanged. Second, we follow Eckbo et al. (2000) and create an appropriate benchmark by matching each issuer with a similar firm that did not undertake an SEO in the same year; the results are reported in Panel C of the table. Once again, return differences are not significant.

Overall, issuers do not perform better after offerings with nontradable rights. This result stands in contrast to the prediction of the paternalistic hypothesis that issuers make rights nontradable in order to protect shareholders from selling undervalued shares or rights that are due to recover in the future.

Conclusion

Textbook descriptions of rights offerings often assume that shareholders who do not want to exercise their rights can sell them instead. However, this assumption does not always hold. In some countries, rights cannot be traded at all; in many other countries, the issuer itself decides whether or not rights will be tradable. Even though rights markets are often illiquid, investors appreciate rights tradability and react better to offerings of firms that make their rights tradable. This raises the question of why a firm would restrict the tradability of rights.

We consider three explanations. First, any rights trading involves the transaction costs of listing the rights and preparing a more elaborate prospectus. Such fixed offering costs should matter more to small firms, and we do find that small firms are more likely than large ones to issue rights that are not tradable. Yet nontradability does not have a positive effect on the returns of smaller firms, which indicates that other reasons may also be important.

Second, we argue that tradable rights increase the risk of insufficient demand for the new shares. There are several reasons behind this claim. Trading prolongs the offering period by an average of nine days, a period during which negative information can spread to potential investors. Moreover, we show that the rights market is illiquid and that rights are underpriced relative to the stock; an illiquid market may exacerbate the effect of negative information, and additional prospectus requirements may result in the dissemination of still more negative information. In contrast, if rights are not tradable then all investors are forced to exercise the rights in order to avoid diluting the value of their shares. Such coercion can be achieved with discounts that are lower than in tradable rights issues and without providing a negative signal. Indeed, the firm may attempt to justify such behavior in terms of maximizing shareholder value (e.g., by minimizing transaction costs) and of preventing shareholders from selling undervalued rights. However, the market response reveals that, on average, markets are not convinced by such paternalistic motives: announcement returns are significantly lower for offerings with nontradable rights.

Concerns related to execution risk should be more important for firms with less attractive future prospects, firms for which information has a greater effect on share price, and during periods of market crisis.

Consistently with this hypothesis, we find that unprofitable and opaque firms—as well as firms in markets whose returns have fallen by 10% or more in the month prior to the offering—are less likely to make their rights tradable. Subsequent to nontradable rights offerings, issuers experience not only declines in profitability but also negative short-term and long-term excess returns. These performance patterns are reversed when the offering coincides with a general market crisis, in which case issuers actually experience higher announcement returns when they restrict rights trading. A likely explanation for this reversal is that, in such markets, a prohibition against rights trading is perceived as a strategy to prevent shareholders from selling undervalued rights. Indeed, regulators (e.g., Australian Securities Exchange, 2010) explain that they allow so-called fast-track offerings with nontradable rights in order to enable offerings in financial crisis.

Our third hypothesis is that managers resort to issuing rights (rather than cash) offers—and then restrict the trading of those rights—to prevent dilution of current shareholder value if the stock is undervalued. This paternalistic hypothesis implies that the firms choosing to restrict tradability should be characterized by better governance and also that restricting tradability should lead to higher subsequent firm performance. However, we find no evidence to support either of these contentions. Although tradability is negatively related to the anti-director index, firm-specific governance matters little for the choice of tradability. Announcement returns are lower for offers in which rights are not traded, and that performance is not reversed; to the contrary, firms with nontradable rights perform worse in the two years after the offering in terms of both profitability and stock returns.

Unlike previous, country-specific evidence, our results do not suggest that issuers systematically squeeze out minority shareholders. Neither performance measure is systematically (negatively) related to the presence of controlling shareholders. This finding implies also that tradability is not an indicator of inside information held by controlling shareholders about the firm's prospects.

Regulations on rights offerings vary widely across countries. Few regulators (as in, e.g., the United Kingdom) allow and set out conditions for trading restrictions and also require issuers to reimburse shareholders that do not exercise their rights. Our results suggest that such regulations might improve shareholder value. We hope that future research in specific markets will lead to improvements in regulations on rights offerings. Another interesting research avenue would be to explore the interactions between rights offerings and other regulations—for example, bankruptcy regimes.

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Appendix A: Bloomberg versus SDC

This table reports the number of cash offers and rights offers listed in the Bloomberg and SDC databases, in order of the country's SEO frequency.

Country (underlying)	Bloomberg		SDC	
	Cash	Rights	Cash	Rights
UNITED STATES	10,894	549	15,375	304
UNITED KINGDOM	4,835	1,558	5,637	509
AUSTRALIA	4,368	2,384	12,579	2,018
CHINA	1,328	2,120	581	69
JAPAN	2,250	58	3,709	70
HONG KONG	1,962	913	2,549	463
SOUTH KOREA	1,387	2,490	2,358	655
CANADA	4,794	368	15,522	58
GERMANY	446	1,191	679	226
TAIWAN	806	1,266	491	220
FRANCE	334	545	781	226
MALAYSIA	266	580	462	351
SWEDEN	173	631	378	236
SINGAPORE	456	302	671	205
BRAZIL	214	998	412	13
GREECE	174	427	173	39
TURKEY	35	715	58	9
ITALY	145	301	363	119
SOUTH AFRICA	183	506	183	27
THAILAND	100	1,099	303	187
NORWAY	232	250	365	61
INDONESIA	87	293	117	193
SWITZERLAND	154	259	283	67
INDIA	498	644	526	193
SPAIN	129	174	310	62
POLAND	131	188	144	19
CHILE	47	280	86	276
MEXICO	57	391	171	18
AUSTRIA	75	184	105	50
NETHERLANDS	225	40	478	31
DENMARK	94	117	187	67
NEW ZEALAND	141	160	227	70
IRELAND	235	65	237	16
PORTUGAL	35	124	109	57
PHILIPPINES	63	159	180	80
BELGIUM	77	90	167	26
PAKISTAN	0	310	29	0
FINLAND	77	46	211	34
BERMUDA	167	26	207	1
ISRAEL	145	156	199	9
PERU	4	206	35	2
EGYPT	13	133	72	35
ARGENTINA	18	113	47	82
KUWAIT	5	109	12	12
SRI LANKA	3	127	2	4
RUSSIA	113	24	139	16
JORDAN	1	121	13	10
UAE	13	47	13	1
QATAR	2	30	4	12
OMAN	1	44	4	5
Others	617	1,166	1,140	406
Total	38,609	25,077	69,083	7,919

Appendix B: Definitions of variables

Variable	Definition
Country	
Accounting	LLSV (1998) estimate of accounting standards (where 90 represents a high level of transparency)
Anti-director	LLSV (1998) estimate of shareholder protection, ranging from 0 to 6 (where 6 represents a high level of protection)
Bankruptcy efficiency	Djankov et al. (2008) estimate of firm value after bankruptcy costs
Choice	1 if trading of preemptive rights is not mandatory and 0 otherwise
Crisis	1 if runup index < -10% (0 otherwise)
Debt/GDP	Ratio of government debt to GDP
FDI inflow/GDP	Ratio of net foreign direct investment inflow to GDP
GDP/capita	Gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current US dollars.
Governance (GMI)	GMI country governance index
Judicial efficiency	LLSV (1998) estimate of the efficiency of the judicial system, ranging from 0 to 10 (where 10 represents a high level of efficiency)
Legal origin	LLSV (1998) legal origin
Market/GDP	Ratio of equity market size to GDP
Prevote	Spamann (2010) estimate: 1 if preemptive rights can be waived by a simple majority vote (0 otherwise)
Preright	Spamann (2010) estimate: 1 if waiver is subject to special conditions (0 otherwise)
Preexpl	Spamann (2010) estimate: 1 if the law makes special mention of shareholders' first opportunity to buy shares (0 otherwise)
Q	Countrywide average market-to-book ratio
Real interest	Real interest rate
Run-up index	Return on the local MSCI index from 42 days to 1 day before the announcement
Liquidity	
Amihud	Amihud (2002) measure with data corrections according to Lesmond (2005)
Bid-ask	Bid-ask spread divided by the average of bid and ask
Dollar volume	Trading volume multiplied by share price
% violated	Percentage of trading days on which the last price was below the put-call-parity bound
#violated	Number of trading days on which the last price was below the put-call-parity bound
Volume	Trading volume
Undervalued by	1 minus the ratio of price to put-call-parity bound if price is below the bound (0 otherwise)
Zero return days	Fraction of days with zero return to total days traded
Transaction	
Change in free float	Changes in free float from the last year-end before announcement to the year-end after the effective date
Discount	Discount to the closing price five days prior to the announcement
Proceeds	Percentage sold multiplied by subscription price
# SEOs/year	Total number of SEOs announced in a given year
% sold	Percentage of new shares sold as a fraction of shares outstanding prior to the offering
Trading period	
planned	Announced trading end date minus trading start date
actual	Number of trading dates with positive volume
Firm	
# Analysts	Number of analysts covering the firm (on I/B/E/S)
Assets	Total assets (thousands of US dollars)
Block >5%	1 if there at least 5% of shares are held by a single blockholder, 2011 data from Orbis
Block >25% (default)	1 if there at least 25% of shares are held by a single blockholder, 2011 data from Orbis
Distress	1 if Z is smaller than 1.8 and 0 otherwise
EBIT	Earnings before interest and taxes (thousands of US dollars)
Employees	Number of employees (000)
Forecast STD	Standard deviation of analyst forecasts
Free float	Ratio of Datastream free float market value to Datastream market value
Governance (AEFM)	Governance index of Aggarwal et al. (2011)
Interest coverage	EBIT/interest expenses
Leverage	Net market leverage
Market cap	Price multiplied by shares outstanding (thousands of US dollars)
Market-to-book	Market to book ratio
Negative ROA	1 if ROA is negative and 0 if it is positive
Percentage held in blocks	Sum of percentage of shares held in blocks
ROA	EBIT/assets
Run-up	Returns 6 months to 42 days before the announcement
Sales	Sales (thousands of US dollars)
Z	Altman Z-score

Appendix C: Rights versus cash offers

This table shows the results of a Probit regression in which the dependent indicator variable is set equal to 1 if the offering includes preemptive rights (and to 0 otherwise). *, **, and *** denote statistical significance at (respectively) the 10%, 5%, and 1% level.

Dependent variable= rights		
Firm	Log assets	-0.089*** (-22.215)
	Market-to-book	-0.167*** (-16.87)
	Block >25%	0.006*** (3.973)
	% held (>25%)	-0.181** (-2.071)
	ROA	0.026 (0.532)
	PRERIGHT	0.200*** (27.833)
	Constant	0.919*** (15.507)
Fixed effects	Year	Yes
<i>N</i>		24,579

Table 1. Sample data by country

This table gives a breakdown of the sample by country of incorporation (50 largest in terms of number of all offerings) listed by the number of offerings. “Choice countries” are those in which more than 5% and less than 95% of rights are traded.

Country (underlying)	Total	Offering		Rights		Choice country
		Cash	Rights	not traded	traded	
UNITED STATES	4648	4316	332	56%	44%	x
BRITAIN	2935	1581	1354	8%	92%	x
AUSTRALIA	2685	1413	1272	68%	32%	x
CHINA	1819	442	1377	N/A	N/A	
JAPAN	1555	1503	52	0%	100%	
HONG KONG	1318	902	416	29%	71%	x
SOUTH KOREA	1232	353	879	0%	100%	
CANADA	1206	1085	121	1%	99%	
GERMANY	1077	187	890	38%	62%	x
TAIWAN	762	318	444	0%	100%	
FRANCE	560	177	383	5%	95%	x
MALAYSIA	491	85	406	3%	97%	
SWEDEN	470	83	387	0%	100%	
SINGAPORE	460	222	238	5%	95%	x
BRAZIL	435	64	371	0%	100%	
GREECE	378	75	303	0%	100%	
TURKEY	348	20	328	0%	100%	
ITALY	298	79	219	1%	99%	
SOUTH AFRICA	267	58	209	0%	100%	
THAILAND	257	37	220	0%	100%	
NORWAY	251	82	169	5%	95%	x
INDONESIA	247	39	208	1%	99%	
SWITZERLAND	236	70	166	21%	79%	x
INDIA	231	117	114	1%	99%	
SPAIN	196	64	132	0%	100%	
POLAND	171	50	121	0%	100%	
CHILE	170	13	157	0%	100%	
MEXICO	164	22	142	0%	100%	
AUSTRIA	161	42	119	19%	81%	x
NETHERLANDS	160	127	33	20%	80%	x
DENMARK	156	43	113	0%	100%	
NEW ZEALAND	131	33	98	12%	88%	x
IRELAND	127	73	54	9%	91%	x
PORTUGAL	105	23	82	0%	100%	
PHILIPPINES	104	25	79	0%	100%	
BELGIUM	89	34	55	27%	73%	x
PAKISTAN	86	1	85	0%	100%	
FINLAND	81	46	35	4%	96%	
BERMUDA	79	73	6	20%	80%	x
ISRAEL	75	39	36	0%	100%	
PERU	63	1	62	0%	100%	
EGYPT	60	4	56	0%	100%	
ARGENTINA	57	2	55	5%	95%	x
KUWAIT	57	2	55	N/A	N/A	
SRI LANKA	40	0	40	0%	100%	
RUSSIA	39	15	24	N/A	N/A	
JORDAN	35	0	35	0%	100%	
UAE	25	2	23	0%	100%	
QATAR	24	0	24	0%	100%	
OMAN	23	0	23	0%	100%	
Others	101	64	37	6%	94%	

Table 2. Descriptive statistics

Panel A provides statistics for choice countries (listed in Table 1) and Panel B for all countries. *, **, and *** denote statistical significance at (respectively) the 10%, 5%, and 1% level.

		<i>Panel A. Choice countries</i>						
		Rights trading		Rights not trading				t-stat
		mean	median	mean	median			of difference
General firm characteristics	Assets	2,300,922	157,211	631,823	12,272			(6.40) ***
	Market cap	395,970	74,612	143,874	11,501			(8.35) ***
	Market/Book	1.45	1.10	1.77	1.53			7.09 ***
	EBIT	67,593	4,390	19,813	(552)			(7.06) ***
	Sales	843,187	69,505	237,455	3,324			(7.89) ***
	Employees	2,826	439	1,019	53			(8.34) ***
Liquidity/information asym.	Amihud	1.76E-05	7.67E-07	3.62E-05	9.03E-06			11.17 ***
	# Analysts	28.10	2.00	12.16	0			(6.92) ***
Financial constraints	Leverage	47.7%	40.9%	31.1%	16.6%			(9.74) ***
	Z	4.30	2.16	7.59	2.74			8.99 ***
	Distress	38.3%	0.0%	37.5%	0.0%			(0.18)
Recent performance	Interest coverage	1.58	0.70	0.87	0.34			(3.23) ***
	ROA	-3.4%	2.9%	-17.8%	-7.0%			(16.27) ***
	Runup index	6.2%	8.5%	5.0%	8.6%			(1.53)
Post-offering performance	Runup index < -10%	15.3%	0.0%	16.6%	0.0%			1.45
	Change in ROA (year 1)	-4.1%	-0.3%	-10.3%	-0.3%			(4.14) ***
	Change in ROA (year 2)	-3.4%	-0.1%	-8.3%	0.9%			(2.85) ***
	Change in ROA (year 3)	-2.0%	0.3%	-6.9%	0.7%			(2.78) ***
Ownership and governance	Blocks >25%	10.9%	0.0%	7.9%	0.0%			(2.65) ***
	Percentage	52.85	50.15	45.69	45.27			(3.05) ***
	Governance (AEFM)	47.0%	46.3%	46.3%	46.3%			(1.12)
Transaction characteristics	% sold	31%	27%	27%	21%			(8.23) ***
	Discount	25%	21%	21%	15%			(3.99) ***
	Days announcement to effective	21.16	13	12.26	5			(8.93) ***
	Trading days (actual)	12.86	10					
N		2,045		1,249				

		<i>Panel B. All countries</i>						
		All rights offerings		Rights trading		Rights not trading		t-stat
		mean	median	mean	median	mean	median	of difference
General firm characteristics	Assets	4,741,630	204,121	5,487,145	318,985	835,016	14,079	(14.28) ***
	Market cap	340,707	50,585	374,074	64,860	165,858	12,718	(8.21) ***
	Market/Book	1.33	1.03	1.25	1.00	1.75	1.50	15.57 ***
	EBIT	166,895	5,195	194,181	8,621	25,945	(508)	(13.34) ***
	Sales	1,892,035	108,233	2,192,965	164,471	314,500	4,361	(14.93) ***
	Employees	2,603	467	2,833	602	1,236	66	(8.55) ***
Liquidity/information asym.	Amihud	1.83E-05	6.14E-07	1.49E-05	3.65E-07	3.51E-05	7.60E-06	16.29 ***
	# Analysts	21.04	0	22.57	1.00	13.04	0	(4.74) ***
Financial constraints	Leverage	52.1%	41.7%	56.0%	47.7%	31.9%	16.8%	(15.47) ***
	Z	3.73	1.74	2.89	1.65	7.33	2.63	19.71 ***
	Distress	51.4%	1.00	54.5%	1.00	38.5%	0.0%	(8.62) ***
Recent performance	Interest coverage	0.90	0.18	0.91	0.17	0.84	0.27	(0.64)
	ROA	-3.5%	2.8%	-0.9%	3.5%	-17.0%	-5.9%	(26.13) ***
	Runup index	6.1%	8.4%	6.4%	8.4%	4.8%	8.6%	(2.48) **
Post-offering performance	Runup index < -10%	17.9%	0.0%	18.1%	0.0%	16.4%	0.0%	(0.16)
	Change in ROA (year 1)	-4.3%	-0.3%	-3.3%	-0.3%	-9.6%	-0.2%	(6.45) ***
	Change in ROA (year 2)	-3.9%	-0.2%	-3.0%	-0.2%	-8.3%	0.7%	(4.71) ***
	Change in ROA (year 3)	-2.6%	0.0%	-1.8%	-0.1%	-6.5%	0.6%	(4.22) ***
Ownership and governance	Blocks >25%	8.8%	0.0%	9.1%	0.0%	7.6%	0.0%	(1.58)
	Percentage	50.91	49.29	51.66	50.00	46.38	45.54	(2.45) **
	Governance (AEFM)	44.7%	43.9%	44.4%	43.9%	45.9%	46.3%	(0.07)
Transaction characteristics	% sold	32%	26%	34%	29%	25%	19%	(15.54) ***
	Discount	24%	21%	25%	23%	23%	18%	(2.29) **
	Days announcement to effective	19.08	11	20.50	13	11.92	5	(10.20) ***
	Trading days (actual)			14.24	12			
N		12,639		6,918		1,320		

Table 3. Country characteristics

This table shows univariate statistics for countries under different rights trading regimes. Listed are the means for mandatory trading versus choice countries and the results of tests for differences between them (i.e., 24% of countries with mandatory regime have legal systems of English origin, and those countries have an average GDP/capita of 17,509 US Dollars). *, **, and *** denote statistical significance at (respectively) the 10%, 5%, and 1% level.

		Trading		
		Mandatory	Choice	t-stat of difference
Economic	GDP/capita	17,509	49,264	(4.89) ***
	Real interest	2.32	3.23	(0.44)
	Debt/GDP	51.41	52.29	(0.07)
	Market/GDP	39.62	99.86	(2.85)
	FDI Inflow/GDP	7.17	8.17	(0.28)
	Average Q	1.98	4.17	(2.58) **
Legal origin	English	24%	54%	(2.11) **
	French	52%	23%	1.88 *
	German	20%	15%	0.34
	Nordic	4%	8%	(0.48)
	Civil	76%	46%	2.11 **
Regulation of pre-emptive rights	Preright	2.40	2.25	0.97
	Prevote	2.53	2.58	(0.38)
	Preexpl	2.33	2.50	(0.41)
Governance	Anti-director	3.57	4.40	(1.40)
	Judicial efficiency	8.18	10.00	(2.12) **
	Accounting	63.45	71.80	(2.28) **
	Governance (GMI)	4.42	5.95	(1.09)

Table 4. Liquidity and mispricing characteristics

This table reports the mean, standard deviation, and minimum and maximum of rights liquidity and of the underlying stock (Panel A) in addition to underpricing characteristics (Panel B).

	Mean	SD	Min	Max
<i>Panel A: Liquidity measures</i>				
Right				
Bidask	28%	34%	3%	152%
Zero return days	55%	32%	0	97%
Amihud	1.53E-04	6.11E-04	0.00E+00	4.40E-03
Underlying				
Bidask	4%	6%	0%	0%
Zero return days	20%	16%	0%	99%
Amihud	3.40E-05	7.80E-05	0.00E+00	3.12E-04
<i>Panel B: Underpricing</i>				
% days PCP violated (close)				
Close	17%	34%	0	100%
Ask	12%	29%	0	100%
Bid	15%	31%	0	100%
If violated, underpriced by				
Close	58%	34%	9%	99%
Ask	60%	33%	10%	99%
Bid	55%	34%	6%	99%
% days risk arbitrage possible (no short sales)				
No transaction costs	12%	31%	0%	100%
Transaction costs	5%	20%	0%	100%

Table 5. Choice of offering type

This table shows the results of Probit regressions in which the dependent indicator variable is set equal to 1 only if the rights are traded (choice-country sample); the inverse Mills ratio (for selection into a rights offering) is estimated with the regression reported in Appendix C. *, **, and *** denote statistical significance at (respectively) the 10%, 5%, and 1% level.

		Dependent variable = trading		
		(1)	(2)	(3)
Firm	Log assets	0.726*	0.548***	0.295***
		(1.915)	(8.168)	(17.391)
	Market-to-book	1.216*	0.840***	0.335***
		(1.729)	(6.897)	(9.545)
	Block >25%	-0.04	-0.025***	-0.001
		(-1.466)	(-2.999)	(-0.209)
	% held (>25%)	1.042	0.644*	0
		(1.324)	(1.673)	(0)
	ROA	0.259	0.697***	0.697***
		(1.345)	(5.57)	(5.57)
	Amihud	-1783.181**		
		(-2.02)		
	# Analysts	0		
		(-0.228)		
	Forecast STD	-0.003		
	(-0.426)			
Run-up	0.088***			
	(3.079)			
Leverage	-0.017			
	(-0.198)			
Interest coverage	0.096***			
	(2.886)			
Crisis	-0.180**			
	(-2.126)			
Transaction	% sold	0.750***		
		(4.585)		
	Discount	0.435**		
		(2.388)		
Governance	Anti-director		-0.807***	
			(-2.702)	
	Accounting		0.027	
			(0.452)	
	Governance (AEFM)		-0.078	
			(-0.021)	
Country	GDP (log)		-0.342**	
			(-2.115)	
	Real interest		0.031	
			(1.161)	
	Debt/GDP		0.013	
			(1.21)	
	Market/GDP		-0.004***	
			(-2.807)	
	FDI inflow/GDP		0.009	
			(0.706)	
Heckman	Mills	-33.699	-22.745***	-7.335***
		(-1.576)	(-6.792)	(-10.719)
Constant		7.82	14.090***	0.218
		(1.257)	(3.213)	(0.789)
Fixed effects	Country	Yes		Yes
	Year	Yes	Yes	Yes
Control variables	Availability of interest	Yes		
	Availability of Gov.		Yes	
<i>N</i>		2,045	1,357	2,820

Table 6. Subsequent performance

This table shows the results of switching regressions (columns 1-3) and an OLS regression (column 4) in which the dependent variable is the growth in ROA from the year prior to the announcement to the first (second, third) year after the effective date. In the switching regressions (columns 1-3), the regime (trading versus not trading) is estimated with the regression reported in column 3 of Table 5. For these regressions, the table reports coefficients with *z*-statistics underneath and the *p*-value for equality between the coefficients in the two regimes. Column 3 reports coefficients and *t*-statistics of OLS regressions; the inverse Mills ratio (for selection into a rights offering) is estimated with the regression reported in Appendix C. *, **, and *** denote statistical significance at (respectively) the 10%, 5%, and 1% level.

Model Dependent variable Window	(1) Switching regressions Change in ROA			(2) Switching regressions Change in ROA			(3) Switching regressions Change in ROA			(4) OLS Change in ROA
	Year 1 post minus pre offering			Year 2 post minus pre offering			Year 3 post minus pre offering			Year 1 post minus previous
	No	Yes	Difference (p-value)	No	Yes	Difference (p-value)	No	Yes	Difference (p-value)	Both
Constant	-0.149 (-1.175)	0.091*** (6.32)	-0.231*** (0.0037)	-0.131 (-1.128)	0.418*** (6.618)	-0.548*** (0.0005)	-0.370*** (-2.928)	0.461*** (6.2)	-0.831*** (0)	0.005 (0.068)
Trading										0.044** (2.477)
Log assets	0.043*** (4.669)	-0.016*** (-3.985)	0.053*** (0)	0.042*** (4.739)	-0.022*** (-5.145)	0.062*** (0)	0.035*** (4.01)	-0.020*** (-4.092)	0.055*** (0)	0.037*** (7.857)
Block	0.093 (0.763)	0.002 (0.039)	0.091 (0.5838)	-0.045 (-0.356)	0.052 (0.833)	-0.097 (0.5755)	0.218** (2.335)	0.066 (1.001)	0.152 (0.1447)	0.145*** (2.649)
% held in blocks	-0.002 (-0.874)	0 (0.011)	-0.002 (0.5171)	0 (0.116)	0 (-0.194)	0 (0.8782)	-0.003* (-1.904)	0 (-0.435)	-0.003 (0.1106)	-0.002*** (-2.753)
Change in Freefloat	0.006 (0.664)	0 (0.126)	0.006 (0.513)	0.003** (2.221)	0.001 (0.962)	0.002 (0.5644)	0.003 (0.848)	0 (0.803)	0.003 (0.4876)	0.005*** (3.535)
Crisis	-0.02 (-1.18)	-0.034** (-2.327)	0.014 (0.5194)	-0.007 (-0.445)	-0.030** (-2.398)	0.023 (0.2852)	0.090** (2.425)	-0.018 (-1.3)	0.1*** (0.0063)	-0.069*** (-3.026)
Cross-listed	-0.006 (-0.421)	-0.01 (-0.97)	0.004 (0.8332)	-0.019 (-1.104)	-0.01 (-0.883)	-0.009 (0.6689)	-0.058 (-1.591)	-0.017 (-1.328)	-0.041 (0.2882)	-0.049*** (-3.482)
Discount	0.043 (0.697)	-0.055** (-2.146)	0.098 (0.1467)	0.039 (0.677)	-0.067*** (-2.606)	0.106* (0.0977)	-0.184* (-1.785)	-0.038 (-1.298)	-0.146 (0.1719)	-0.103** (-2.288)
% sold	-0.03 (-0.937)	-0.009 (-0.352)	-0.021 (0.6223)	-0.038 (-1.001)	-0.035 (-1.322)	-0.003 (0.941)	-0.092 (-1.038)	-0.03 (-1.025)	-0.062 (0.5038)	-0.053 (-1.443)
Rights below PCP		-0.01 (-0.507)			-0.027 (-1.597)			-0.012 (-0.467)		-0.063* (-1.746)
Past rights offers	0.006 (1.09)	0 (0.126)	0.006 (0.4018)	0.003 (0.608)	0.007 (1.414)	-0.004 (0.6524)	-0.023 (-1.624)	0.002 (0.581)	-0.025* (0.0867)	-0.004 (-0.768)
ROA (pre offering)	-0.514*** (-4.667)	-0.833*** (-14.13)	0.319** (0.0478)	-0.515*** (-5.217)	-0.879*** (-15.464)	0.364** (0.0139)	-0.889*** (-10.797)	-0.880*** (-12.915)	-0.009 (0.9291)	-0.470*** (-7.87)
CAPEX/Sales	-0.036* (-1.83)	-0.047*** (-4.208)	0.011 (0.6154)	0.001 (0.023)	-0.045** (-2.561)	0.046 (0.2497)	-0.134** (-2.221)	-0.058*** (-3.447)	-0.076 (0.2267)	-0.02 (-0.878)
Leverage	0.02 (1.094)	0.034*** (2.903)	-0.014 (0.5221)	0.037** (2.115)	0.037*** (2.863)	0 (0.982)	0.015 (0.426)	0.016 (1.265)	-0.001 (0.9754)	0.049*** (2.971)
Market-to-book	0.041 (1.601)	-0.037*** (-2.883)	0.078** (0.0323)	0.037 (1.578)	-0.037*** (-2.712)	0.074** (0.0345)	-0.059*** (-2.714)	-0.052*** (-3.353)	-0.007 (0.7864)	-0.01 (-0.827)
Year F.E. Mills	Yes	Yes		Yes	Yes		Yes	Yes		Yes -0.954*** (-5.595)
N		2,176			2,069			1,945		2,176

Table 7. Announcement returns

Panel A shows the average cumulated abnormal announcement returns in windows of $(-1, 1)$ and $(-5, 5)$ days around the announcement. Panel B presents the averages from regressions reported by the works cited compared to average announcement returns in the respective countries in our sample. Panel C displays the results of regressions in which the dependent variable is the cumulated announcement returns during both the $(-1, 1)$ and the $(-5, 5)$ window of days around announcement. In the switching regressions (columns 1–2), the regime (trading versus not trading) is estimated with the regression reported in column 3 of Table 5. For these regressions, the table reports coefficients with z -statistics underneath and the p -value for equality between the coefficients in the two regimes. Column 3 reports coefficients and t -statistics of OLS regressions; the inverse Mills ratio (for selection into a rights offering) is estimated with the regression reported in Appendix C. *, **, and *** denote statistical significance at (respectively) the 10%, 5%, and 1% levels.

Panel A: Univariate comparison of announcement returns

Announcement return window	(1)	(2)
	(-1,1)	(-5,5)
All right offers	1.83% ***	3.89% ***
Trading (choice country)	1.48% ***	3.67% ***
Not trading (choice country)	-0.52%	-1.20% ***
Trading (mandatory trading country)	-0.01%	1.03% **
Trading minus Not trading (choice country)	2.00% ***	4.86% ***
<i>t-stat</i>	(3.96)	(4.86)
Choice trading minus Mandatory trading	1.50% ***	2.64% ***
<i>t-stat</i>	(4.2)	(3.61)

Panel B: Comparison with existing studies of rights offer announcement returns

Country	Literature				Bloomberg sample (1995-2008)	
	Study	<i>N</i>	Sample period	AR	<i>N</i>	AR (-5,5)
US	Eckbo and Masulis (1992)	53 (uninsured)	1963-81	-0.59%	332	-0.8% ***
		128 (standby)		-0.70% ***		
	Hansen (1988)	102	1964-86	-2.4% ***		
	Singh (1997)	63	1963-85	-1.07% ***		
	Heron and Lie (2004)	56	1980-98	-1.1%		
UK	Slovin, Sushka, and Lai (2000)	200 (standby)	1986-94	-2.9% ***	1354	-5.2% ***
		20 (uninsured)		-4.96% ***		
Australia	Balachandran et al (2008)	636	1995-2005	-1.74% ***	1272	-0.6%
Japan	Kang and Stulz (1996)	28	1985-91	2.21% ***	52	-0.9% ***
Hong Kong	Wu and Wang (2006)	180	1989-97	-3.37% ***	416	-9.0% ***
Korea	Kang (1990)	89	1984-88	0.95%	879	4.9% ***

Panel C: Determinants of announcement returns

Model Window	(1) Switching regressions			(2) Switching regressions			(3) OLS
	(-1,1)		Difference (p-value)	(-5,5)		Difference (p-value)	(-1,1)
Trading	No	Yes		No	Yes		Both
Constant	0.038 (1.28)	0.245*** (11)	-0.207*** (0)	0.159*** (3.527)	0.472*** (9.435)	-0.313*** (0)	0.197*** (7.294)
Trading							0.022*** (4.055)
Log assets	-0.007 (-0.972)	-0.012*** (-7.241)	0.005 (0.5546)	-0.030*** (-6.568)	-0.021*** (-6.358)	-0.009 (0.1303)	-0.005*** (-3.578)
Block	0.067 (1.54)	0.017 (0.678)	0.05 (0.2991)	0.007 (0.089)	0.005 (0.098)	0.002 (0.9832)	0.031 (1.403)
% held in blocks	-0.001 (-1.634)	-0.001** (-2.309)	0 (0.625)	0 (0.118)	-0.001 (-1.356)	0.001 (0.3979)	-0.001*** (-2.961)
Crisis	-0.01 (-1.067)	-0.033*** (-3.81)	0.023* (0.0635)	-0.024 (-1.61)	-0.090*** (-5.449)	0.066*** (0.0035)	-0.023*** (-3.578)
Cross-listed	0.005 (0.616)	-0.018*** (-2.875)	0.023** (0.0215)	0.009 (0.731)	-0.050*** (-3.93)	0.059*** (0.0011)	-0.014*** (-2.679)
Discount	-0.029 (-1.21)	-0.146*** (-9.024)	0.117*** (0.0001)	-0.093** (-2.549)	-0.340*** (-10.812)	0.247*** (0)	-0.112*** (-8.96)
% sold	0.02 (1.049)	-0.01 (-0.628)	0.03 (0.2285)	-0.012 (-0.394)	0.028 (0.881)	-0.04 (0.365)	-0.01 (-0.871)
Past rights offers	-0.001 (-0.597)	-0.007*** (-4.568)	0.006* (0.0546)	-0.006 (-1.628)	-0.013*** (-4.712)	0.007 (0.1844)	-0.005*** (-3.239)
Rights below PCP		0.032 (1.531)			0.032 (0.762)		0.014 (1.123)
ROA	-0.026 (-1.188)	0.032 (1.531)	-0.058** (0.0495)	-0.01 (-0.284)	0.032 (0.762)	-0.042 (0.4085)	0.014 (1.123)
Run-up	0.006* (1.825)	0.009*** (2.923)	-0.003 (0.4875)	0.007 (1.3)	0.016*** (2.689)	-0.009 (0.2528)	0.007*** (3.447)
Interest coverage	0.001** (2.27)	0 (-0.377)	0.001** (0.0214)	0.001 (0.515)	0 (-0.528)	0.001 (0.5536)	0 (0.037)
Year F.E. Mills	Yes	Yes		Yes	Yes		Yes -0.204*** (-3.608)
N		2,214			2,214		2,214

Table 8. Fama–MacBeth regressions

This table reports the results of Fama–MacBeth regressions in which the dependent variable is the average monthly return in the 12, 18, or 24 months beginning one month after the effective date. *, **, and *** denote statistical significance at (respectively) the 10%, 5%, and 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)
	All	All	All	All	Not trading	Trading
Period (months)	12	18	24	12	12	12
Fama-French factors	Global	Global	Global	Local	Global	Global
Trading	-0.006 (-0.321)	0.088 (1.124)	0.13 (1.047)	0.005 (0.82)		
Right below PCP	0.003 (0.273)	-0.015* (-1.693)	-0.005 (-1.123)	0.005 (0.611)		0.037 (0.602)
Discount	-0.041* (-1.7)	-0.039 (-1.283)	-0.031 (-0.938)	-0.045** (-1.995)	-0.028* (-1.73)	-0.18 (-1.055)
% sold	0.014** (2.121)	0.014** (2.223)	0.016** (1.987)	0.01 (1.624)	0.008 (0.312)	-0.035 (-0.805)
Crosslisted	-0.003 (-0.563)	-0.018 (-1.108)	-0.032 (-1.325)	-0.006 (-0.993)	-0.004 (-0.279)	-0.011* (-1.877)
ROA	0.02 (1.372)	0.053 (1.616)	0.062 (1.204)	0.01 (0.556)	0.017 (1.217)	0.099 (1.05)
Log assets	0.005* (1.688)	0.004 (1.248)	0.004 (1.166)	0 (0.132)	0.004 (1.087)	0 (-0.039)
Interest coverage	0 (0.304)	-0.002 (-1.484)	-0.002 (-1.601)	0 (-0.362)	0.004 (1.11)	0.016 (1.118)
Past rights offers	-0.001 (-0.177)	0.002 (1.171)	0.004** (2.006)	0.001 (0.445)	0.008 (0.947)	-0.005 (-1.142)
Change in Freefloat	-0.006 (-1.042)	0.003 (0.272)	0.01 (0.857)	-0.005 (-0.885)	-0.013 (-1.203)	-0.032 (-1.277)
Crisis	0.005 (1.011)	0.015 (1.558)	0.019 (1.271)	0.013** (2.054)	0.02 (1.574)	0 (0.072)
Block	-0.015 (-0.97)	-0.002 (-0.242)	-0.008 (-0.968)	-0.009 (-0.672)	-0.03 (-0.562)	-0.009 (-0.44)
% held in blocks	0 (1.346)	0 (-0.543)	-0.001 (-0.806)	0 (0.721)	0 (0.27)	0.002 (1.129)
Index returns	-0.027 (-0.52)	-0.089 (-1.35)	-0.075 (-1.263)	0.034 (0.188)	-0.205** (-1.994)	0.041 (0.178)
SMB	0.001 (0.276)	0.008 (1.071)	0.01 (0.898)	-0.194 (-1.208)	0.006 (1.289)	-0.002 (-0.526)
HML	-0.003 (-0.557)	0.021 (1.126)	0.031 (1.044)	-0.11 (-1.122)	-0.006 (-0.737)	-0.004 (-0.516)
UMD	0 (-0.197)	0.001 (0.27)	0.003 (0.505)	-0.195 (-1.293)	0.003 (0.672)	0.014 (0.914)
Constant	-0.067 (-1.369)	-0.02 (-0.238)	0.05 (0.402)	0.015 (0.504)	-0.078 (-1.377)	0.046 (0.472)
Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes
N	26,752	41,412	56,120	25,900	11,525	15,227

Table 9. Calendar-time portfolio returns

Panels A and B report abnormal returns based on calendar-time portfolio regressions as described by Fama (1998). Excess returns are regressed against the MSCI World Index in Panel A and against the global Fama–French factors in Panel B; abnormal performance is measured by the intercept of this time-series regression. Panel C reports estimates for portfolios that short matching nonissuing firms. *, **, and *** denote statistical significance at (respectively) the 10%, 5%, and 1% level.

Panel A: Calendar-time portfolio returns against the index

Return window	<i>equally weighted</i>			<i>value-weighted</i>		
	(0,6)	(0,12)	(0,24)	(0,6)	(0,12)	(0,24)
Trading (choice country)	-0.002 (-0.68)	-0.003 (-1.124)	-0.004* (-1.719)	-0.002 (-0.357)	-0.005 (-1.051)	-0.011** (-1.998)
Not trading (choice country)	-0.008 (-1.347)	-0.005 (-1.08)	-0.004 (-1.216)	-0.001 (-0.102)	-0.004 (-0.514)	0 (-0.071)
Trading (mandatory)	-0.013*** (-4.533)	-0.010*** (-3.562)	-0.010*** (-3.9)	-0.004 (-0.699)	-0.005 (-0.825)	-0.004 (-0.708)
Trading minus Not trading (choice country)	0.006 (1.025)	0.002 (0.431)	0 (0.003)	0 (-0.012)	-0.001 (-0.162)	-0.011 (-1.567)
Rights below minus above PCP (choice country)	0.002 (0.263)	-0.004 (-0.71)	-0.012** (-2.408)	0 (-0.044)	0.003 (0.327)	0.001 (0.079)
Blockholder only:						
Trading minus Not trading (choice country)	0.01 (0.606)	0.004 (0.335)	0 (0.005)	0.003 (0.158)	0.003 (0.24)	0.002 (0.173)
Crisis only:						
Trading minus Not trading (choice country)	0.008 (0.579)	0.005 (0.54)	-0.003 (-0.505)	0.028 (1.245)	0.027 (1.505)	0.021* (1.792)

Panel B: Calendar-time portfolio returns with global Fama-French factors

Trading (choice country)	-0.006** (-2.131)	-0.007*** (-2.866)	-0.008*** (-3.759)	-0.005 (-0.762)	-0.007 (-1.175)	-0.012** (-2.179)
Not trading (choice country)	-0.014** (-2.124)	-0.011** (-2.537)	-0.009*** (-2.85)	-0.008 (-0.885)	-0.012 (-1.403)	-0.007 (-1.021)
Trading minus Not trading (choice country)	0.007 (1.157)	0.004 (1.016)	0.002 (0.633)	0.004 (0.4)	0.005 (0.614)	-0.005 (-0.888)

Panel C: Calendar-time portfolio returns against matched firms (and index)

Trading (choice country)	0.004 (1.284)	-0.001 (-0.31)	-0.003 (-1.111)	0.005 (0.55)	-0.007 (-0.995)	-0.007 (-1.126)
Not trading (choice country)	-0.004 (-0.541)	-0.002 (-0.345)	-0.001 (-0.19)	-0.002 (-0.181)	-0.004 (-0.379)	0.001 (0.128)
Trading minus Not trading (voluntary)	0.007 (1.017)	0.001 (0.151)	-0.002 (-0.733)	0.01 (0.679)	-0.003 (-0.269)	-0.008 (-0.86)

Figure 1. Seasoned equity offerings over time

Source: Securities Data Corporation.

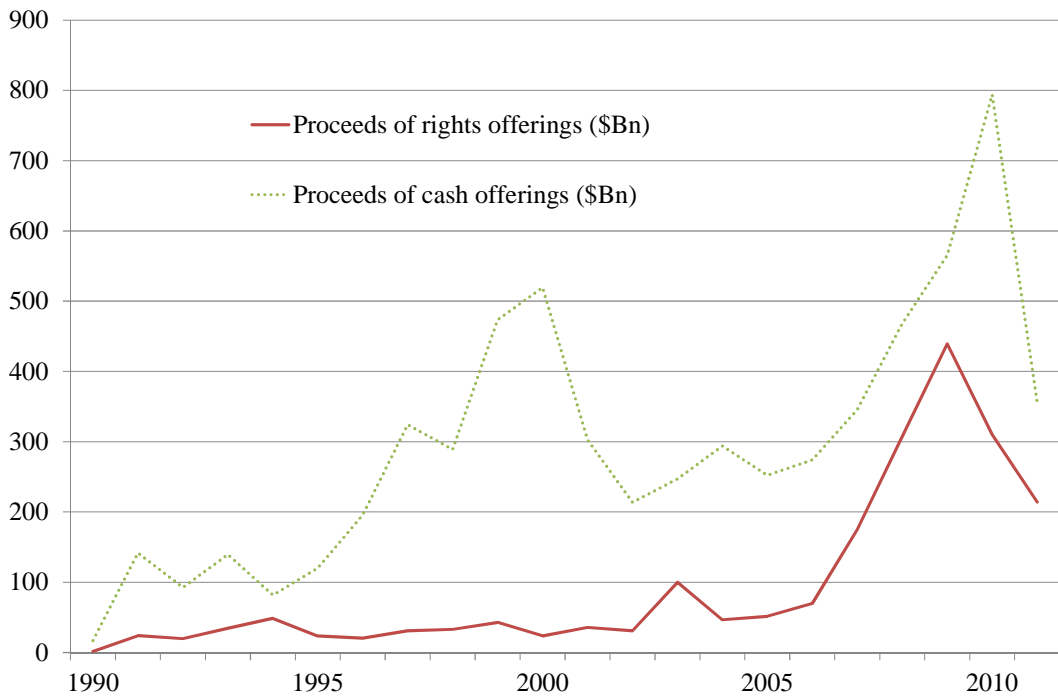


Figure 2. Long-term returns in excess of regional MSCI index: Trading versus not trading (choice countries only)

