

Choices in Equity Finance A Global Perspective

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When companies raise equity finance they have to make two choices: the issuing method (**cash versus rights**) and, when they choose the rights issue method, whether rights should be traded or not. We study these choices using a sample of 15,751 rights issues and 22,016 cash offers announced during 1995-2011 in 127 countries. To explain these choices we consider three hypotheses: **the adverse selection hypothesis, the control hypothesis and the financial distress hypothesis**. The general conclusion is that **none of these theories by themselves can fully explain what we observe**. However, we clearly reject the most popular explanation in the literature, i.e. the adverse selection hypothesis, as both rights issues and cash offers are followed by long-term negative excess returns. When we examine the second choice, i.e. the choice to have tradable rights, we find that in the short run the market appreciates the fact that rights are not trading, but in the long run firms with non-tradable rights underperform. In fact, firms seem to restrict rights trading in order to raise financing when the prospect of restructuring is more doubtful and the need to force the hand of the existing shareholders is higher. This provides additional support for the hypothesis that many rights issues are made by firms in financial distress.

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When listed companies raise equity capital (i.e., make seasoned equity offers) they can either make a rights issue or a cash offer. While theory has provided a lot of insights on this topic, the empirical analysis has been much more limited. Indeed, the focus in the academic literature has traditionally been on the U.S., where the overwhelming majority of equity issues have taken the form of cash offers. However, this is not the case if we look at the rest of the world. Indeed, out of 37,767 equity issues around the world in the period 1995-2011, over 41% have been rights issues. Moreover, what is less widely known is that, in many countries, when firms make rights issues they have an additional choice: to have the rights traded or not. Specifically, out of 8,193 rights issues over the same period announced in countries in which the companies are allowed to make rights non-tradable (“choice countries”), approximately 37% of the issues did not have tradable rights. The purpose of this paper is to improve our understanding of the SEO process using a global (worldwide) view that accounts for the choice of rights vs cash as well as the choice of tradability. This approach allows us to provide new insight on a topic traditionally studied with a US-centric perspective mostly focused on cash offers.

In the case of rights issues, the company gives the existing shareholders a priority to buy new shares in the company. If the rights are traded, the shareholders who do not want to subscribe are supposed to sell the rights to others. However, unless brokers automatically sell the rights of the shareholders who don’t communicate¹ their preference – i.e., to subscribe or not – these shareholders will lose. Their loss will be a gain to the underwriter (in an underwritten offer) or to other shareholders (in a non-underwritten offer) who are given an oversubscription privilege. In the case of cash offers, firms sell their shares without giving priority to the existing shareholders, effectively putting them on an equal footing with the outside investors. Because these investors

¹ Investors may “forget” to reply to their broker if, for example, they are on holiday. Evidence that in the U.S. 36 % of investors forget to exercise or sell rights is documented by Holderness and Pontiff (2013).

can always buy shares in the open market, in cash offers shares are offered at a small discount from market prices.

Why should firms prefer rights to cash offers? First, rights issues avoid the adverse selection problem that arises when informed managers – caring about existing shareholders more than new shareholders – have an incentive to issue equity if the shares are overvalued (Myers and Majluf 1984). In a rights issue such an incentive does not exist as long as all shareholders exercise their rights, in which case new and existing shareholders are the same. That is, rights issues do not send the signal that the stock is overvalued. In fact, exactly because existing shareholders are solicited, rights issues should be preferred to cash offers if the shares are undervalued. Indeed, the fact that the existing shareholders subscribe prevents a wealth transfer from the existing shareholders to new shareholders. However, to the extent that rights are not exercised but sold, current shareholders can still suffer if the rights are undervalued (Eckbo and Masulis 1992). One way to completely eliminate the adverse selection problem is to make the rights non-tradable. Therefore, non-tradability is a sort of extreme solution to the adverse selection problem. We will call this the “*adverse selection*” hypothesis (H1).

A second intuition is linked to the private benefits of control. When choosing between cash offers and rights issues, firms prefer rights issues to preserve private benefits of control (Wu, Wang, and Yao 2014). In a cash offer, new equity is sold to outside investors and the incumbent ownership will be diluted, whereas in a rights issue there is no dilution as long as the incumbent shareholder exercises all his subscription rights. However, dilution of control can still happen if non-controlling investors sell their rights to “intruders, newly emerging substantial shareholders who are unable to take over the firm but intend to share the private benefits with the incumbent”.² Wu, Wang, and Yao (2014) assume that these potential intruders know the value of private

² Wu, Wang, and Yao (2014)

benefits from control but outside investors do not. Hence, in contrast to the adverse selection hypothesis, they predict that rights issues reveal negative information: the private benefits from control (which are ultimately paid for by non-controlling shareholders) are so large that incumbent management prefers a rights issue. Note that a rights issue may still give an opportunity to intruders to accumulate a stake by buying the rights. Accumulating a stake through buying rights may be less costly than simply buying shares in the open market if the rights are underpriced (e.g., Hietala 1994; Poitras 2002; and Rantapuska and Knupfer 2008). Non-tradability is therefore a solution to prevent such change of control. The choice of the existing shareholders to use rights issues and, even more importantly, to restrict tradability to prevent a change in control, sends a signal to the market that the private benefits from control are large. Hence stock prices should decline more after a rights issue if trading is restricted. We will call this the “*control*” hypothesis (H2).

Alternatively, rights issues can be considered as a financing of last resort in the case where the firm is unable to attract outside investors through a cash offer. This would be the case if outside investors suspect that the purpose of the issue is to reduce financial distress. Ursel (2006) argues that in recent years U.S. rights issuers are in financial distress. Existing shareholders have a larger incentive to keep their option alive and avoid losing everything in bankruptcy. In this context, issuing rights may give a bad signal (distress) that may be worse than any signal provided by a cash offer. Restricting trading may be seen as a way to coerce existing investors to bail out the firm, or sell their shares before the ex-rights date to investors who believe that a financial restructuring will ultimately turn out to be a good investment. As remarked by the chairman of an investment firm: “The company is holding a gun against your head.”³ So rights issues with non-tradability should be linked to the more “desperate” cases in which the

³ “Rights issues: Devil lies in detail,” *Financial Review*, July 4, 2012.

probability of future restructuring is lower and the need to force the hand to the market is higher. In other words, non-tradability reduces execution risk⁴, a risk that is more important for companies in financial distress. Tradability increases execution risk in two ways. First, if rights are underpriced (as mentioned above) it may provide a negative information signal that insiders are selling their rights. Second, tradability requires additional time, prolonging the average period between announcement and effective date from 14 days to 28 days. During this extended period, negative information about the firm or about market liquidity could leak and thereby reduce demand.⁵ We will call this the “*distress*” hypothesis (H3).

The three hypotheses provide different implications for the impact on share prices. The adverse selection hypothesis posits that, given that outsiders anticipate the opportunistic behavior of the firm, cash offers generate negative announcement returns. Also, to the extent the market underreacts (a necessary condition for market timing to benefit current long-term shareholders), cash offers will also display negative long run excess returns. This would be consistent with previous research on long-run returns after U.S. cash offers (e.g., Loughran and Ritter 1995; Spiess and Affleck-Graves 1995). In rights issues, there should be no adverse selection problem as in theory the current and new investors are the same. Therefore, the adverse selection hypothesis makes two testable predictions. The first (H1a) posits that cash offers generate negative returns and rights issues create positive (or at least non-negative) excess return in the

⁴ Note that execution risk can be reduced in other ways, such as offer deep discounts and underwriting. Yet, discounts are costly to those who do not exercise or sell their rights, a substantial proportion of shareholders [34%, according to a survey of U.S.-based issuers conducted by Holderness and Pontiff (2013)]. Furthermore, a deep discount may signal 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 is not available to some issuers and costly to others: both regulators and customers often complain about fees they think 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).

⁵ 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 high levels of financial distress are presumed if a firm announces that issue proceeds will be used to repay debt.

short run. To the extent the market underreacts, this short term prediction should also hold in the long run: negative excess returns after cash offers and non-negative excess returns after rights issues. The second prediction (H1b) is based on the intuition that non-tradability eliminates wealth transfer to new shareholders by selling undervalued rights: short-term and possibly long term excess returns will be higher when rights are not tradable.

The control hypothesis argues that rights issues are chosen when there are large private benefits from control. To the extent the market was not fully aware of the size of these benefits (an assumption made by Wu, Wang, and Yao (2014)) we obtain hypothesis (H2a): rights issues will generate more negative returns than cash offers in the short run, and to the extent the market underreacts, also in the long run. Making the rights non-tradable signals to the market that these benefits are very large. Indeed, when they are really large, the controlling shareholders want to make sure that no “intruder” can build up a large stake by buying rights and therefore restrict their tradability. Hence H2b predicts that rights issues with non-tradable rights should generate more negative returns than rights issues with tradable rights. Note that the adverse selection hypothesis and control hypothesis make diametrically opposed predictions. The distress hypothesis posits that the announcement of a rights issue is not a signal of undervaluation, as predicted by the adverse selection hypothesis. It may simply mean that the firm is unable to raise funds via a cash offer because of concerns about financial distress. So the first prediction (H3a) is that excess returns following a rights issue will be negative both in the short and in the long run and more negative than in the case of cash offers. Moreover in the more “desperate” cases the firm may want to “hold a gun against the head of investors” and coerce a successful issue by making the rights non-tradable. Hence (H3b) predicts more negative returns (both in short and long run) when rights are not tradable.

In other words, the hypotheses can be summarized by the following alternative intuition if financing is perceived as beneficial to the existing shareholders, then the choice of rights issue, by restricting the financing to the existing shareholders, sends a good signal to the market (adverse selection hypothesis). If the financing is perceived as detrimental to the existing (minority) shareholders, either because it benefits the majority blockholders (control hypothesis) or because it forces them to bear the cost of restructuring (distress hypothesis), then the choice of rights issue sends a bad signal to the market.

While these restrictions are based on the stock returns that reflect market expectations and therefore also involve a joint hypothesis of market efficiency, we can consider restrictions based on real profitability of the firm (e.g., ROA). The adverse selection hypothesis posits that issuers restrict trading when they believe the firm will perform better in the future and therefore predicts a negative relationship between tradability and future profitability (H1c). The control hypothesis posits that blockholders reserve for themselves part of the private benefits of control. While these will accrue mostly to the controlling blockholders such benefits will only exist if the firm is profitable. Therefore, the control hypothesis predicts a negative relationship between tradability and profitability (H2c). Finally, the distress hypothesis suggests that tradability will be restricted exactly in the cases in which future profitability is more doubtful, suggesting a positive link between tradability and future profitability (H3c).

These considerations suggest that the control hypothesis and the distress hypothesis are observationally equivalent unless we focus on tradability, while the adverse selection and the control hypotheses are observationally equivalent unless we focus on returns. In both cases, it is critical to focus on the restrictions imposed by tradability.

Because rights issues are almost non-existent in the U.S. (let alone a proper market for rights), in order to test these hypotheses, we have to examine equity issues in foreign countries.

This will also provide the critical information on differences on the market for rights. This can now be done in a proper way given the growing trend of international equity issuances. Within this trend, rights issues have become increasingly important (Figure 1). For example, in 2011, firms around the world raised \$214 billion through rights issues, compared with \$356 billion through cash offers and \$170 billion by initial public offers. The popularity of rights issues in foreign countries is partially a result of the fact that they are mandatory in many European and Latin American countries (Spamann 2010), unless shareholders give explicit approval for cash offers. In some countries brokers and banks will automatically sell rights if investors don't specify whether they want to exercise the rights or not (Holderness and Pontiff 2013). If firms are concerned about wealth transfer from small investors who don't pay attention, they may prefer to use cash offers. We will explicitly control for all these effects.

[Insert Figure 1 about here]

We use a sample of 15,751 rights issues and 22,016 cash offers around the world announced during the period 1995-2011. Although in the total sample short-term excess returns are both negative for rights issues and cash offers, returns to cash offers are significantly more negative than the returns to rights issues. Moreover, in countries where firms don't have a choice on tradability and rights have to be tradable ("no-choice countries") we find that cash offers earn significant negative excess returns while announcement returns to rights issues are not significantly different from zero. So negative announcement returns observed after rights issues are only observed in countries where firms have a choice on tradability ("choice countries").

On closer inspection, we see that these negative announcement returns are generated by offers where rights are tradable. When rights are non-tradable, announcement returns are positive and the difference for firms with tradable rights and cash offers is statistically significant. The fact that non tradability is good for shareholder value is consistent with the adverse selection

hypothesis (H1b). When firms have to make rights tradable (i.e., in the no-choice countries), the market assumes that a rights issue reduces adverse selection problems. When firms do have a choice to make rights tradable, markets are convinced that the rights issue choice is driven by adverse selection considerations if the rights are not tradable.

When we examine the long-term excess returns, we find that excess returns after rights issues are significantly negative although less so than in cash offers. Note that this conclusion holds both in choice countries and non-choice countries. But, negative excess returns are clearly inconsistent with the adverse selection hypothesis (H1a). Moreover the fact that long-term returns are more negative after cash offers is inconsistent with the control hypothesis as well as the financial distress hypothesis.

When we examine the subset of firms in choice countries, we find that firms with non-tradable rights have significantly lower excess returns than firms with tradable rights, which is the opposite of the short term result and clearly inconsistent with the adverse selection hypothesis (H1b), but consistent with the control hypothesis (H2b) and the financial distress hypothesis (H3b): making rights non-tradable signals large private benefits from control or more serious distress issues.

So the bottom line is that the combined stock return evidence once we properly account for *both* the effect of the choice between rights issue and cash offer and the choice of whether to restrict the tradability of the rights in the case of rights issues is not consistent with any of the alternative hypotheses. So the reasonable conclusion is that the issuance choice is possibly driven by a combination of factors such as adverse selection, control considerations or financial distress.

Next, we focus on the link between tradability and firm future profitability. In line with the distress hypothesis, we find strong empirical evidence that issuers perform better after offers with tradable rights. Such a positive relation between profitability and tradability is consistent with the

argument that issuers with bad prospects restrict trading (distress hypothesis), while it does not support the adverse selection hypothesis or the control hypotheses that posit that issuers restrict trading when they believe the firm will perform better in the future. That is, the performance patterns after the offer indicate that the decision on tradability is related to the need to restructure and this leads to better firm profitability afterwards.

To sum up, the joint set of results based on long-term stock returns and long-term profitability is consistent with the distress hypothesis and fails to support either the control or the adverse selection hypothesis. In contrast, the results based on the short-term announcement returns seem to support the adverse selection hypothesis.

An alternative method to test why firms choose rights issues rather than cash offers is to run a multivariate analysis of the determinants of the choice of offerings. This analysis is helpful also to rule out potential confounding effects and/or alternative explanations not properly accounted for in the previous analysis.

We start with the choice between rights issues and cash offers. We estimate a probit specification of whether the firm chooses a rights issue or a cash offer and find that, after adjusting for country and year fixed effects, a firm is more likely to resort to rights issues in the presence of higher probability of distress. The probability of using a rights issue is larger in small firms, when the probability of distress (inverse of Altman's z-score) is higher and profitability (ROA) is low, and when leverage is high. However rights issues are also more likely when more than 25 % of the shares are held by a controlling block holder which is consistent with the control hypothesis. Rights issues are chosen by firms with low market-to-book ratios and when the stock markets have been performing relatively poorly in the previous months. This is consistent with an adverse selection story to the extent that a poor stock price performance increases the likelihood that firms believe that they are undervalued (although the negative long-term excess returns after

rights issues show that this belief was not justified). So again, we have to conclude that no single theory can explain the choice between rights and cash offers.

Next, we focus on the choice of restricting tradability. First, we find that tradability is less prevalent when the probability of distress (inverse of Altman's z score) is low, but also when the issuer is a small firm with low current and future profitability. This sends inconclusive signals about the distress hypothesis. Next, tradability does not seem to be affected by block ownership (i.e., more than 25 % of the shares are held by a controlling block holder). This is inconsistent with the control hypothesis. Finally, the fact that tradability is chosen by firms with high market-to-book ratios and not during the crisis is inconsistent with an adverse selection argument.

So, again, we find inconclusive definite results that are consistent with any of the three competing hypotheses. However, considering the combined evidence on short-term stock returns, long-term stock returns, long-term profitability, the decision to use rights or cash offers and the decision to make rights tradable, the evidence is more consistent with the financial distress hypothesis than with the alternative hypotheses.

This paper is, as far as we know, the first comprehensive international study of equity issues and contributes to the literature in several ways. First, previous research on long-run returns has been largely based on cash offers because the alternative issue method – i.e., rights issues – is largely non-existent in the U.S. (e.g., Loughran and Ritter 1995; Spiess and Affleck-Graves 1995; Eckbo, Masulis, and Norli 2000). Moreover many international studies on long-run returns after seasoned equity offers (SEOs) (e.g., Foerster and Karolyi 1999; McLean, Pontiff, and Watanabe 2009) do not distinguish between rights and cash offers. Also, previous research on long-run returns after SEOs is mostly country specific and focuses primarily on cash offers or does not make a distinction between cash offers and rights issues. Even more importantly no paper, to the best of our knowledge, studies the feature of tradability of the rights and uses it to distinguish

between alternative theories on equity issuance. Therefore, the main contribution of this paper is to make a clear distinction between cash offers and rights issues, as well as between rights issues with tradable rights and non-tradable rights. Second, in contrast to our global perspective existing research on SEOs is mainly country specific, which is due perhaps to the wide variation in regulations and incidences of rights issues across countries. In the U.S., only a few companies have made rights issues in recent decades. This “disappearing rights phenomenon” has been documented by Smith (1977), Hansen (1988), Eckbo and Masulis (1992), Kothare (1997), Armitage (1998), Heron and Lie (2004), and Ursel (2006). Holderness and Pontiff (2013) explain the lack of U.S. 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 sell or exercise 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, Faff, and Theobald (2008, 2012) document take-up, liquidity, and announcement returns for non-tradable rights in Australia. In one other international study, McLean, Zhang, and Zhao (2008) report a relation between country-wide governance standards and the choice between rights and cash offers.

Finally, our documentation of the existence and liquidity of the secondary rights market contributes to the discussion on the costs and benefits of rights issues relative to cash offers. We provide evidence on both the undervaluation and tradability of rights in a larger international sample and describe how they are linked to the regulatory framework. Rights tend to be undervalued and illiquid which may be one reason why firms don’t believe it is in the interest of the current shareholders to make them tradable. So, 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 (Spamann 2010) in refined form, as a measure of shareholder protection.

We show that the effect of rights issues on shareholder protection is more complex than previously indicated.

1. Institutional Characteristics of Rights Issues

1.1 Anatomy of a rights issue

In this section, we provide an overview of the rights issue process. We describe its main features.

The offer. In a rights issue, the issuer's 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 to encourage participation. Some issuers (notably, U.S. 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.⁶ 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 15 of the non-tradable rights issues in our sample is the record date *before* the announcement.

Trading of rights. In tradable rights issues, shareholders who choose not to exercise their rights can trade them in a secondary market during the offer 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.

⁶ Curiously, the main source of transaction risk is the number of shares subscribed rather than the event that the market price falls below the subscription price. Some offers are fully subscribed despite a market price below the subscription price, and many offers are not fully subscribed despite a market price far above the subscription price, especially in illiquid markets. The stock price also only rarely falls below the subscription price, 21 times in our sample. Consistent with the execution risk hypothesis, all 21 transactions involved tradable rights.

Non-exercised rights. After the subscription period, the issuer can sell any rights that were not exercised (or sell the non-purchased 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 offers. Issuers can also give shareholders an “oversubscription privilege” that entitles subscribers to a second preemptive right to the unsubscribed shares. Very few regulators (notably, Hong Kong and the U.K.) require issuers to reimburse non-exercising shareholders from the proceeds due to purchased new shares.

Regulations and discretion. Rights issues, 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 issues 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 2013).

Prospectus. Issuers must provide a prospectus that details the offer’s characteristics and states its objectives and the risks involved. Exemptions to this rule typically apply to small offers and offers to a limited number of (new) shareholders. These exemptions apply to most offers with non-tradable rights.

1.2 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 interviewed lawyers, investment bankers, and regulators about the existence and regulation of secondary rights markets.⁷ While we asked for and recorded explicitly the state of the regulations at the end of 2011, we also verified whether changes occurred throughout our sample period. Non-traded rights are the norm in only a few countries, most of whom are former communist countries that have seen a wave of privatization and in which the government still holds a large stake in public firms.⁸

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 most of the Commonwealth, this choice is structured and regulated. In Hong Kong, Singapore, and the U.K., offers without tradable rights are called *open offers* and are subject to a separate set of regulations (Korteweg and Renneboog 2002). In Australia and New Zealand, offers without a secondary rights market are called *non-renounceable* (Balachandran, Faff, and Theobald 2008, 2012). Open and non-renounceable rights issues often have size or discount requirements. In the U.K., for example,

⁷ For general descriptions of regulations on rights issues, see Myners (2005) for an overview of European regulations. See also Balachandran, Faff, and Theobald (2008) for Australia, Fung, Leung, and Zhu (2008) for China, Rantapuska and Knupfer (2008) for Finland, Gajewski and Ginglinger (2002) for France, Stehle, Ehrhardt, and Przyborowsky (2000) for Germany, Tsangarakis (1996) for Greece, Ching, Firth, and Rui (2006) for Hong Kong, Marisetty, Marsden, and Veeraraghavan (2008) for India, Bigelli (1998) for Italy, Kang and Stulz (1996) for Japan, Salamudin, Ariff, and Nassir (1999) for Malaysia, Marsden (2000) for New Zealand, Bøhren, Eckbo, and Michalsen (1997) for Norway, Tan, Chang, and Tong (2002) for Singapore, Dhatt, Kim, and Mukherji (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 U.K. and U.S.

⁸ For example, Atanasov et al. (2010) give a detailed description of diluted minority shareholder value due to Bulgarian rights issues before a 2002 reform that required rights to be tradable. As in Bulgaria prior to 2002, trading occurs only rarely in Russia and China.

open offers are allowed unless the discount exceeds 10%. Open offers require only a simplified prospectus (or none at all). In contrast, U.S. 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.

2. Data and Descriptive Statistics

2.1 Data

We use a sample of SEOs obtained from Bloomberg, SDC, and Capital IQ. Our sample starts in 1995 (when data on rights trading became available from Bloomberg) and ends in 2011. We exclude offers of preferred stocks, loan stocks, shares in related companies, rights with warrant sweeteners, and poison-pill rights. If the offer extends to cross-listed securities, 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 offer. These screens state whether the right is traded and provide trading dates and sometimes tickers in addition to event dates, currency, subscription price, number of rights issued, and number of rights needed to buy one share. When no ticker is listed, we identify the 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 stock are obtained from Datastream.

Based on Bloomberg, SDC, and Capital IQ our sample consists of 15,751 rights issues for which we were able to find accounting information from Thomson Datastream and for which we

were able to determine if rights were trading. We find 5,150 (63%) of the offers in choice countries could be traded. Bloomberg provides rights trading data for most countries. 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 issues. Overall, our sample covers 127 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 select sample of large offers. 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 with those listed by 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 issues; in contrast, SDC simply "flags" rights issues within its single list of all offers. As a consequence, mixed offers may appear in each Bloomberg list but only once in SDC (sometimes flagged as a rights issue), which may explain the discrepancy between the two databases in the fraction of rights issues. 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, Masulis, and Norli (2007)].

On the other hand, Bloomberg offers a more comprehensive coverage of rights issues in all countries but Japan (56 vs. 68 covered by SDC). In total, Bloomberg describes 28,240 rights issues, compared with 12,694 described by SDC, for the period 1995–2011. Another potential

source of equity issuance data is Capital IQ, which is available starting from 2003. In Appendix A, we also provide a comparison of the number of rights issues per country covered by Bloomberg and Capital IQ, in this time period. Capital IQ covers a similar number of offers in most markets, but misses many observations in important markets such as Australia, China, and South Korea. In total, it covers 7,677 rights issues in the period 2003–2011, compared with 15,897 covered by Bloomberg.⁹ We integrated our existing sample based on Bloomberg and SDC with the information from Capital IQ when missing in Bloomberg or SDC.

2.2 Descriptive statistics and univariate tests

Table 1 lists our sample countries and the number of rights that were actually traded with Datastream data available. We also document the number of cash offers for which Datastream data are available. In total we have 22,016 cash offers. What is striking is the small number of firms that choose the rights issue method in the U.S., Canada and Japan. The number of rights issues with a secondary rights market varies. In the U.S. and in most British Commonwealth countries, a substantial portion of rights is not traded. In particular, the fraction of offers without trading is 55% in the U.S., where issuers have a free choice;¹⁰ 7% in the U.K., where such open offers are allowed only if the discount does not exceed 10%, and 23% and 73% in Hong Kong and Australia (respectively), where neither has a discount limit. In Singapore, where the 10% discount limit does apply, companies provide a market for rights in all but 7% of the offers. In Western Europe, issuers in several countries restrict trading in offers: 40% of offers in Germany provide no rights market; the fraction is 24% in Belgium and 20% in Switzerland. In most

⁹ Curiously, Capital IQ's coverage of US issuers is much more comprehensive than the other two databases, with 834 designated rights issues compared to 325 identified by Bloomberg (and 372 by SDC in the entire period between 1995 and 2001). Many of these offerings, however, seem to be shelf offers for which we are not able to find information on subscription rights.

¹⁰ This figure is similar to the 51% reported by Holderness and Pontiff (2013).

Scandinavian, Southern European, and Latin American countries, nearly all rights are traded, except for a few small offers that involve controlling shareholders.

[Insert Table 1 about here]

We use the term “choice countries” when we refer to the countries 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 non-tradable) accounts for more than 5% of the market. Actual trading incidences are important because they reflect a true market choice, rather than 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.

It is important to note that a classification based on interviews with regulators and lawyers confirms our assessment for almost all countries. The only exception is Malaysia where issuers have a choice yet 99% of all rights are traded. None of our results changes qualitatively when we employ a 1% threshold. In Table 2, we describe the characteristics of the cash and rights issues in our sample for all 127 countries. Firms choosing a rights issue rather than a cash offer tend to have larger assets, but smaller market capitalization. In line with the adverse selection hypothesis, firms issuing cash offers have higher market-to-book, higher run-up, and higher market capitalization than firms that use rights issues. Furthermore, rights issuers typically have higher leverage, lower z-score, more blockholdership and lower governance scores which lend support to both the distress as well as the private benefits of control hypotheses. Typically, the percentage of new shares issued is much higher in rights issues than in cash offers.

[Insert Table 2 about here]

In Table 3, we compare the characteristics of rights issues in choice countries, distinguishing the offers with and without rights markets. (See Appendix B for a description of all the variables.) There are 8,193 rights issues made in choice countries. The transaction costs of setting up a rights market are likely to be more relevant for small firms. Consistent with this argument, issuers that choose non-tradable rights (in choice countries) tend to be smaller, with average assets of \$2,172 million versus \$4,293 million for offers with rights markets. A similar relationship holds if we compare tradable and non-tradable offers in all countries.

[Insert Table 3 about here]

However small firms are also more opaque and engender a greater dispersion of opinions. They also tend to be covered by fewer analysts (13 vs. 29). Hence markets may assume that insiders are better informed than outsiders. Moreover, we find that, in the choice countries, issuers with non-tradable rights are less liquid [with a mean Amihud (2002) illiquidity measure of 3.84×10^{-5} vs. 2.76×10^{-5} for issuers with tradable rights]. So small firm size may also proxy for higher execution risk which may also explain why they want to avoid rights trading.

We can make a similar argument for firms in financial distress: the success of the transaction should be more important for such firms, but the distressed state will make it more difficult to convince investors to insert new equity capital (e.g., Myers 1977). However, issuers with non-tradable rights are, on average, less leveraged than those with tradable rights (29% vs. 49%) and have a significantly higher Altman Z-score (7 vs. 4) which is inconsistent with financial distress driving non-tradability. On the other hand they have significantly lower interest coverage (1.52 vs. 2.39 in the sample with rights trading). Issuers with non-tradable rights are far less profitable (ROA of -15% vs. -5%) and a greater proportion of non-tradable offers is made during the financial crisis (15% vs. 12% of all offers).

We report the difference between the ROA in the year of the offer and the ROA in each of the three following years. On average, their profitability declines by 11% in the first and second year after the offer and recovers only by 4% in the third year after the offer. This performance is significantly better for issuers with tradable rights: in the first year after the offer, the change in ROA of issuers of tradable rights is 7% higher than that of issuers of non-tradable rights.

Nevertheless all rights issues seem to be followed by negative ROAs. In the case of the rights issues, according to the control hypothesis, blockholders may be concerned about having to share private benefits from control with other shareholders who may build up a large stake by buying rights. We measure block ownership with a dummy variable that equals 1 in the presence of a shareholder with ownership greater or equal to 25% (*block*), and another variable that indicates the total percentage held in such blocks (*% held*). Table 3 shows that, in the choice countries, tradable rights are associated with more blocks than non-tradable offers (4.7% vs. 2.5%). This is inconsistent with the control hypothesis that blockholders use non-tradable rights to preserve the private benefits from control.¹¹

Among the descriptive statistics, given that the adverse selection hypothesis proposes that firms with undervalued shares restrict trading to protect their shareholders from selling undervalued rights, we also consider governance quality. We use the “corporate governance quality” index of Aggarwal et al. (2011), which is a composite measure of board composition, auditing thoroughness, anti-takeover provisions, compensation policies, and ownership quality (*governance (AEFM)*). We report the results in Table 3. We do not find any evidence that governance explains the difference between issuers of tradable versus non-tradable rights in either the all-country or the choice-country sample.

¹¹ 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.

Finally, we document transaction-specific characteristics. Recall that some countries allow non-tradability only if the offer does not exceed certain size and discount limits. We measure the offer size with the number of shares offered as a percentage of shares outstanding prior to the offer, and the discount as the offer price relative to the closing stock price five days prior to the announcement. In line with such rules, offers with non-trading rights in choice countries are smaller (42% vs. 64%) and have smaller discounts (22% vs. 27%). This finding is consistent also with the idea that firms use non-tradability to minimize execution risk without offering a deep discount.

Trading takes time: on average, rights are traded over a span of 14 days in choice countries. Altogether, 28 days pass between the announcement and the effective date when rights are traded, which is 11 days more than for offers with non-trading rights. Eleven 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 (issue with tradable rights) carries the potential for exposure of the issuer to greater market risk.” Table 4 provides descriptive statistics of characteristics for countries with different trading regimes. Choice countries have a significantly higher gross domestic product (GDP) per capita. This reflects the prevalence of developed countries in this group, which includes most Commonwealth countries and the U.S. However, choice and non-choice countries do not differ in terms of real interest rate, government debt, size of the equity market, or inflow of foreign direct investment. This suggests that they are also not fundamentally different in terms of their equity markets or investor sophistication.

[Insert Table 4 about here]

Owing to the predominance of British Commonwealth countries in the choice-country sample, the legal system of the majority is of English origin. The other choice countries are

mostly European, and 25% (resp., 17%) of them feature a legal system of French (resp., German) origin. Overall, the choice countries are less often governed by civil law (only 50%) than by common law. Table 4 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 shareholder 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 transaction costs, execution risk, or adverse selection arguments), for allowing non-tradable rights.

3. The Choice Between Rights and Cash Offers: Multivariate Tests

We now formally study the choice between rights issues and cash offers in a multivariate setting. We estimate probit specifications of issuance choice. Given that in some countries firms have to use rights issues unless shareholders approve a cash offer, we use a country fixed effect variable. This variable is also supposed to incorporate the fact that in some countries brokers will automatically sell rights if investors don't specify whether they want to exercise the rights or not.

The results, reported in Table 5 (all countries), indicate that small firms and firms with weak prior performance (measured by ROA and runup), high leverage and low Altman Z-scores and a large blockholder are more likely to raise equity through a rights issue. This confirms that private benefits of control induce firms to opt for rights rather than cash offers and that the less financially healthy firms don't go to the open market to raise funds. Firms with a higher likelihood of distress and weak prior performance would rather turn to existing shareholders who, they believe, might be easier to convince to provide more resources. In line with the idea that firms time the market, we find that firms with a higher market-to-book and higher runup are more

likely to choose a cash offer. Furthermore, firms are more likely to use rights issues in choice countries and in countries with higher fractions of rights issues. Hence, the option to make rights tradable or non-tradable seems to persuade firms to opt for a rights rather than a cash offer.

Column (2) of Table 5 (all countries) is still based on the complete sample but now more country-specific variables are included. It seems that cash offers are more common than rights issues in more “financially sophisticated” countries, i.e. countries with more substantial debt markets and equity markets (measured by Debt/GDP and Market/GDP, respectively). Column (3) focuses on the choice countries and tests for the relevance of another country-specific variable: pre-right which is the Spamann (2010) estimate: it is set equal to 1 if pre-emptive rights can be waived under special conditions. The results are qualitatively similar to the results of the total sample. The fact that the pre-right variable has a statistically significant negative coefficient is expected: when shareholders pre-emptive rights can waived, rights issues are less likely.

[Insert Table 5 about here]

Overall, these results are consistent with all three hypotheses: firms try to time the market with cash offers (as predicted by the adverse selection hypothesis), they prefer rights to cash offers when there are large blockholders who presumably want to prevent dilution of their private benefits of control (as predicted by the control hypothesis) and firms use rights issues when there are indications of financial distress such as poor performance and high leverage (as predicted by the distress hypothesis). Therefore, to distinguish the alternative hypotheses, we now focus on the market reaction.

4. Short-term and Long-term Performance After Seasoned Equity Issues

4.1 Short-term announcement returns

In this section, we examine the short- and long-term responses to cash offers and rights issues. We use Datastream-adjusted returns for this exercise and we follow the usual procedure of short-term event studies by cumulating excess returns from day -1 until day +1 relative to the announcement date. We estimate the parameters of the market model using returns from 250 trading days before the announcement until 42 days before the announcement. We use the regional MSCI index to which the firm belongs as a proxy for the market index. We cumulate the abnormal returns from the day before the announcement until the day after.

The results are reported in Panel A of Table 6. The market reacts negatively to rights issues in general: on average, -0.42% ($t = -3.81$) over the (-1,1) event window. Average announcement returns for cash offers, however, are also negative (-1.02%) and statistically significantly different from zero ($t = -12.55$).

[Insert Table 6 about here]

Market reactions to cash and rights issue are highly dependent on whether the firm has the option to make rights non-tradable. In countries where firms have the choice to make rights non-tradable, announcement returns of rights issues are significantly negative (-0.66%; $t = -4.13$) but the reaction does not differ much from the reaction to a cash offer (-0.96%, $t = -10.34$). We see quite the opposite picture in countries where there is no choice to have rights traded: on average excess returns are significantly negative -1.35 % ($t = -8.73$) for cash offers and not significantly different from zero -0.17 % ($t = -1.10$) for rights issues. Panel B of Table 6 shows that announcement returns after rights issues in choice countries are only negative when rights are tradable. We conclude that excess returns after cash offers are always negative. However, excess returns after rights issues are only significantly negative in choice countries and only when rights are tradable. This result is consistent with the adverse selection hypothesis H1b: the decision to make rights non-tradable convinces markets that the stock is not overvalued. At least in the short

run the market seems to believe the adverse selection hypothesis, as long as the company decides that current shareholders cannot sell their rights.

Panel C of Table 6 compares the announcement returns of small and large firms. Such comparison is helpful to rule out the base alternative that just transaction costs (which are more relevant for small firms) drive the decision to make rights non-tradable. And indeed, we find that announcement returns are significantly larger (0.94%, $t = 1.93$) when small firms make rights non-tradable. However, the same conclusion holds for large firms where non-trading generates 1.10% ($t = 2.55$) larger excess returns. Moreover, there is no statistically significant difference between announcement returns of large and small firms when the rights are not traded. When the rights are not traded, the announcement returns are larger, regardless of firm size. This makes us comfortable in ruling out a story just based on transaction costs.

4.2 Long-term returns

If the market is not efficient, then the impact of tradability and/or choice of issuance method on shareholder value will not be confined to short-term announcement returns. We therefore study monthly abnormal returns in the two years starting from the month after the effective date.¹² We use the Ibbotson RATS event study method which adjusts for risk changes after the event. This method involves running each event month cross-sectional regressions of returns against a number of factors. The results presented are based on the Fama and French (2012) global factors. The results, however, are qualitatively similar when using regional factors. The intercept of the regression is the abnormal return in the event month. Abnormal returns are cumulated and the results for cash offers and right issues are shown in Figure 2a in choice countries and in Figure 2b

¹² We impose the one-month embargo to avoid any systematic Datastream mistakes in adjusting for the rights and new shares, as documented by Eckbo, Iqbal, and Strong (2012) for UK open (i.e., non-tradable) offers.

for non-choice countries. Cumulative abnormal returns for various horizons are shown in Table 7.

[Insert Fig 2A and Fig 2B here]

Focusing on choice countries, after 36 months long-term excess returns for cash offers are -61 %, significantly smaller than the -46 % return observed after rights issues ($t = -2.81$). However, when the rights are not tradable the excess returns after 36 months fall to -55 %, which is significantly ($t = -3.19$) smaller than when rights are trading. The 36 month cumulative excess returns after cash offers and rights issues with non-traded rights are no longer statistically significantly different ($t = 1.01$). This is strong evidence that the decision of the managers not to have the rights traded is not benefitting shareholders in the long run.

These results show that, while the short run results are consistent with adverse selection hypothesis H1b, the rest of the evidence is inconsistent with the adverse selection story. The control hypothesis that predicts rights doing worse than cash (H2a) is not supported by either short- or long-term excess returns, although the prediction that non-trading is bad (H2b) as it reveals large private benefits from control at the expense of minority shareholders is consistent with the results. However a negative abnormal return of -55 % is too large as a plausible estimate of private benefits from control. Finally, the financial distress hypothesis is consistent with the negative consequences of non-trading in the long run (H3b), but by itself cannot explain why long-term returns after cash offers (which are supposedly not driven by distress) are more negative than after rights offers, the opposite of H3b. So no single simple theory can explain what we observe in the stock market.

The striking result is that rights issues are bad in the long run. This means that investors who buy rights and exercise them overpay, on average. In the next section we will test to what extent this is anticipated by investors during the rights trading period.

[Insert Table 7 here]

5. The Market for Rights

Finance textbooks often 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 the rights? Second, are the rights priced close to their intrinsic value? Answering these questions may help us better understand why firms can justify making rights non-tradable. Indeed if rights are underpriced they may give a negative signal, i.e. insiders are selling rights because they believe the stock is overvalued, possibly because they have superior information about financial distress. Also if the rights are systematically underpriced and at the same time are costly to the firm (transactions cost) existing shareholders may be better off by not selling them. So concern about existing shareholders (the basic underlying assumption behind the adverse selection hypothesis) may also convince firms to make rights non-tradable.

5.1 Liquidity of the rights market

Panel A of Table 8 displays univariate statistics on the liquidity measures for the rights and for the underlying stocks. The average sample firm had zero returns (Lesmond, Ogden, and Trzcinka 1999; Bekaert, Harvey, and Lundblad 2007) for 23% 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, Lins, and Maffett 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 1.57×10^{-5} , a value comparable to the estimates of Lesmond (2005).

[Insert Table 8 about here]

The rights are less liquid than the underlying shares. The mean bid-ask spread of rights is 28%, or seven times the 4% spread of the underlying stock. Rights are not traded on average 28% of all the days listed on the market. The mean Amihud illiquidity measure is almost ten times that of the stock.

5.2 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 (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 share price exceeds the exercise price on the day before expiration. 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. In other words, these are the returns after compensating the investor for the trouble of buying and exercising the right. Following Lesmond (2005), we use data from Bloomberg and various exchanges to find the commissions and fees paid. We use the worldwide average commission and transaction fee for the countries for 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 8 reports the statistics for our measures of undervaluation. The mean right is cheaper (62%, on average) than the lower bound on 17% of all days (*% violated*). These results are not much affected if we consider bid-

ask prices instead of closing prices. Our estimates are comparable with the results of single-country studies. For example, in his analysis of a sample of Finnish rights during the period 1977-1981, Hietala (1994) finds that 58% of rights are mispriced. Poitras (2002) documents violations on 91% of all days in a sample of Singaporean rights issues for the period 1992–1998. In a more recent Finnish sample for 1995–2002, Rantapuska and Knupfer (2008) find that rights are underpriced by 15% on average. These values are much higher than the 3% of underpriced days observed for U.S. S&P 500 Index options (Ackert and Tian 2001), 1% for the French CAC 40 Index options (Capelle-Blancard and Chaudhury 2001), and 2% for the Italian MIB 30 Index options (Brunetti and Torricelli 2007). The bound based on a risk arbitrage strategy reduces the proportion of positive-arbitrage days to 9%. Even after transaction costs, 5% of trading days allow for positive arbitrage. While relative mispricing may indicate that either the stock itself is overvalued or that the rights traders have (negative) inside information, these results still suggest that shareholders who prefer not to exercise their rights will not be fully compensated for the dilution entailed by selling those rights.

Overall, these findings document that rights markets are illiquid and often undervalued. So firms can make an argument that, considering the inefficiency and illiquidity of the market for rights, shareholders are better off if the rights are not traded. This is in line with the adverse selection hypothesis that the management has the best interests of the existing shareholders at heart when restricting trading. However, the long-term negative returns observed in Table 7 suggest that such protection is rather inadequate: if firms are concerned about their current stockholders they should encourage them to sell overvalued rights. The decision to restrict trading is more in line with the financial distress hypothesis which is concerned about execution risk if the market believes that the undervaluation of rights reflects informed insider selling. This leads to a further examination of the motivation to make rights non-tradable.

6. Choice of Tradability

We now investigate why firms deliberately choose to make rights non-tradable. Our long-run excess returns in Figure 2A reject the adverse selection hypothesis: there is no evidence that non-tradability is associated with larger long-term returns, quite the opposite.

We estimate the probability of making rights tradable as a probit function of firm, transaction, and country characteristics. Firms do not randomly choose rights issues rather than cash offers as shown in section 3. However, we control for this choice by using a Heckman (1979) model, including model 3 of Table 5 to control for the choice between rights or cash offers. The variable *Preright* (Spamann 2010) identifies countries in which waiving preemptive rights is only allowed in special cases – e.g., with supermajority rules or substantive conditions. Given that this variable is likely to be unrelated to the tradability choice, we use it as an identifying restriction for our first stage choice between cash or rights. We control for year and country fixed effects. The regression results for the second stage of the Heckman model are reported in Table 9. The independent variables included are the natural logarithm of assets to test the transaction cost hypothesis¹³, ROA, Altman Z-score, and the number of analysts to test the execution risk hypothesis and a dummy for blockholder presence to test the control hypothesis. Additional control variables are market-to-book, run-up, and the Amihud illiquidity index to verify if management is concerned with shareholder value, i.e. they are concerned with shareholders selling undervalued rights. Leverage and the percentage of new shares sold are included because the firm's capital structure might affect the choice between tradable and non-tradable rights. Higher leverage may indicate that expected costs of financial distress are larger, encouraging non-trading to minimize execution risk.

¹³ The hypothesis that having rights traded is costly.

Table 9 shows that issuers with tradable rights are significantly larger. This is consistent with the univariate results (Table 3) and supportive of the argument that transaction costs are a key driver of trading restrictions. However, small firms are also more opaque and therefore rights issues by small firms are more subject to execution risk. Tradability is also associated with higher market-to-book ratios, larger profitability (measured by ROA), higher default risk (measured by the z-score), and larger issues. These results are comparable to findings based on the Australian sample of Balachandran et al. (2008, 2012) and support the intuition that larger firms with more liquid stock and better performance have fewer incentives to restrict the trading of rights.

Next, we focus on the choice of restricting tradability. To do it, we also need to broaden the picture. Indeed, we need to exploit the multivariate framework to control for other potential explanations for the choice to make rights non-tradable. Tradability is higher when the probability of distress (inverse of Altman's z-score) is higher, when a firm is more profitable (as measured by (ROA)) and when the firm is large. Moreover the fact that leverage is not a significant predictor to tradability suggests that the results are not unambiguously supporting the distress hypothesis. Next, tradability does not seem to be affected by block ownership (i.e., more than 25 % of the shares are held by a controlling blockholder). This again is inconsistent with the control hypothesis. Finally, the fact that tradability is chosen by firms with high market-to-book ratios and not during the crisis is inconsistent with an adverse selection argument. This suggests that tradability is better explained by other factors than by the three main existing theories.

[Insert Table 9 about here]

In column 2 of Table 9, we replace the country-fixed effects with country-specific variables related to market development (GDP/capita, the real interest rate, ratios of debt, market capitalization, and foreign direct investment inflows to GDP).

Non-tradability is more common in countries with better accounting standards and more judicial efficiency. The negative association between debt and equity market size and tradability is most likely driven by the U.S. and the U.K., 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, especially with respect to size, performance, and financial health.

7. Profitability and Performance

We have documented that seasoned equity offers are followed by significant negative long run excess returns regardless of the issue method and more negative when rights are not traded. One explanation for these abnormal returns is misspecification of the assumed model of market equilibrium (as suggested by Eckbo, Masulis, and Norli 2000). An alternative explanation is that the negative excess returns reflect deteriorating profitability after the issuance. This will help to further distinguish our competing hypotheses. Indeed, as we argued, the adverse selection hypothesis posits that issuers restrict trading when they believe the firm will perform better in the future and therefore predicts a negative relationship between tradability and performance (H3a). The control hypothesis posits that blockholders reserve for themselves part of the private benefits of control. While these will accrue mostly to the controlling blockholders, still it will be possible only if the firm is profitable. This implies that tradability will be mostly restricted in the case of future profitability. This implies a negative relationship between tradability and profitability (H3b). In the case of the distress hypothesis, 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 coerce shareholders into subscribing to a non-tradable rights issue. If this is a

predominant reason for trading restrictions, then we should observe inferior economic performance after non-tradable offers (H3c). We implement our tests in the following way. We measure long-term economic performance after rights issues and cash offers. 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). In Table 10 we use the specification of Table 5 to model the choice of issuing cash or rights issues, using the entire sample. We use the equation whose results are described in column 1 of Table 9 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 offer to the firm's ROA in the three years after that offer 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 are nonzero. Augmenting equations (1a) and (1b) with generalized residuals from the selection regression, we are able to obtain consistent estimators via a straightforward extension of the Heckman (1979) procedure (Idson and Feaster 1990). For each offer i , our set of explanatory variables includes the logarithm of book assets; blockholdership, defined as a dummy equal to 1 if any shareholder held more than 25% of all shares and the size of the block holdings; the change in free float from the year-end before the effective date to the year-end after that date; and a financial crisis dummy. We control for a set of firm- and transaction-specific characteristics such as a dummy variable for cross-listed offers, the number of previous rights issues undertaken by the same issuer in the sample period, ROA, leverage, and the market-to-book ratio.

The results are reported in Table 10 and Table 11. Columns 1 to 3 give the results for different years: the dependent variable in column 1 (2; 3) is the difference between the ROA in the pre-offer year and the ROA in the first (second; third) year after the offer. Each column reports first the coefficients and *z*-statistics for the cash offers (Table 10) or offers in which rights could not be traded (Table 11), next to which are the coefficients and *z*-statistics for the rights issues (Table 10) or offers in which rights could be traded (Table 11). Column 4 reports the results of an OLS regression, which includes the same explanatory variables with the addition of an indicator for rights (Table 10) or traded rights issues (Table 11) and an inverse Mills ratio that controls for selection into a rights issue (based on Table 5 model 3).

[Insert Table 10 about here]

The results show that, consistent with figure 2A, issuers perform better after offers with tradable rights, as indicated by the significantly positive intercept for such issuers. This effect is evident also in the OLS specification (column 4 in Table 11). The intercept is economically large, with 35% for the first year, and increasing further in the next two years. Such a positive relation between profitability and tradability is consistent with the argument that issuers with bad prospects restrict trading (distress hypothesis (H3c)), while it does not support the adverse selection hypothesis that posits that issuers restrict trading when they believe the firm will perform better in the future (H3a) or with the fact that majority owners restrict tradability to restrict to themselves the right to appropriate the future benefits of the firm (H3b).

Also, we observe that large firms perform better after offers with non-trading rights. Similarly, highly levered firms perform better after offers with non-trading rights. Firms have lower performance after large non-trading offers. The presence of blockholders, change in free float, financial crisis, cross-listing, or history of past rights issues does not matter consistently for performance. The lack of explanatory power of blockholders is inconsistent with the control

hypothesis. Overall, performance patterns after the offer indicate that the decision on tradability is related to the need to restructure and this leads to better firm profitability afterwards.

Also, irrespective of the offer being cash or rights, larger firms and highly levered firms always have higher profitability in the years following the equity issue. More profitable firms and firms with higher market-to-book values, on the other hand, always have lower profitability after the issue, regardless of the offer type. This indicates that other factors besides market timing explain the negative long-term performance of firms issuing cash offers. Interestingly, cross-listed firms issuing a rights issue typically have lower performance in the subsequent years.

[Insert Table 11 about here]

8. Conclusion

We study how firms choose between alternative ways of raising equity. We exploit a unique dataset with all the worldwide equity issuance over the period 1995-2011 with a detailed breakdown between cash and rights issues, with rights either tradable or non-tradable.

We entertain three alternative hypotheses. The first (adverse selection hypothesis) posits that rights issues help to prevent the wealth transfer from the existing shareholders when shares are undervalued and that non-tradability helps to completely eliminate any residual adverse selection problem. The second hypothesis (control hypothesis) posits that rights issues are designed to preserve private benefits of managerial control. Making rights non-tradable will make it more difficult for an investor to buy rights to obtain a large position in the firm and force the controlling shareholder to share the private benefits from control. The third hypothesis (distress hypothesis) posits that rights issues are a “financing of last resort” method mostly used when the firm is unable to attract outside investors through a cash offer. Restricting trading further

reinforces the coercion on the existing shareholders, allowing to raise financing even when the restructuring prospects are more doubtful.

The adverse selection hypothesis is clearly rejected by the data. First, rights issues are not followed by either short- or long-term positive abnormal returns, but significant negative long-term returns. Second, although when trading is restricted excess returns are higher, this conclusion is reversed in the long run. The control hypothesis is also not consistent with many of our findings. While rights issues are more likely when there is a large blockholder, it is not the case that rights issues are followed by more negative short-term and long-term announcement returns than cash offers. Although non-tradability lowers returns, the probability of making rights non-tradable is independent of the presence of a large blockholder. Moreover the long-term negative excess returns reported in this paper are simply too large to be explained by a destruction in shareholder value as a result of private benefits from control. Indeed, one would expect private benefits from control to be more relevant in profitable firms. Hence, everything considered, the evidence is more consistent with the financial distress hypothesis than with any other hypothesis. Indeed, after rights issues, stock price performance as well as profitability deteriorate substantially. The probability of making a rights issue rather than a cash offer is higher when the probability of financial distress is higher. Moreover, while the excess returns after rights issues are significantly negative although less so than in cash offers in general, firms with non-tradable rights have significantly lower long run excess returns than the firms with tradable rights. These lower returns can be explained with lower long run profitability of the firms that issue rights and restrict their tradability.

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Appendix A: Bloomberg versus other data sources

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

Country (underlying)	Bloomberg (1995-2011)		SDC (1995-2011)		Bloomberg (2003-2011)	Capital IQ (2003-2011)	SDC> Bloomberg	Capital IQ> Bloomberg
	Cash	Rights	Cash	Rights	Rights	Rights	(Rights)	(Rights)
UNITED STATES	9,357	689	16,035	372	325	834		x
UNITED KINGDOM	4,159	1,430	6,164	571	377	312		
AUSTRALIA	4,563	3,294	13,589	3,401	2,166	1,719	x	
CHINA	1,717	2,172	1,026	171	1,362	71		
JAPAN	2,278	56	3,746	68	17	1	x	
HONG KONG	2,305	973	3,541	651	637	33		
SOUTH KOREA	1,559	2,298	3,006	934	1,070	23		
CANADA	8,756	363	18,955	130	122	149		x
GERMANY	401	1,097	819	452	540	195		
TAIWAN	951	1,167	928	470	397	11		
FRANCE	340	685	1,039	355	455	120		
MALAYSIA	443	564	628	443	269	173		
SWEDEN	212	1,075	470	499	794	276		
SINGAPORE	503	284	818	367	188	182	x	
BRAZIL	277	1,179	623	83	527	18		
GREECE	153	753	197	67	421	43		
TURKEY	58	1,297	83	73	792	4		
ITALY	162	402	405	186	252	63		
SOUTH AFRICA	144	423	248	74	60	69		x
THAILAND	102	394	352	287	195	85		
NORWAY	283	356	476	116	215	91		
INDONESIA	129	366	159	259	191	85		
SWITZERLAND	174	244	319	115	93	49		
INDIA	647	669	975	262	269	224		
SPAIN	146	392	364	97	290	37		
POLAND	210	187	233	42	146	21		
CHILE	53	272	149	313	91	13	x	
MEXICO	64	215	185	40	66	6		
AUSTRIA	74	190	116	74	114	42		
NETHERLANDS	236	38	529	47	22	27	x	x
DENMARK	100	157	221	107	92	22		
NEW ZEALAND	108	179	297	110	101	59		
IRELAND	266	55	306	23	17	19		x
PORTUGAL	43	113	114	67	23	11		
PHILIPPINES	93	106	205	111	35	50	x	x
BELGIUM	93	81	202	44	28	13		
PAKISTAN	5	306	32	0	223	55		
FINLAND	88	64	231	60	42	26		
BERMUDA	220	80	236	3	64	181		x
ISRAEL	188	153	227	11	65	34		
PERU	7	232	57	41	81	0		
EGYPT	12	120	65	105	108	30		
ARGENTINA	13	114	55	87	38	6		
KUWAIT	4	103	16	28	103	12		
SRI LANKA	4	208	7	71	186	54		
RUSSIA	123	131	248	23	125	5		
JORDAN	1	121	21	29	119	1		
UAE	8	42	13	4	40	14		
QATAR	1	28	7	16	28	11		
OMAN	1	57	8	12	55	12		
Others	710	2,266	1,621	723	1,861	2,086		
Total	42,544	28,240	80,366	12,694	15,897	7,677		

APPENDIX B: Definitions of variables.

Variable	Definition
<i>Country/Market</i>	
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)
Choice	One if trading of preemptive rights is not mandatory and 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
HML	High-minus-low factor from Ken French's website
Index returns	Log return on the regional MSCI 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)
Real interest	Real interest rate
SMB	Small-minus-big factor from Ken French's website
UMD	Momentum factor from Ken French's website
<i>Liquidity</i>	
Amihud	Amihud (2002) measure with data corrections according to Lesmond (2005)
Bid-ask	Bid-ask spread divided by the average of bid and ask
Rights below PCP	One if #violated > 0 (0 otherwise)
%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
Underpriced by	One 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
<i>Transaction</i>	
Change in free float	Changes in free float from the last year-end before announcement to the year-end after the effective date
Cross-listed	One if the offer was registered for securities listed in more than one country (0 otherwise)
Discount	Discount to the closing price five days prior to the announcement
% sold	Percentage of new shares sold as a fraction of shares outstanding prior to the offer
Trading	One if a market for rights existed (0 otherwise)
Trading days (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 >25%	One if >25% of shares are held by a single blockholder, 2011 data from Orbit
CAPEX/sales	Capital expenditures/sales
Distress (dummy)	One if Altman Z < 1.8 and 0 otherwise
EBIT	Earnings before interest and taxes (thousands of US dollars)
Employees	Number of employees (000)
% held (>25%)	Sum of percentage of shares held in blocks > 25%
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
Past rights issues	Number of rights issues previously announced by the same issuer in the sample period
ROA	EBIT/assets
Run-up	Returns 6 months to 42 days before the announcement
Sales	Sales (thousands of US dollars)
Z	Altman Z-score

Table 1. Sample data by country

This table gives a breakdown of the sample by country of incorporation (50 largest in terms of all offers) listed by the number of offers. “Choice countries” are those in which firms have the possibility to issue non-tradable rights. The last column indicates countries in which there was a change in regime from no-choice to choice country during our sample frame 1995-2011.

Country	Total	Offer		Rights		Choice country	Change in regime
		Cash	Rights	non traded	traded		
Australia	5438	3318	2120	73%	27%	x	
Canada	4407	4283	124	1%	99%		x
US	4258	4016	242	55%	45%	x	
UK	3148	2708	440	7%	93%	x	
China	2755	1144	1611	0%	100%		
Hong Kong	1651	1195	456	23%	77%	x	
Taiwan	1137	595	542	0%	100%		
South Korea	1132	0	1132	0%	100%		
Japan	949	897	52	0%	100%		
Sweden	913	116	797	3%	97%		x
Germany	845	251	594	40%	60%	x	
Brazil	749	191	558	1%	99%		x
Turkey	720	37	683	31%	69%		x
Greece	653	94	559	29%	71%		x
France	652	167	485	7%	93%		x
Malaysia	593	296	297	1%	99%		x
India	524	390	134	1%	99%		x
Singapore	483	289	194	7%	93%	x	
Spain	398	78	320	3%	97%		x
Italy	389	94	295	1%	99%		x
Norway	379	181	198	6%	94%	x	
Indonesia	342	86	256	1%	99%		x
Vietnam	327	29	298	52%	48%		x
South Africa	281	89	192	0%	100%		
Thailand	258	53	205	14%	86%		x
Poland	241	94	147	0%	100%		
Ireland	200	158	42	5%	95%		x
Denmark	196	53	143	0%	100%		
New Zealand	180	77	103	17%	83%	x	
Switzerland	178	96	82	20%	80%	x	
Chile	171	19	152	0%	100%		
Austria	159	41	118	20%	80%	x	
Mexico	157	32	125	0%	100%		
Bermuda	144	125	19	5%	95%	x	
Netherlands	127	112	15	33%	67%	x	
Philippines	126	56	70	0%	100%		
Israel	123	85	38	0%	100%		
Sri Lanka	106	1	105	0%	100%		
Portugal	105	22	83	0%	100%		
Finland	102	47	55	98%	2%		x
Peru	96	3	93	0%	100%		
Kuwait	95	2	93	0%	100%		
Russia	94	0	94	100%	0%	x	
Belgium	92	50	42	24%	76%	x	
Ivory Coast	88	16	72	0%	100%	x	
Pakistan	86	1	85	0%	100%		
Jersey	83	72	11	0%	100%	x	
Jordan	82	0	82	0%	100%		
Isle of Man	75	0	75	9%	91%		
Bulgaria	75	0	75	0%	100%		
Others	1205	257	948	8%	92%		

Table 2. Equity offers: cash /versus/ rights issues. Descriptive statistics.

Table 2 provides statistics for the 37,767 world-wide equity offers in our sample, distinguishing between cash and rights issues. *, **, and *** denote statistical significance at (respectively) the 10%, 5% and 1% level.

		Cash offers		Rights issues		t-stat of difference
		mean	median	mean	median	
<i>General firm characteristics</i>	Assets (thousands of US \$)	2,844,703	121,443	4,716,445	180,634	(18.79) ***
	Market cap (thousands of US \$)	674,055	94,985	381,100	67,821	24.33 ***
	Market-to-book	1.70	1.26	1.40	1.08	24.82 ***
	EBIT (thousands of US \$)	116,286	1,113	163,358	5,235	(11.66) ***
	Sales (thousands of US \$)	1,153,553	50,183	1,808,979	89,935	(17.49) ***
	Employees (thousands)	3,387	486	2,576	534	11.20 ***
<i>Liquidity information asym.</i>	Amihud	1.52E-05	2.00E-07	2.22E-05	4.38E-07	(13.04) ***
	# Analysts	58.61	3.00	19.24	0.00	34.44 ***
<i>Financial constraints</i>	Leverage	18.4%	29.7%	46.6%	32.4%	(34.45) ***
	Z-score	7.09	3.88	3.97	2.55	39.28 ***
	Distress (dummy)	25.7%	0.0%	30.7%	0.0%	(10.67) ***
	Interest coverage	1.86	0.45	1.96	0.28	(0.66)
<i>Recent performance</i>	ROA	-9.1%	0.9%	-4.2%	2.9%	(18.03) ***
	Run-up	20.9%	10.4%	3.0%	0.0%	17.42 ***
<i>Post-offer performance</i>	Change in ROA (year 1)	-4.2%	0.3%	-4.5%	-0.3%	0.72
	Change in ROA (year 2)	-6.8%	0.1%	-4.0%	-0.2%	(4.71) ***
	Change in ROA (year 3)	-6.4%	0.0%	-2.9%	-0.2%	(5.80) ***
<i>Ownership and governance</i>	Block >25%	2.7%	0.0%	3.7%	0.0%	(7.36) ***
	% held (>25%)	37.6%	29.0%	25.1%	13.4%	27.81 ***
	Governance (AEFM)	46.0%	46.3%	44.2%	43.9%	2.48 **
<i>Transaction characteristics</i>	% sold	19%	11%	57%	33%	(64.06) ***
	Discount	2%	1%	27%	24%	(21.45) ***
	Trading days (actual)			14.79	11.00	
	During financial crisis	12%		13%		0.95
<i>N</i>		22,016		15,751		

Table 3. Rights issues: trading /versus/ non-trading. Descriptive statistics.

Table 3 provides statistics for the 8,193 rights issues in choice countries, distinguishing between trading and non-trading rights issues. *, **, and *** denote statistical significance at (respectively) the 10%, 5% and 1% level.

		Rights issues trading		Rights issues non-trading		t-stat of difference
		mean	median	mean	median	
<i>General firm characteristics</i>	Assets (thousands of US \$)	4,293,881	160,400	2,172,402	21,563	(9.34) ***
	Market cap (thousands of US \$)	474,498	68,402	236,585	16,682	(10.63) ***
	Market-to-book	1.41	1.07	1.65	1.25	9.64 ***
	EBIT (thousands of US \$)	142,410	3,174	79,204	-389	(7.17) ***
	Sales (thousands of US \$)	1,510,581	69,563	737,252	6,355	(9.54) ***
<i>Liquidity information asym.</i>	Employees (thousands)	2,803	393	1,534	125	(8.12) ***
	Amihud	2.76E-05	1.14E-06	3.84E-05	6.01E-06	7.17 ***
	# Analysts	29.38	1.00	13.21	0	(9.93) ***
<i>Financial constraints</i>	Leverage	49.2%	40%	29.0%	14%	(18.19) ***
	Z-score	4.33	3.80	6.90	5.11	16.19 ***
	Distress (dummy)	31.0%	0%	25.5%	0%	(5.30) ***
	Interest coverage	2.39	0.58	1.52	0.28	(2.64) ***
<i>Recent performance</i>	ROA	-5.0%	2.1%	-14.6%	-2.3%	(15.74) ***
	Run-up	2.0%	0.0%	-4.5%	-6.0%	(3.21) ***
<i>Post-offering performance</i>	Change in ROA (year 1)	-4.4%	-0.5%	-10.5%	-0.4%	(5.42) ***
	Change in ROA (year 2)	-3.9%	-0.3%	-11.1%	-0.1%	(5.01) ***
	Change in ROA (year 3)	-3.1%	0.1%	-7.5%	0.3%	(2.74) ***
<i>Ownership and governance</i>	Block >25%	4.7%	0.0%	2.5%	0.0%	(6.79) ***
	% held (>25%)	34.4%	21.5%	22.5%	12.2%	(10.42) ***
	Governance (AEFM)	45.0%	43.9%	44.2%	41.5%	(0.42)
<i>Transaction characteristics</i>	% sold	64%	40%	42%	25%	(14.52) ***
	Discount	27%	24%	22%	17%	(9.56) ***
	Trading days (actual)	14.40	11			
	During financial crisis	12%		15%		16.10 ***
<i>N</i>		5,150		3,043		

Table 4 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 USD 17,509). *, **, and *** denote statistical significance at (respectively) the 10%, 5%, and 1% level.

		Trading		t-stat of difference
		Mandatory	Choice	
Economic	GDP/capita	13,670	43,878	(5.92) ***
	Real interest	1.84	3.17	(0.62)
	Debt/GDP	52.58	52.10	0.04
	Market/GDP	38.38	98.99	(2.86)
	FDI Inflow/GDP	6.40	8.09	(0.70)
Legal origin	English	26%	50%	(1.65) *
	French	51%	25%	1.63
	German	19%	17%	0.19
	Nordic	4%	8%	(0.57)
	Civil	74%	50%	1.65 *
Regulation of pre-emptive rights	Preright	2.40	2.25	0.48
	Prevote	2.53	2.58	(0.19)
	Preexpl	2.33	2.50	(0.57)
Governance	Anti-director	3.57	4.40	(1.38)
	Judicial efficiency	8.18	10.00	(2.13) **
	Accounting	63.45	71.80	(1.65) *
	Governance (GMI)	4.42	5.95	(1.09)

Table 5. Choice of offer type: cash versus rights

This table shows the results of probit regressions in which the dependent indicator variable is set equal to 1 if a rights issue is used and zero for a cash offer. *, **, and *** denote statistical significance at (respectively) the 10%, 5%, and 1% level.

		Dependent variable = rights		
		<i>All countries</i>	<i>All countries</i>	<i>Choice countries</i>
		(1)	(2)	(3)
Firm characteristics	Log assets	-0.153 *** (-25.28)	-0.085 *** (-12.97)	-0.145 *** (-20.49)
	Market-to-book	-0.130 *** (-10.31)	-0.135 *** (-9.30)	-0.134 *** (-9.31)
	Block >25%	0.002 ** (2.13)	0.002 ** (1.97)	0.002 *** (2.65)
	ROA	-0.022 (-0.41)	-0.190 *** (-3.16)	-0.008 (-0.13)
	Runup	-0.244 *** (-17.04)	-0.215 *** (-12.88)	-0.226 *** (-13.58)
	Z-score	-0.008 *** (-5.25)	-0.001 (-0.83)	-0.004 ** (-2.56)
	Leverage	0.087 *** (2.98)	0.154 *** (4.35)	0.196 *** (5.55)
	Financial crisis	0.039 (1.12)	-0.005 (-0.01)	0.002 (0.05)
	Fraction of rights offerings	1.487 *** (21.64)	2.835 *** (35.61)	1.561 *** (12.47)
	Choice country	0.249 *** (3.81)	-0.381 *** (-6.28)	
Country characteristics	GDP/capita		-2.24E-06 (-1.63)	
	Real interest		0.024 *** (4.84)	
	Debt/GDP		-0.003 *** (-5.45)	
	Market/GDP		-0.002 *** (-6.07)	
	FDI inflow/GDP		0.019 *** (5.69)	
	Preright			-1.220 *** (-4.47)
	Constant	1.603 * (1.86)	-0.026 (-0.16)	1.837 *** (5.91)
	Year	Yes	Yes	Yes
Fixed Effects	Country	Yes	No	Yes
N		22,651	14,824	15,371

Table 6. Announcement returns**Panel A: Cash versus rights issues**

Announcement return (-1,+1)		Cash offers		Rights issues		t-stat of difference
All countries	<i>n</i> = 22016	-1.02% ***		<i>n</i> = 15751	-0.42% ***	-4.47 ***
Choice countries	<i>n</i> = 18387	-0.96% ***		<i>n</i> = 8193	-0.66% ***	-1.72 *
No choice countries	<i>n</i> = 3629	-1.35% ***		<i>n</i> = 7558	-0.17%	-4.80 ***

Panel B: Trading versus non-trading rights issues

Announcement return (-1,+1)		Trading rights		Non-trading rights		t-stat of difference
Choice countries	<i>n</i> = 5150	-1.08% ***		<i>n</i> = 3043	0.05%	3.44 ***

Panel C: Small versus large firms

Announcement return (-1,+1)						t-stat of difference
<i>Choice countries</i>		Cash offer		Rights issue		
Small firms		-0.44% ***		-0.29%		-0.55
Large firms		-1.63% ***		-1.13% ***		-2.61 ***
<i>No choice countries</i>						
Small firms		-0.94% **		0.84% **		-2.79 ***
Large firms		-1.49% ***		-0.72% ***		-3.53 ***
<i>Choice countries</i>		Trading rights		Non-trading rights		
Small firms		-0.72% **		0.22%		1.93 *
Large firms		-1.41% ***		-0.31%		2.55 **

Table 7. Long-term abnormal returns**Panel A: Cash versus rights issues**

Cumulative abnormal returns - Ibbotson RATS methodology	Cash offers			Rights issues			t-stat of difference (cash /vs/ rights)		
	(1,12)	(1,24)	(1,36)	(1,12)	(1,24)	(1,36)	(1,12)	(1,24)	(1,36)
All countries	-20%	-41%	-57%	-13%	-24%	-35%	-1.83	-3.18	-3.61
Choice countries	-21%	-43%	-61%	-19%	-34%	-46%	-0.77	-1.98	-2.81
No choice countries	-13%	-26%	-34%	-5%	-10%	-20%	-1.61	-2.44	-1.78

Panel B: Trading versus Non-trading

Cumulative abnormal returns - Ibbotson RATS methodology	Trading rights issues			Non-trading rights issues			t-stat of difference		
	(1,12)	(1,24)	(1,36)	(1,12)	(1,24)	(1,36)	(1,12)	(1,24)	(1,36)
Choice countries	-16%	-28%	-38%	-23%	-41%	-55%	2.42	2.86	3.19

Table 8. 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
Panel A: Liquidity measures				
Right				
Bid-ask	28%	34%	0%	159%
Zero return days	27%	29%	0	93%
Amihud	1.50E-04	6.77E-04	0.00E+00	5.31E-03
Underlying				
Bid-ask	4%	6%	0%	34%
Zero return days	23%	20%	0%	100%
Amihud	1.57E-05	3.66E-05	0.00E+00	1.45E-04
Panel B: Underpricing				
% violated				
Close	17%	34%	0	100%
Ask	13%	31%	0	100%
Bid	14%	31%	0	100%
If violated, underpriced by				
Close	62%	34%	10%	100%
Ask	64%	33%	11%	100%
Bid	60%	34%	8%	100%
% risk arbitrage possible (no short sales)				
No transaction costs	9%	27%	0%	100%
Transaction costs	5%	18%	0%	92%

Table 9. Choice of offer type: Trading versus non-trading rights issues.

This table shows the results of probit regressions in which the dependent indicator variable is set equal to 1 if a trading rights issue is used and zero for a non-trading rights issue. The models presented are a Heckman model, in which the Inverse Mills ratio is retrieved from Table V (model 3). This table is based on a subsample of choice countries only. *, **, and *** denote statistical significance at (respectively) the 10%, 5%, and 1% level.

		Dependent variable = trading	
		(1)	(2)
Firm characteristics	Log assets	0.130 *** (4.11)	0.200 *** (7.58)
	Market-to-book	0.113 *** (2.80)	0.187 *** (4.78)
	Block >25%	0.000 (-0.01)	0.000 (-0.07)
	ROA	0.302 ** (2.34)	0.348 ** (2.43)
	Runup	0.040 (0.78)	0.086 * (1.89)
	Z-score	-0.009 ** (-2.25)	-0.012 *** (-2.93)
	Leverage	0.118 (1.43)	0.089 (0.97)
	% sold	0.442 *** (7.52)	0.593 *** (8.53)
	Amihud	-519.59 (-0.99)	-645.99 (-1.13)
	# Analysts	0.000 (0.36)	-0.001 (-0.99)
	Financial crisis	-0.249 ** (-2.48)	-0.178 (-1.59)
Country characteristics	GDP/capita		0.000 *** (-3.97)
	Real interest		-0.023 (-1.49)
	Debt/GDP		0.019 *** (8.68)
	Market/GDP		-0.004 *** (-4.45)
	FDI inflow/GDP		0.061 *** (5.25)
Constant	Constant	-0.823 * (-1.74)	-0.631 (-1.15)
Heckman	Inv.Mills (Table 5. model 3)	0.214 ** (0.81)	-0.145 (-1.27)
Fixed Effects	Year	Yes	Yes
	Country	Yes	No
N		3,154	2,425

Table 10. Subsequent performance: Cash versus Rights issues

Model Dependent variable Window Offertype	(1) Switching regressions Change in ROA Year 1 post minus pre offer		(2) Switching regressions Change in ROA Year 2 post minus pre offer		(3) Switching regressions Change in ROA Year 3 post minus pre offer		(4) OLS Change in ROA Year 2 post minus pre offer
	Cash	Rights	Cash	Rights	Cash	Rights	Both
Constant	-0.345*** (-9.77)	-0.214*** (-6.42)	-0.525*** (-11.07)	-0.227*** (-5.81)	-0.564*** (-11.69)	-0.206*** (-5.40)	-0.331*** (-9.85)
Rights							0.014* (1.93)
Log assets	0.026*** (14.73)	0.016*** (7.28)	0.033*** (13.50)	0.018*** (7.10)	0.037*** (14.31)	0.017*** (6.94)	0.025*** (16.63)
Block >25%	0.000 (0.68)	0.001** (2.06)	0.000 (0.36)	0.001** (2.25)	0.000 (1.17)	0.001** (2.51)	0.000 (1.47)
Change in free float	0.000 (-0.04)	-0.001 (-0.17)	-0.002 (-0.26)	-0.006 (-0.65)	0.007 (1.00)	0.003 (0.30)	-0.004 (-1.01)
Crisis	0.007 (0.41)	-0.005 (-0.21)	0.006 (0.27)	0.081*** (2.95)	0.021 (0.88)	0.042 (1.45)	0.024* (1.71)
Cross-listed	0.036*** (2.57)	-0.021** (-2.00)	0.043** (2.25)	-0.014 (-1.17)	0.011 (0.51)	-0.032*** (-2.74)	-0.01 (-1.11)
Past rights issues	-0.013 (-0.99)	-0.007** (-2.27)	0.014 (0.61)	-0.006* (-1.65)	0.098*** (3.01)	-0.005** (-1.45)	-0.005 (-1.60)
ROA (pre offer)	-0.272*** (-16.21)	-0.347*** (-15.67)	-0.217*** (-8.92)	-0.401*** (-15.09)	-0.301*** (-11.69)	-0.520*** (-20.14)	-0.268*** (-16.89)
Leverage	0.018* (1.83)	0.037*** (3.51)	0.073*** (5.30)	0.042*** (3.41)	0.070*** (4.92)	0.023* (1.91)	0.049*** (6.26)
Market-to-book	-0.014*** (-3.67)	-0.034*** (-5.82)	0.012** (2.32)	-0.029*** (-4.18)	0.005 (0.78)	-0.028*** (-4.11)	-0.002 (-0.50)
Year F.E.	Yes		Yes		Yes		Yes
N	20,798		17,072		14,080		20,727

Table 11. Subsequent performance: Trading versus non-trading rights issues

Model	(1)		(2)		(3)		(4)
Dependent variable	Switching regressions		Switching regressions		Switching regressions		OLS
Window	Change in ROA		Change in ROA		Change in ROA		Change in ROA
	Year 1 post minus pre		Year 2 post minus pre		Year 3 post minus pre		Year 2 post minus
	offering		offering		offering		pre offer
Trading	No	Yes	No	Yes	No	Yes	Both
Constant	-0.422*** (-3.28)	0.352*** (6.02)	-0.335** (-2.13)	0.391*** (5.07)	-0.565*** (-3.82)	0.584*** (7.43)	-0.441*** (-6.54)
Trading							0.057*** (3.24)
Log assets	0.060*** (5.93)	-0.015*** (-3.59)	0.068*** (-5.37)	-0.022*** (-4.15)	0.054*** (4.38)	-0.024*** (-4.42)	0.031*** (6.00)
Block >25%	0.000 (0.21)	0.001 (1.05)	0.000 (-0.02)	0.001 (0.85)	0.001 (0.73)	0.001 (1.14)	0.001 (1.38)
Change in free float	-0.037** (-2.04)	0.013 (0.94)	-0.031 (-0.89)	-0.024** (-2.33)	0.008 (0.27)	0.002 (0.10)	-0.013 (-1.07)
Crisis	-0.048 (-0.67)	0.022 (0.60)	0.024 (0.30)	0.005 (0.12)	0.055 (0.65)	-0.019 (-0.36)	0.101** (2.53)
Cross-listed	-0.056* (-1.94)	-0.021 (-1.45)	-0.073 ** (-2.07)	-0.016 (-0.94)	-0.06 (-1.07)	-0.007 (-0.44)	-0.061*** (-2.58)
Past rights issues	-0.002 (-0.34)	-0.007** (-1.96)	-0.005 (-0.58)	-0.003 (-0.60)	-0.032** (-2.33)	-0.002 (-0.32)	-0.003 (-0.48)
ROA (pre offer)	-0.660*** (-9.27)	-0.750*** (-19.47)	-0.604*** (-7.09)	-0.833*** (-17.25)	-0.807*** (-10.25)	-0.800*** (-16.49)	-0.382*** (-9.30)
Leverage	0.241*** (5.90)	-0.022 (-1.19)	0.159*** (3.10)	-0.010 (-0.44)	0.048 (0.93)	-0.083*** (-3.50)	0.055*** (2.56)
Market-to-book	0.020 (1.12)	-0.018** (-1.96)	0.064*** (2.99)	-0.041*** (-3.62)	-0.037 (-1.47)	-0.087*** (-7.32)	-0.019* (-1.86)
Inv.Mills							-0.015 (-0.66)
Year F.E.	Yes		Yes		Yes		Yes
N	2,940		2,530		2,717		3,502

Figure 1. Seasoned equity offers over time

Source: Securities Data Corporation.

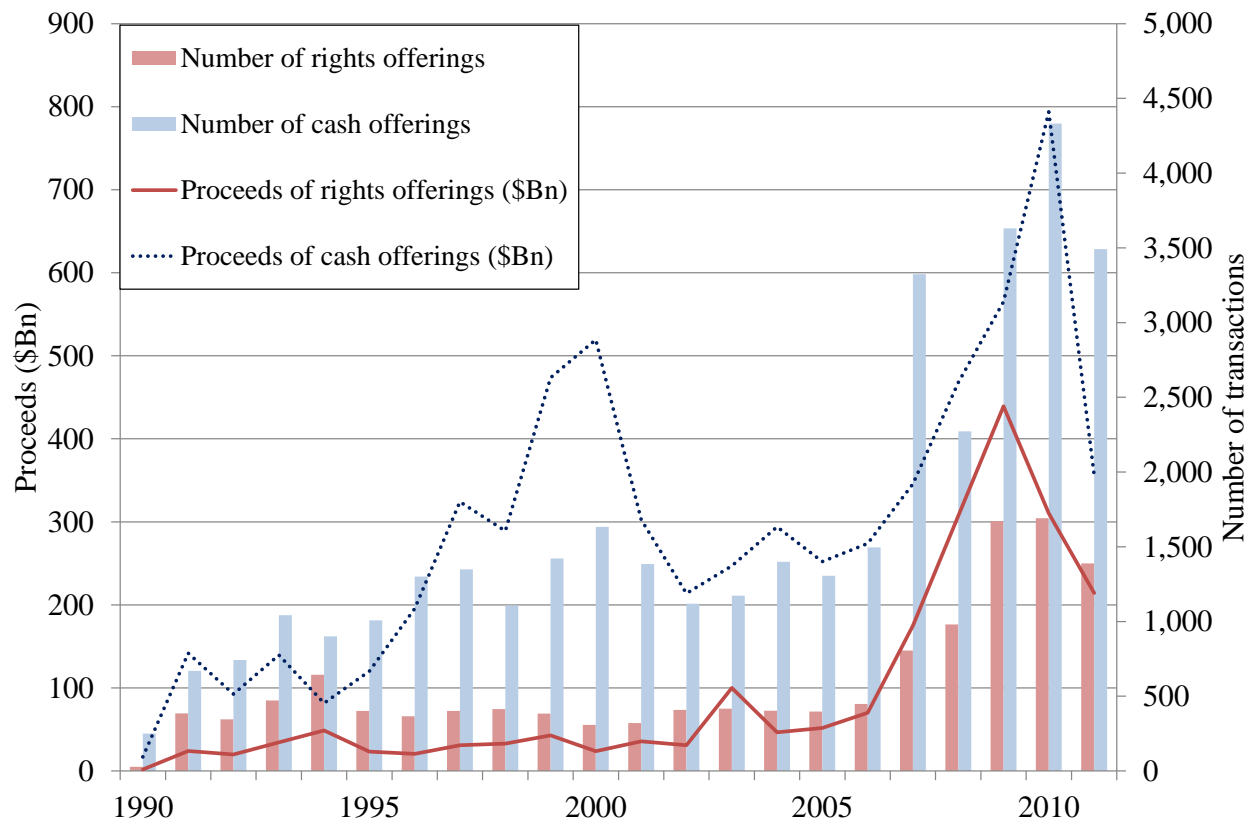


Figure 2. Long-term returns following the Ibbotson RATS methodology

Figure 2A: Choice countries

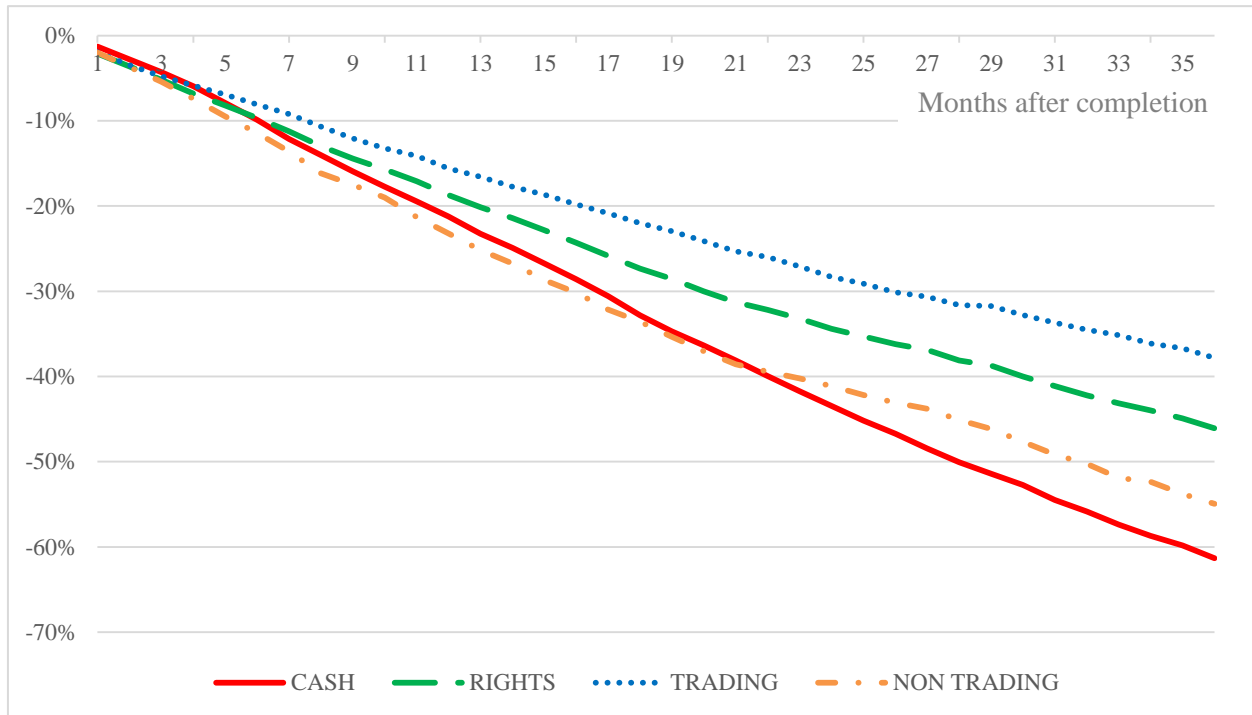


Figure 2B: No choice countries

