



Private contracting and corporate governance: Evidence from the provision of tag-along rights in Brazil

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ARTICLE INFO

Article history:

Received 14 September 2010

Received in revised form 10 March 2011

Accepted 16 March 2011

Available online 8 April 2011

JEL classification:

G32

G34

G38

Keywords:

Private contracting

Corporate governance

Brazil

Emerging markets

ABSTRACT

We identify two opposing effects of issuing equity with tag-along rights that secure an equal price in the event of a takeover. First, the anti-self dealing effect commits controlling owners to sell only to new owners that increase shareholder value. Second, the rent transfer effect shifts rents to existing unprotected minority owners. The institutional setting in Brazil's stock market allows us to test this trade-off. We find that announcements of tag-along rights are associated with an average cumulative abnormal return of around 5%, and that the probability of issuing shares with tag-along rights increases with the cost of self-dealing and decreases in the share of existing unprotected minority investors. Overall, our analysis confirms that private contracting can mitigate the economic costs associated with the inadequate legal protection of investors in emerging markets.

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1. Introduction

Investor protection is a key to continued financial development and economic growth in South America and other emerging markets (Beck et al., 2000; King and Levine, 1993; La Porta et al., 1997, 1998; Mahoney, 2001). Prior literature demonstrates that investor protection on the country level is shaped by institutions, such as legal origin and colonization. However, little is known about the efficiency of private contracting in mitigating firm-level distortions arising from inadequate protection of minority investors. In this study, we analyze controlling owners' incentives to voluntarily give up the right to future expropriation of minority owners by focusing on why firms issue shares with tag-along rights. A tag-along right is the private contracting equivalent to an equal (or fair) price provision, which is absent in the takeover legislation of many emerging countries (Nenova, 2006).¹

We theoretically identify two opposing effects of issuing shares with tag-along rights. First, the controlling owner's benefit arises from the *anti-self dealing* effect. In the absence of tag-along rights, a bidder who creates less shareholder value may offer a premium to the controlling owner in order to expropriate minority owners. The threat of such future expropriation reduces the current security price and, therefore, lowers the revenue from equity issues against the interests of the controlling owner. Thus,

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¹ Countries without equal or fair-price provisions include: Armenia, Azerbaijan, Brazil, Chile, Columbia, Ecuador, Egypt, Ghana, Jordan, Kenya, Kuwait, Nigeria, Pakistan, Romania, Spain, Uruguay and Venezuela.

tag-along rights benefit the controlling owner by being a commitment device to avoid future self dealing. Second, the controlling owner's cost is captured by the *rent transfer* effect. Tag-along rights transfer rents from the controlling owner to existing – and otherwise unprotected – minority owners.

The institutional setting in Brazil's stock market allows us to test the implications of our theoretical analysis using data from equity offerings. We find that announcements of tag-along rights give rise to a positive abnormal return of approximately 5%. The value of tag-along rights in the event of a takeover is significantly higher because the announcement return equals the product of the probability of a takeover attempt and the expected takeover premium.

We also provide evidence of the theoretical trade-off. Tag-along rights are beneficial when the anti-self dealing effect dominates the rent transfer effect. This occurs when the group of existing minority owners is small relative to the size of the equity issue. Consistently, we find that companies that issue shares with tag-along rights have smaller groups of existing minority owners, offer larger claims and are more likely to issue new shares (primary offerings) than companies offering shares without tag-along rights. In cases where there are no existing minority owners, we document that firms always issue shares with tag-along rights.

We believe that the utilization of tag-along rights in Brazil serves as an important example of private contracting for at least four reasons. First, tag-along rights are a voluntary instrument commonly used by controlling owners to increase investor protection for minority owners in South America and many other emerging markets.² Second, most private contracts are hard for researchers to observe because of the difficulty of obtaining data. In Brazil, however, equity issues with tag-along rights are publicly announced. Third, Brazil is known to have poor investor protection (Djankov et al., 2008) and high private benefits of control (Dojidge, 2004; Dyck and Zingales, 2004; Nenova, 2003). Together, these factors increase the scope for contractual corporate governance. Fourth, recent regulation of the governance system in Brazil has created an almost ideal laboratory for the study of private contracting as a substitute for legal investor protection. Prior to 1997, Brazilian corporate law included a mandatory offer provision requiring an equal price for all voting shares. In 1997, the mandatory offer provision was revoked. After pressure from institutional investors, the mandatory offer provision was partially reinstated in 2000 with an 80% equal price threshold. In response to these changes, the Brazilian stock exchange, BOVESPA, introduced tiered listing requirements that incorporate the possibility of extending tag-along rights to minority investors.

Two cases illustrate controlling owners' ability to expropriate non-controlling owners in the absence of an equal price provision or tag-along rights. The first is from Brazil. In November 2000, the Brazilian government, which was the controlling owner of Banespa bank (66.7% of voting shares and 33.3% of the total cash flow rights), decided to sell its stake to the Spanish bank Banco Santander Central Hispano. Banco Santander's offer for the voting shares was 912% above the current share price. The lack of mandatory tender offer and equal-price provisions in the Brazilian legislation made it possible for Banco Santander to make a tender offer for the government's shares only, excluding the residual voting shareholders and the preference shareholders.³

The second example is Endesa España's takeover of Chile's largest private energy sector holding company, Enersis S.A. In August 1997, Endesa made a tender offer to Enersis shareholders for the purchase of voting shares for USD 253.34 per share⁴ and of non-voting preference shares (with high dividend rights) for USD 0.30 per share. Prior to the tender offer, Enersis was controlled by five investment funds, which themselves were controlled by the former management and employees of Enersis. These funds held the voting shares, which represented 0.06% of the cash flow rights. However, Endesa España's proposed takeover offer would split the value of Enersis, with 84% going to the controlling owners and 16% to the minority owners.⁵

Collectively, these examples highlight the vulnerability of minority investors in the absence of tag-along rights. To compensate for potential expropriation, minority investors require a discount on the share price up front. Thus, these examples also serve to illustrate the potential benefit of the anti-self dealing effect of tag-along rights.

The paper proceeds as follows. Section 1 presents a review of research to date on contractual corporate governance, while Section 2 builds a simple model that provides testable results characterizing a controlling owner's incentive to issue shares with tag-along rights. Section 3 describes our empirical data and tests the implication of our model. Section 4 presents our conclusions.

1.1. Related literature on contractual corporate governance

Our theoretical analysis is closely linked to Chemla et al.'s (2007) analysis of shareholder agreements. Chemla et al. use option arguments to suggest a rational economic explanation for many common clauses in shareholder agreements, including put and call options, tag-along and drag-along rights, demand and piggy-back rights, and catch-up clauses. In their model – as in our model below – tag-along rights are given when the founder internalizes all future distortion in resource allocation. Our approach differs primarily in that we develop and test the economic implications of this theoretical model.

² A search of Factiva and Lexis-Nexis provides evidence of tag-along rights being granted to minority investors of publicly held firms in Argentina, Brazil, Columbia, Kuwait, Mexico (prior to the 2002 reform), Romania, Russia and Venezuela.

³ Other examples of takeovers in Brazil in which minority investors suffered the same fate include the 2002 takeovers of the brewing group Quilmes by Ambev of Brazil and the takeover of the natural resource group Perex Compagny by Petrobras.

⁴ Holders of voting shares were also offered options to purchase shares in Endesa España at a discount. For simplicity, we ignore the value of these options.

⁵ The voting shares are entitled to 0.06% of the cash flow rights and are offered 253.34 USD per share. Similarly, non-voting preference shares are entitled to 99.94% of the cash flow rights and are offered 0.3 USD per share. For each million of outstanding shares, Enersis would have to pay $0.0006 \cdot 253.34 = 1.520$ million USD to the controlling group and $0.9994 \cdot 0.3 = 0.298$ million USD to the preferred shareholders. Thus, the firm value would be split 84%/16% in favor of the controlling group.

On the empirical side, our study is related to three recent studies that focus on the legal changes in Brazil. [Nenova \(2005\)](#), and [Da Silva and Subrahmanyam \(2007\)](#) examine the relative price differences between voting and non-voting shares in relation to the legislative changes in 1997 and 2000. [Nenova \(2005\)](#) finds that the removal of the mandatory bid rule increases the control premium and views this as evidence that the change made it easier for controlling shareholders to expropriate minority shareholders. Using a large sample of firms, [Da Silva and Subrahmanyam \(2007\)](#) find that the first (second) legislative change decreased (increased) the control premium. They argue that the expropriation effect is dominated by the lower premium on minority shares in the event of a takeover. The control premium, therefore, increases when investor protection is enhanced. [De Carvalho and Pennacchi \(2010\)](#) analyze the migration of Brazilian firms to the tiered listing segments created by BOVESPA in 2000, and find that migration provides shareholders with positive abnormal results and increases the trading volume of non-voting shares. Furthermore, migration is more likely among large, profitable firms that have experienced positive growth. Thus, migration to tiered listings occurs because of a desire to issue equity in the future and it provides an alternative bonding mechanism to cross-listing abroad.

We depart from these studies by explicitly considering the controlling owners' incentives to issue shares with tag-along rights. We theoretically and empirically identify an important trade-off between the desire to expropriate and the cost of rent transfers. While at first glance our study appears to be close to [De Carvalho and Pennacchi \(2010\)](#), our results cannot be explained by migration alone for two reasons. First, we identify a positive stock price reaction over and above the effect of migration by focusing on variation in the use of tag-along rights within listing segments. Second, we show that the desire to grant tag-along rights depends on the trade-off between the desire to expropriate and the cost of transferring rents to existing minority investors. As a result, not all equity-issuing firms will benefit from the granting of tag-along rights.

On a broader scale, our analysis is related to some of the literature on private contracting. [Easterbrook and Fischel \(1991\)](#) consider the interaction between corporate law and the private provision of investor protection. They find that the scope for private contracting is shaped by the content of corporate law and legal praxis. [Bergman and Nicolaievsky \(2007\)](#) provide a theoretical analysis that endogenizes the degree of private investor protection as a function of variation in legal regimes.

Empirical studies support the idea that private contracting is affected by the degree of legal investor protection. [DeAngelo et al. \(1994\)](#) rely on US data to show that private debt contracts are more detailed than those for public debt. Similarly, [Lerner and Schoar \(2005\)](#) identify cross-country variation in the organization of private equity investment and find that these variations relate to the degree of investor protection in corporate law. Correspondingly, a number of articles examine firms' incentives to deviate from their national corporate governance standards by opting into other systems either through cross-border mergers or through acquisitions, re-incorporations or cross-listings (see the survey by [Goergen and Renneboog, 2008](#)).

Our analysis differs in that we do not focus on cross-country variation in legal protection. Instead, we focus on the cost and benefits for controlling owners of offering extended investor protection given a certain level of legal investor protection. Whereas we concede that these costs and benefits are shaped by the degree of legal investor protection, our approach emphasizes the trade-off in the incentives that are present in the controlling owner's choice.

2. A model of tag-along rights

In this section, we present a simple framework for analyzing the controlling owners' incentives to provide minority owners with private protection. The model focuses on the controlling owner's decision to issue shares with or without tag-along rights. In keeping with the legal approach adopted in many countries, we define a tag-along right as the right to receive the same price for shares as the controlling owner in any future sale of controlling ownership blocks.

The model focuses on three key dates. The firm consists of a controlling owner, which we denote as the founder, f , and a group of (old) minority owners, who possess a cash flow stake of $\alpha_o \geq 0$. At Date 1, the founder issues a stake, α_n , of the firm to a new group of minority owners. We assume that the old and new minority owners are different, and that neither of the groups possesses control rights with the exception of any tag-along rights granted by the controlling owner. If the firm keeps its current controlling owner, this controlling owner is able to create value of V at Date 2. We assume that the controlling owner cannot divert any cash flow and, therefore, pays out V to the owners in accordance with their cash flow rights.

Assume that a potential buyer arrives at Date 1 after the founder has sold shares to the new minority owners but before any value is realized. This potential buyer makes an offer for the founder's stake and the minority owners' stakes. We assume that the buyer can also generate value V . However, to introduce the role of tag-along rights, we assume that the buyer is a worse owner-manager than the founder because he can divert cash flow, $d > 0$, at no cost.⁶

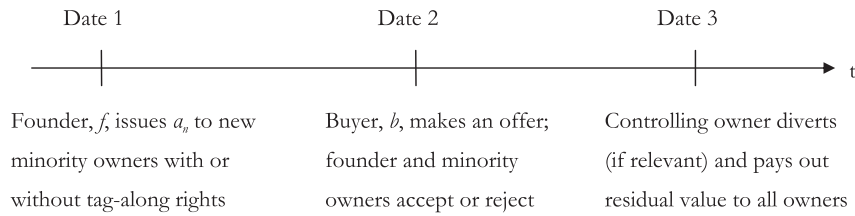
The buyer offers a price, p_f , for one unit of the controlling owner's stake and a price, p_m , per unit of minority ownership. The founder receives $(1 - \alpha_o - \alpha_n)p_f$ for his stake in the firm, and the two groups of minority owners receive $\alpha_o p_m$ and $\alpha_n p_m$ for their stakes, respectively. We make the natural assumption that the founder has bargaining power in a sale situation but that the minority owners do not. We therefore assume that the potential acquirer and the founder find a price, p_f , at which rent is shared equally between them and that the minority owners receive a take-it-or-leave-it offer. We further assume that minority owners

⁶ Extending this simplified model is straightforward. For instance, we can assume that the original owner and the potential acquirer can divert cash flow as long as the potential acquirer can divert more cash flow than the controlling owner. Similarly, we can assume that the potential acquirer creates less value than the founder. Alternatively, we can assume a distribution of potential buyers that are heterogeneous in how much value they can create and allow for the possibility that some of them can create more value than the founder. The present assumption has been chosen to simplify the algebra and the intuition described below.

are willing to sell as long as the price weakly exceeds the value of staying on as minority owners. From our definition of tag-along rights as an equal price rule, it follows that $p_m = p_f$ if the firm has granted tag-along rights to minority investors.

The following timeline illustrates the model:

Timeline



The model is solved through backward induction. The minority owners will pay a price for the new shares at Date 1 that is no higher than the expected value of the shares at Date 3.

2.1. No existing minority owners

We begin with the simplified case in which there are no existing minority owners, i.e., $\alpha_o = 0$.

Proposition 1. Assume $\alpha_o = 0$ and the founder wishes to issue a minority fraction α_n . Then:

- a) The founder's payoff decreases in the size of the stock issue (α_n) when shares are issued without tag-along rights, and
- b) The founder will always issue shares with tag-along rights.

Proof. First, assume the founder issues shares without tag-along rights. The founder will sell shares if, and only if, $(1 - \alpha_n)p_f \geq (1 - \alpha_n)V \Leftrightarrow p_f \geq V$. The buyer will buy if, and only if, $(1 - \alpha_n)p_f + \alpha_n p_m \leq V$. The buyer will offer the minority owners a price that equals the continuation value given a sale where $p_m = (1 - d)V$. The buyer will therefore extract rents of $\alpha_n dV$ from the minority owners. This rent will be shared with the founder through the price negotiation, which implies that:

$$(1 - \alpha_n)p_f = (1 - \alpha_n)V + \frac{1}{2}\alpha_n dV \Leftrightarrow p_f = V + \frac{1}{2}\frac{\alpha_n}{1 - \alpha_n}.$$

The payoff for the buyer is:

$$\Pi_b^{-TA} \equiv V - (1 - \alpha_n)p_f - \alpha_n p = \frac{1}{2}\alpha_n dV.$$

The founder issues α_n shares at Date 1 for the security price $S^{-TA} = (1 - d)V$, which is the residual value for the minority owners after a sale of the company at Date 2. Thus, the total payoff for the founder, Π_f , becomes:

$$\begin{aligned} \Pi_f^{-TA} &\equiv \alpha_n S^{-TA} + (1 - \alpha_n)p_f = \alpha_n(1 - d)V + (1 - \alpha_n)V + \frac{1}{2}\alpha_n dV \\ &= V - \frac{1}{2}\alpha_n dV. \end{aligned}$$

This proves part a) of the proposition.

Second, assume that the founder issues shares with tag-along rights. In this case, the buyer has to offer an equal price for all shares. We denote the equal price as $p = p_f = p_m$. The condition for the founder to sell his/her shares is: $(1 - \alpha_n)p \geq (1 - \alpha_n)V$. The condition for the buyer to be willing to buy the shares remains: $p \leq V$. This is only satisfied for $p = V$, at which point the founder and the minority owners are willing to sell. Given that this price is offered at Date 2, the security price per unit at Date 1 will be $S^{+TA} = p$ and the expected payoff, Π_f^{+TA} , for the founder is V .

The benefit of issuing shares with tag-along rights is:

$$\begin{aligned}\Delta_{TA} &\equiv \Pi_f^{+TA} - \Pi_f^{-TA} = V - \left(V - \frac{1}{2} \alpha_n dV \right) \\ &= \frac{1}{2} \alpha_n dV > 0 \forall \alpha_n > 0.\end{aligned}$$

□

This proposition is intuitive. The basic force at play is the *anti-self dealing* effect. The founder internalizes all future value creation and rent extraction through the price of the minority shares. Without tag-along rights, a potential buyer can buy the firm and exploit the minority owners through the diversion of corporate resources. The rent that the buyer extracts is shared with the founder in order to persuade the founder to sell the firm after the share issue. However, the founder cannot commit not to sell the firm because the potential buyers of the minority shares at Date 1 have recognized this possibility and demanded a discount in the security price up front. Hence, the founder internalizes the cost of being unable to commit not to sell the firm ex-post. As we have assumed that the two types of controlling owners generate the same firm value, there is no social loss if tag-along rights are not granted to minority investors. However, a failure to issue such rights entails a cost for the founder, as he shares the ex-post private benefit with the future buyer of the firm. Hence, the issuance of shares with tag-along rights represents an ex-ante commitment not to sell the firm ex-post unless that sale will create positive social value.

2.2. Existing minority owners

Next, we analyze the situation in which a group of old minority owners, $\alpha_o > 0$, exists but has no tag-along rights.

Proposition 2. Assume that there exist minority owners, $\alpha_o > 0$, without tag-along rights before the founder makes a share issue of α_n shares. Then:

- The founder's payoff from issuing shares without tag-along rights relative to not issuing shares decreases in α_n .
- The founder's payoff from issuing shares without tag-along rights relative to not issuing shares increases in α_o .
- The founder will not provide tag-along rights on share issues if, and only if, $\alpha_o > \alpha_n$.

Proof. First, assume the founder issues shares without tag-along rights. After the issue, the founder sells if $(1 - \alpha_n - \alpha_o)p_f \geq (1 - \alpha_n - \alpha_o)V \Leftrightarrow p_f \geq V$. The buyer offers the minority owners the continuation value of staying in the firm, i.e., $p_m = (1 - d)V$. The buyer extracts rents of $(\alpha_n + \alpha_o)dV$ from the minority owners. This rent is shared with the founder through price negotiation, implying that:

$$p_f = V + \frac{1}{2} \frac{\alpha_n + \alpha_o}{1 - \alpha_n - \alpha_o} dV.$$

The security price for the minority shares (those held by both new and existing minority owners) is $S^{-TA} = (1 - d)V$, which is the residual value for the minority owners after a sale of the company at Date 2. The payoff for the buyer is:

$$\Pi_b^{-TA} \equiv V - (1 - \alpha_n - \alpha_o)p_f - (\alpha_n + \alpha_o)p_m = \frac{1}{2}(\alpha_n + \alpha_o)dV.$$

The founder issues α_n shares at Date 1 for the security price S^{-TA} . Thus, the total payoff for the founder, Π_f , becomes:

$$\begin{aligned}\Pi_f^{-TA} &\equiv \alpha_n S^{-TA} + (1 - \alpha_n - \alpha_o)p_f \\ &= \alpha_n(1 - d)V + (1 - \alpha_n - \alpha_o) \left(\frac{1}{2} \frac{\alpha_n + \alpha_o}{1 - \alpha_n - \alpha_o} dV \right) \\ &= (1 - \alpha_o)V + \frac{1}{2}(\alpha_o - \alpha_n)dV.\end{aligned}$$

The founder's payoff from issuing shares without tag-along rights relative to not issuing shares is $\Delta_{TA} = \Pi_f^{-TA} - (1 - \alpha_o)V = \frac{1}{2}(\alpha_o - \alpha_n)dV$, which increases in α_o and decreases in α_n . This proves parts a) and b) of the proposition.

Second, assume that the founder issues new shares with tag-along rights. In this case, the buyer offers $p = p_f = p_m$ for both share classes. The condition for the founder to sell after the issue is: $(1 - \alpha_n - \alpha_o)p \geq (1 - \alpha_n - \alpha_o)V$. The condition for the buyer to buy is: $p \leq V$. Hence, the acquisition price will be $p = V$, at which price the founder and the minority owners will be willing to sell. Given this price, the security price per share at Date 1 will be $S^{+TA} = p$ and the founder's expected payoff, Π_f^{+TA} , is $(1 - \alpha_o)V$. The benefit of issuing shares with tag-along rights is:

$$\Delta_{TA} \equiv \Pi_f^{+TA} - \Pi_f^{-TA} = -\frac{1}{2}(\alpha_o - \alpha_n)dV < 0 \Leftrightarrow \alpha_o > \alpha_n.$$

□

The intuition behind Proposition 2 is that, in addition to the *anti-self dealing* effect, the issuance of shares with tag-along rights transfers rent from controlling owners to existing minority owners. The provision of tag-along rights ensures that the firm ends up with a controlling owner that diverts fewer corporate resources. As explained in the development of the intuition for Proposition 1, this is beneficial for the owner in itself. However, the cost of issuing tag-along rights is the transfer of rent from the founder to the old – previously unprotected – minority owners. This rent transfer effect is an externality for the founder and increases in the size of the old minority claims. Part b) shows that when this externality is too large, the founder will prefer to issue shares without tag-along rights even though he recognizes the possibility that he could sell the firm to a new buyer that diverts more.

The condition $\alpha_o > \alpha_n$ is intuitive. Without tag-along rights, both groups of minority owners will be exploited ex-post, and the founder and the buyer will share the derived rent equally. The rent extracted from the old minority owners increases both the founder's and the buyer's payoffs. However, the rent extracted from the new owners decreases the founder's payoff because it is reflected in the security price of the issue at Date 1. Thus, the founder internalizes the rent that the new buyer extracts from the new minority owners. In cases where $\alpha_o > \alpha_n$, the rent that the new owner extracts from the old minority group exceeds the rent extracted from the new group. However, the founder receives half of the rent extracted from the old group but pays half of the rent extracted from the new group ex-ante. Hence, the founder prefers not to introduce tag-along rights whenever the old group is larger than the new group.

It is worth emphasizing that the main premises of our model are that tag-along rights cater to all shareholders and that minority owners are atomistic. One possible solution to the problem might be three-way bargaining in which old minority shareholders pay something, either in cash or through a share conversion, to the founder in exchange for expanded rights. However, if old minority shareholders are atomistic, a free-rider problem arises. All shareholders benefit from tag-along rights but no individual shareholders would incur the cost of such bargaining because the likelihood of being pivotal is zero.⁷

The expected value of the existing minority owners' ownership stake strictly increases by the amount of added protection induced by tag-along rights. Thus, when shares are traded, the following corollary holds:

Corollary 1. Issuing shares with tag-along rights increases the security price of the existing minority shares.

A comparison of Propositions 1 and 2 provides the main insight of our model. In the absence of any externality, security prices will reflect any potential future rent extraction in the firm. When the founder owns the whole corporation, he will internalize all future rent extraction and will, therefore, implement the best possible protection for all share classes through private contracting. When founders do not implement the strongest possible protection, it is because an externality is present. In our case, this externality is the transfer of rent to existing unprotected minority owners.

2.3. Empirical implications

The two propositions and the corollary presented above give rise to a number of empirically refutable implications.

Hypothesis 1. If a firm is publicly traded, the issuance of shares with tag-along rights increases the market value of the firm.

Hypothesis 1 follows directly from Proposition 2. The market value is the value of the firm based on what marginal investors pay. As the marginal investor is a minority owner and as existing minority owners' continuation value increases when new shares are issued with tag-along rights, the stock price reaction must be positive. In the proof of Proposition 2, this reaction is reflected in $S^{+TA} - S^{-TA} > 0$.

Hypothesis 2. If a firm is owned by a single shareholder, all equity offerings will extend tag-along rights to minority investors.

Hypothesis 2 follows directly from Proposition 1. As the cost of future rent extraction will be reflected in the security price of the new share issue and as the owner cannot internalize all of the benefits of future rent extraction, it is optimal for a single owner to protect the new minority owners as well as possible. This is done through the issuance of shares with tag-along rights.

Hypothesis 3. Conditioned on the size of the issue, companies that issue shares with tag-along rights have a smaller group of existing minority shareholders than companies that issue shares without tag-along rights.

Hypothesis 3 follows from Proposition 2c. The cost of tag-along rights increases as the size of the group of existing minority owners increases. The benefit increases in the size of the new group of minority owners. Hence, for a given new issue, the incentive to use tag-along rights decreases as the size of the group of existing minority owners increases.

Hypothesis 4. Companies that issue shares with tag-along rights undertake larger share issues than companies that issue shares without tag-along rights.

⁷ To see that three-way bargaining is impossible, assume that the founder grants tag-along rights conditional on compensation (e.g., a share conversion or a fee). We claim that the main trade-off described in Proposition 2 is not affected by introducing such mechanisms. This follows from studying the two cases of Proposition 2. First, if $\alpha_n \geq \alpha_o$, the minority owners know that shares will always be issued with tag-along rights. Hence, no minority owner will pay for tag-along rights. Second, if $\alpha_o > \alpha_n$, new shares will not be issued with tag-along rights in the absence of bargaining. However, each atomistic shareholder has zero probability of being pivotal. Thus, the dominant strategy is to reject any bargaining proposal that conditions tag-along rights on a share conversion or a payment from minority owners. In both cases, we conclude that there is no scope for a three-way bargaining solution.

Hypothesis 4 is consistent with Proposition 2. A larger share issue increases the incentives to use tag-along rights.

Hypothesis 5. If the controlling owners of firms with disproportional ownership structures internalize less cash flow than the controlling owners of firms with proportional ownership structure, then it follows that companies issuing shares with tag-along rights have less disproportional ownership structures than companies issuing shares without tag-along rights.

Hypothesis 5's assumption about disproportional ownership is empirically verifiable and true in most countries (see Bennedsen and Nielsen, 2010, for evidence from European countries). As a smaller cash flow stake implies that there are more existing minority owners in the firm, the result is a reduction in the founder's incentives to issue shares with tag-along rights.

3. Evidence from the provision of tag-along rights in Brazil

We test our five hypotheses on equity issues in Brazil. Prior to 1997, Brazilian law protected minority voting shareholders through a mandatory offer provision applicable to all voting shares upon acquisition of control or the crossing of a 50% voting power threshold. This mandatory offer provision required the buyer to offer a price equal to the purchase price of the controlling block. In addition, if the offer was extended to non-voting shares, the law required a minimum price for those non-voting shares equal to the book value per share.

In the late 1990s, the Brazilian government initiated a major privatization program. To avoid lawsuits from unsatisfied minority owners after the privatization of controlling government stakes in public companies, the government adopted Law 9457/1997 in May 1997. Law 9457/1997 revoked the mandatory offer at an equal price provision.⁸ In October 1999, however, pressure from local pension funds and international institutional investors resulted in the adoption of Law 10.303 by the Securities and Exchange Commission of Brazil. Law 10.303 reinstated the mandatory offer provision for voting shares at the 80% threshold, while preference shares were left unprotected.

In early 2000, the São Paulo stock exchange operator, BOVESPA, decided to take the measure one step further by introducing tiered listings, which provided firms with an opportunity to improve the protection of minority investors. The new listing categories (Level 1, Level 2 and Novo Mercado) reflect graduated levels of voluntary disclosure and shareholder rights beyond the traditional listing requirements. A Level 1 listing requires that firms disclose information beyond BOVESPA's basic requirements, while Level 2 also requires companies to present their financial statements in accordance with US GAAP. A Novo Mercado listing requires enhanced corporate governance and disclosure. More importantly, Level 2 requires that companies extend 70% tag-along rights to non-voting shares, while a listing on Novo Mercado makes 100% tag-along rights mandatory. In February 2006, BOVESPA introduced more stringent requirements for Level 2 and Novo Mercado listings. The enhanced requirements include corporate governance aspects (e.g., a requirement that 20% of directors be independent) and raise the mandatory tag-along provision for preferred shares for Level 2 to 80%.⁹

3.1. Data and sample selection

We combine data from five sources to empirically investigate the incentive to issue tag-along rights in Brazil. First, we identify companies that have granted tag-along rights using data from the São Paulo Stock Exchange (BOVESPA), which publishes an up-to-date list of firms that have voluntarily extended tag-along rights to minority shareholders. The list provides information on the corporate resolution and the date of the event, as well as information on whether the firm extended full or partial tag-along rights. We supplement this information with a news search in order to identify the event's announcement date. Second, we obtain stock prices around the announcements of tag-along rights from Bloomberg. Third, data on equity issues are taken from the Securities and Exchange Commission of Brazil (Comissão de Valores Mobiliários, or CVM). These data include information on the date of the issue, and the issue's size, type and form. Fourth, we obtain information on the ownership structure prior to the issue from the firm's yearly CVM filings, which are equivalent to statements of beneficial ownership made using SEC forms 13D and Def 14As in the United States. Part 3 of the CVM filing includes information on the largest shareholders and on the definition of the controlling group according to the company's shareholder agreement. Finally, data related to accounting variables are provided by InfoInvest (www.infoinvest.com.br).

Our empirical analysis has two parts. First, we perform an event study of the stock price reaction to announcements by firms granting tag-along rights to minority investors. Second, we analyze the trade-off between the costs and benefits of issuing shares with tag-along rights. In both cases, we restrict the sample to announcements and offerings made from January 2000 to December 2006. The sample, therefore, covers the period during which the tiered listing system made it possible for firms to credibly grant tag-along rights to minority investors. Moreover, this restriction allows us to avoid spurious correlations driven by the period between the two legal reforms (1998–1999).

Panel A in Table 1 shows the development of the Brazilian stock market from 2000 to 2006. Although the number of firms decreased from 534 to 381, the size of the Brazilian stock market increased significantly with market capitalization rising from

⁸ Law 9457/1997 abolished requirements to disclose the price of sales of 5% blocks of voting stock or more, including controlling blocks. It also repealed Article 254, which provided for a mandatory offer for all outstanding voting shares in cases of a transfer of control at the same price and under the same terms as the control block sale. Finally, the law eliminated withdrawal rights in most cases, including most mergers and spin-offs, and lowered the price at which shareholders could withdraw in cases where withdrawal rights were still effective. Non-voting shares have never been subject to a mandatory offer under Brazilian law. See Black et al. (2008) for a comprehensive overview of corporate governance in Brazil in general, and Nenova (2005a), and Da Silva and Subrahmanyam (2007) for a detailed overview of the legal reform.

⁹ See De Carvalho and Pennacchi (2010) for detailed information and an analysis of the subsequent migration of firms to the tiered listing segments.

Table 1
Development of the Brazilian stock market, 2000–2006.

	2000	2001	2002	2003	2004	2005	2006	Total
<i>A. Market development</i>								
Market capitalization (USDbn)	225	185	124	234	341	482	723	
Number of listed firms	534	495	468	426	410	390	381	
Number of IPOs	1	1	1	0	7	9	26	45
<i>B. Announcements of tag-along rights</i>								
All announcements	1	0	29	4	10	17	31	92
Regular listing	1	0	14	3	0	0	1	19
IPO	1	0	0	0	0	0	0	1
Existing firm	0	0	14	3	0	0	1	18
Level 1 listing	0	0	9	1	1	4	0	15
IPO	0	0	0	0	0	0	0	0
Existing firm	0	0	9	1	1	4	0	15
Level 2 listing	0	0	3	0	4	2	5	14
IPO	0	0	0	0	1	1	3	5
Existing firm	0	0	3	0	3	1	2	9
Novo Mercado listing	0	0	3	0	5	11	25	44
IPO	0	0	0	0	3	7	21	31
Existing firm	0	0	3	0	2	4	4	13
<i>C. Equity offerings</i>								
All offerings	17	14	17	4	13	18	33	116
Sample of offerings	13	10	17	4	11	17	27	99
With full tag-along rights	1	0	7	0	9	13	24	54
With partial tag-along rights	0	0	4	0	1	0	1	6

This table shows the development of the Brazilian stock market from 2000 to 2006. Panel A reports total market capitalization in USD billions, the number of listed firms and the number of IPOs. Panel B reports the number of announcements of tag-along rights by listing segment. Panel C reports the number of equity offerings, and whether the firm extended full or partial tag-along rights to shareholders. Firms extend full tag-along rights when: a) all share classes are included and b) the price threshold is 100%. Firms extend partial tag-along rights when: a) not all share classes are included or b) the price threshold is below 100%.

USD 225 billion to USD 723 billion. The number of IPOs was relatively modest but increased significantly toward the end of the period. Only 3 firms undertook an IPO between 2000 and 2003, while 42 did so between 2004 and 2006.

Some Brazilian companies extended full tag-along rights with a 100% threshold for both voting and non-voting shares, whereas other firms extended partial rights by either including only voting shares or by lowering the threshold. The variation in the tag-along right thresholds is partially caused by the listing segments. Firms listed on the Novo Mercado segment can only issue voting shares with full tag-along rights, whereas firms listed in Level 2 are allowed to issue non-voting shares with at least 70% (or 80% as of 2006) tag-along rights. Firms listed on Level 1 and firms with traditional listings are only required to follow the mandatory provision of 80% tag-along rights for voting shares.

Panel B in Table 1 shows that 92 firms granted tag-along rights to investors from 2000 to 2006. 71% of these firms had a confounding equity issue, which is consistent with the theoretical argument in our model. Among those firms without a confounding equity issue between 2000 and 2006, the majority subsequently raised equity or intend to do so. 44 firms listed on Novo Mercado granted tag-along rights, while the corresponding figures for Level 2 and Level 1 were 14 and 15. 19 firms with a regular listing granted tag-along rights. All 58 firms listing on either Novo Mercado or Level 2 extended 100% tag-along rights to voting shares, while only 7 of the 15 (2 out of 19) listing on Level 1 (regular) extended full tag-along rights. For Level 2 listings, 10 of 14 firms provided full tag-along rights to non-voting shareholders, while 4 out of 14 (2 out of 18) listing on Level 1 (regular) provided full rights.

Panel C in Table 1 focuses on equity-issuing firms. In total, 116 equity offerings occurred between 2000 and 2006. In our empirical analysis of the determinants of the decision to issue shares with tag-along rights, we exclude offerings that: a) are made by companies that already have full tag-along rights prior to the offering or b) are small OTC offers for which no reliable data sources exist. These restrictions lead to the exclusion of ten and seven offerings, respectively. Thus, our dataset (the sample of offerings) consists of 99 observations of equity offerings. The distribution over time is shown in Panel B in Table 1. The number of offerings averages approximately 15 in most years. The main exceptions are 2003 and 2006, during which there were 4 and 33 offerings, respectively.

Panel C shows that 54 of the 99 issuing firms granted full tag-along rights and 6 granted partial tag-along rights (i.e., with a threshold below 100%). 39 issuing firms did not provide tag-along rights to minority investors.

3.2. Event study of the stock price reaction to announcement of tag-along rights

Hypothesis 1 conjectures that the market value of firms that grant tag-along rights should increase following the announcement. We test this prediction by conducting an event study of the stock price reaction to the announcement of the provision of tag-along rights to minority shareholders. To be able to identify the stock market reaction, our sample only includes

firms with liquid shares trading prior to the announcement. As IPOs, by definition, cannot be included in the event study, the gross sample of firms is reduced to 55. Among these firms, 20 firms have highly illiquid stocks with only a few trades per week, while another 5 firms issue tag-along rights as a result of a merger or an acquisition, which in themselves are likely to directly affect the stock price. Thus, in total, we have 30 firms for which we can analyze the stock price reaction to the announcement of the extension of tag-along rights to minority shareholders. 6 of these 30 firms list both their voting and non-voting shares, which gives us a total sample of 36 events.

We note that the confounding announcements of equity issues, in general, are associated with a negative stock price reaction (Asquith and Mullins, 1986; Mikkelson and Partch, 1986). This will *ceteris paribus* create a negative bias in the estimated announcement effect related to the provision of tag-along rights, as we cannot disentangle the two effects. However, the expectation that the potential bias will be negative makes it harder to establish Hypothesis 1. In addition, a listing on Novo Mercado, Level 2 or Level 1 might be beneficial to shareholders over and above the effect resulting from the issuance of tag-along rights because of the additional listing requirements. Thus, we perform an additional test to control for the effect of listing requirements. To calculate the abnormal returns, we assume a market model with a beta of 1 for all stocks. Thus, the abnormal return is the market-adjusted return calculated as the difference between the return on the stock and the return on the market index (BOVESPA index).

Fig. 1 plots the cumulative abnormal return (CAR) from day -10 to day $+10$ around the announcement date for all shares, voting shares and non-voting shares. The figure shows a positive abnormal daily return in the period from day -3 to day $+3$ surrounding the announcement date, and that the stock price reaction is relatively constant in the periods before and after. Thus, Fig. 1 suggests that investors react positively to the announcement of tag-along rights for both voting and non-voting shares.

Table 2 shows the cumulative abnormal return for three event windows around the announcement date: -1 to $+1$ days, -2 to $+2$ days, and -3 to $+3$ days. We expand the event window to 3 days prior to the announcement to take possible insider trading, which can be substantial in emerging markets, into account. Fig. 1 shows abnormal returns of more than 1% on trading days prior to the public announcement, a finding that is consistent with insider trading.

Panel A shows the stock price reaction for all shares. Across the three event windows, we find positive and significant stock market reactions to the announcement of tag-along rights. The average cumulative abnormal return varies from 4.11% to 5.95% depending on the event window. Thus, the effect of granting tag-along rights seems to be important both economically and statistically. Moreover, the median cumulative abnormal return varies from 2.69% to 3.96%. Using a sign-rank test, we confirm that the median stock price reactions are statistically significant at either the 1% or 5% level.

In Panel B, we report CARs for voting and non-voting stocks separately. Again, we find positive and significant stock price reactions to the announcement of tag-along rights. For voting shares, the stock price increases by between 6.9% and 7.9%, whereas the increase is somewhat smaller for non-voting shares. The stock price of non-voting shares increases by between 1.6% and 4.2%, on average, depending on the window. One explanation for this apparent difference might be that Brazilian firms tend to give full tag-along rights more frequently to voting shares than to non-voting shares. Panel C, therefore, reports the respective stock price reactions for shares that are granted full and partial tag-along rights. Again, we find a positive and significant stock price reaction following the announcement of tag-along rights for both groups. As expected, full tag-along rights seem to increase the stock price by more than partial tag-along rights. The average CAR for shares with full tag-along rights is between 7% and 9.6% around the announcement date, as compared to 1.6% to 2.7% for shares with partial tag-along rights.

Overall, Panels A to C provide evidence consistent with Hypothesis 1. We find a positive and statistically significant stock price reaction when firms announce plans to protect minority investors by providing them with tag-along rights. One immediate concern with this finding is that investors might be reacting positively to confounding events, such as other voluntary governance

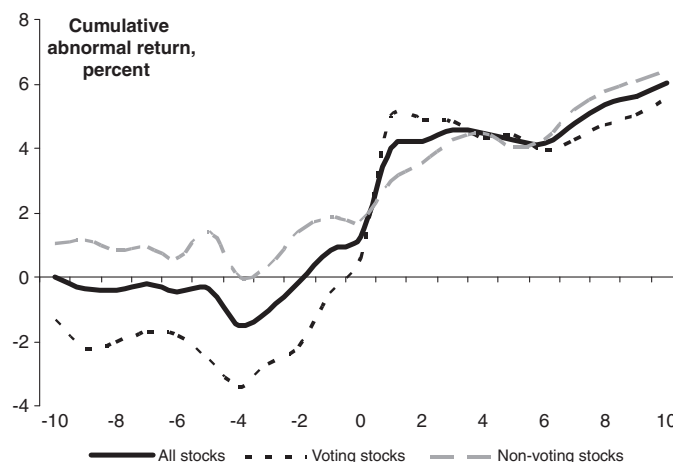


Fig. 1. Event study of the announcement effect of granting tag-along rights. This figure shows the average cumulative abnormal return (CAR) for Brazilian companies around the day on which the granting of tag-along rights to minority shareholders is announced. CARs are calculated using a market model in which beta equals one for all stocks. We report the average CAR for a 21-day window around the announcement day for all shares, voting shares and non-voting shares.

provisions. In fact, most firms in Brazil grant tag-along rights by migrating among the listing segments created by BOVESPA, and De Carvalho and Pennacchi (2010) show that stock prices react positively when firms migrate to premium listings. Consequently, it becomes empirically challenging to separate premium listing effects from the effects of tag-along rights.

To address this concern, Panel D in Table 2 provides a complementary test that identifies the value of tag-along rights over and above the effect of listing requirements. The test focuses on the variation in the use of tag-along rights among Level 1 listings because firms in this segment are not required to grant tag-along rights to minority shareholders. As all Level 1 firms are required to make the same financial information available to investors, this comparison allows us to identify the value of tag-along rights that exceeds the value of other corporate governance provisions. We thereby effectively control for the potentially beneficial effect of providing additional information to the stock market as required for Level 1 listings. This is equivalent to controlling for listing fixed effects in the event study.

Panel D shows that the granting of full tag-along rights has a positive and significant effect when compared to the granting of partial tag-along rights. For all shares, we find that the stock price of Level 1-listed firms that grant full tag-along rights increases by 2.3% to 4.9% more than the stock prices of similar firms granting partial tag-along rights. Thus, we find a positive stock price reaction to announcements of tag-along rights beyond the value of other governance mechanisms. We arrive at similar results when we distinguish between voting and non-voting stocks, although the reduction in sample size makes it difficult to precisely estimate coefficients. Finally, we note that these differences in stock price reactions are almost identical to those identified in Panel C. This similarity bolsters the case for our interpretation of the event study results as they relate to the value of tag-along rights and the voluntary protection of minority investors.

3.3. Determinants of issuing equity with tag-along rights

In this subsection, we investigate the determinants of firms' decisions to issue equity with tag-along rights. Table 3 provides descriptive statistics for the equity offerings conditional on whether no, partial or full tag-along rights were offered to minority investors. We report both the average and median characteristics of the offering firm. We focus on firm and issue characteristics related to the theoretical model, i.e., the type of offering, whether the issue is an IPO, the size of the offer, the minority ownership stake prior to the offering, and whether the firm has dual share classes.

Table 2

Event study of the announcement effect of granting tag-along rights.

	Event window		
	[-1;+1]	[-2;+2]	[-3;+3]
<i>A. All shares (n = 36)</i>			
Average CAR	4.11 ** (1.93)	5.12 ** (2.13)	5.95 *** (2.10)
Median CAR	2.69 ***	3.96 ***	3.46 ***
<i>B. Voting versus non-voting shares</i>			
Voting share average CAR (n = 17)	6.93 * (3.94)	7.28 * (4.31)	7.87 * (4.24)
Non-voting share average CAR (n = 19)	1.58 ** (0.73)	3.19 ** (1.20)	4.23 *** (1.32)
<i>C. Full versus partial tag-along rights</i>			
Full tag-along rights (n = 17)	6.95 * (3.95)	8.54 * (4.20)	9.59 ** (4.22)
Partial tag-along rights (n = 19)	1.56 * (0.72)	2.06 * (1.22)	2.69 ** (0.96)
<i>D. Difference in CARs for full versus partial tag-along rights for Level 1 listed firms</i>			
All (n = 18)	2.35 *** (0.42)	4.56 ** (1.69)	4.85 ** (1.99)
Voting shares (n = 7)	2.71 ** (0.58)	2.96 (1.91)	4.84 ** (1.72)
Non-voting shares (n = 11)	1.86 ** (0.55)	6.68 ** (2.67)	4.86 (4.86)

This table shows the average cumulative abnormal return (CAR) for Brazilian companies around the day on which the granting of tag-along rights to minority shareholders is announced. CARs are calculated using a market model in which beta equals one for all stocks. We report the average and median CAR for three alternative windows: [-1; +1], [-2; +2] and [-3; +3]. Robust standard errors are reported in parentheses. Panel A reports the stock price reaction for all shares. Panel B reports stock price reactions for voting and non-voting shares. Panel C shows CARs for stock with full and partial tag-along rights. Panel D provides a test of the difference in CARs between full and partial tag-along rights for Level 1 listed firms for all, voting and non-voting stocks, respectively.

* Denotes significance at the 10% level.

** Denotes significance at the 5% level.

*** Denotes significance at the 1% level.

Table 3
Descriptive statistics for equity issues in Brazil, 2000–2006.

	Tag-along rights					
	No (n = 39)		Partial (n = 6)		Full (n = 54)	
	Mean	Median	Mean	Median	Mean	Median
Offering type						
Primary (%)	43.6	0.00	50.0	50.0	77.8	1.00
Secondary (%)	71.8	1.00	83.3	1.00	75.9	1.00
Primary share (%)	34.2	0.0	25.0	9.0	51.1	48.0
IPO (%)	2.6		0.0		74.1	
Offering size						
BR\$	885.4	484.4	163.8	174.0	786.0	614.5
Share of firm	21.4	19.0	14.7	11.5	39.0	37.0
Minority stake (%)						
Largest owner	54.2	66.0	63.8	66.5	47.6	52.5
Three largest owners	46.3	44.0	51.3	61.0	26.5	26.5
Controlling owners	54.2	54.0	55.0	63.5	35.4	31.5
Dual-class share (%)	64.1	100.0	83.3	100.0	28.8	0.00
Wedge	1.83	1.81	2.16	2.13	1.69	1.45

This table provides descriptive statistics on equity issues in Brazil from 2000 to 2006. We report the mean and median of the variables for firms that have granted no, partial or full tag-along rights to shareholders. Firms extend full tag-along rights when: a) all share classes are included and b) the price threshold is 100%. Firms extend partial tag-along rights when: a) not all share classes are included or b) the price threshold is below 100%. A *primary* offering is an issue of new shares, whereas a *secondary* offering is a sale of existing shares. *Primary share* is the share of the offering that was a primary issue. *Offering size* is the relative size of the issue measured as a percentage of the firm. We measure the minority stake using three definitions of majority ownership: a) the largest owner measured in terms of votes; b) the three largest owners measured in terms of votes and c) the group of controlling owners as defined by the firm in its ownership papers filed with the Securities and Exchange Commission of Brazil. *Dual-class share* is an indicator of whether the firm has dual-class shares. *Wedge* is defined as the ratio of the largest owner's share of votes to that owner's share of cash flow. We only report the wedge for firms with dual-class shares.

Table 3 shows that the share of the transaction that is primary is larger for firms offering full tag-along rights than for firms granting no rights. Firms offering full tag-along rights issue shares in the primary market in 77.8% of the cases, whereas firms offering no tag-along rights issue shares in the primary market in only 43.6% of the cases. If we focus on the share of the offerings that is primary (i.e., primary share), the average is 51.1% for firms with tag-along rights, while it is 34.2% for firms without additional protection of minority shareholders.

Interestingly, Table 3 reveals that full tag-along rights were extended to minority investors in almost all Brazilian IPOs between 2000 and 2006. Of the 41 IPOs in the sample, 40 (98%) extend tag-along rights to minority shareholders. These firms represent 74.1% of all firms that granted tag-along rights in Brazil from 2000 to 2006, whereas the single IPO without tag-along rights corresponds to only 2.6%.

Table 3 shows that, on average, the offering size is slightly larger for firms with no tag-along rights than for firms with full tag-along rights. However, this condition is reversed when we focus on the median size. As these differences might be explained by the size of the firm (as well as the rate of inflation), it is more informative to focus on the relative size of the offering. Interestingly, Table 2 shows that, on average, the relative size of the offering is larger for firms that grant full tag-along rights. On average, firms with full tag-along rights issue shares equivalent to 39% of total cash flow rights, while firms without tag-along rights issue shares equivalent to 21%.

Table 3 also reports the average minority stake prior to the offering using three definitions of majority investors. The minority stake is defined as one minus the majority stake as determined by each of the three definitions. At first glance, ownership appears to be extremely concentrated in Brazil. On average, the largest owner possesses roughly half of the firm. For all three measures, the stake possessed by majority owners appears to be larger in firms that grant full tag-along rights. The average minority stake is 47.6% for firms with full tag-along as compared to 54.2% for firms with no tag-along rights when we define the controlling owners as the largest shareholder. This difference is even greater when we define controlling owner(s) according to the shareholder agreement. In this instance, existing minority owners possess 35.4% of the firm in firms with tag-along rights and 54.2% in firms with no tag-along rights.

Finally, firms with no tag-along rights use disproportional ownership more frequently, as 64.1% have dual-class shares. In contrast, only 28.8% of firms with full tag-along rights have dual-class shares. When we condition on the presence of dual-class shares, we find that firms without tag-along rights tend to have a larger wedge between concentration of votes and cash flow rights (Table 3). This wedge is defined as the largest owner's voting rights divided by that owner's cash flow rights. In firms with dual-class shares but without tag-along rights, the controlling owner possesses an average of 1.83 voting rights for each percentage point of cash flow rights. The corresponding wedge for firms with dual-class shares and tag-along rights is 1.69. Thus, among firms with disproportional ownership, the concentration of voting power is larger in firms that do not grant tag-along rights to minority investors.

Hypothesis 2, which follows directly from Proposition 1, conjectures that firms owned entirely by the founder should always issue shares with tag-along rights. Of the 99 equity offerings in the sample, the founder owned the entire firm prior to the offering

Table 4
Correlation matrix.

	Minority stake (α_o)	Offering size (α_n)	Primary share (%)	Wedge	Dual-class shares	Firm size	Return on assets	Debt ratio	Board size	Outsider ratio	Separation of CEO and chairman	Staggered board	Cross listing
Minority stake (α_o)	1.000												
Offering size (α_n)	-0.188	1.000											
Primary share	0.128	-0.256	1.000										
Wedge	0.470	-0.367	0.005	1.000									
Dual-class shares	0.369	-0.429	-0.122	0.772	1.000								
Firm size	0.223	-0.229	-0.103	0.178	0.185	1.000							
Return on assets	-0.054	-0.077	-0.026	0.026	-0.109	0.401	1.000						
Debt ratio	0.050	0.092	0.024	-0.035	0.101	-0.417	-0.995	1.000					
Board size	0.159	-0.126	0.059	0.154	0.250	0.393	0.188	-0.201	1.000				
Outsider ratio	-0.002	-0.046	0.085	0.171	0.125	0.166	0.128	-0.140	0.129	1.000			
Separation of CEO and chairman	0.038	-0.064	-0.090	0.089	0.116	0.162	0.157	-0.171	0.266	0.586	1.000		
Staggered board	0.019	-0.048	-0.118	-0.099	-0.078	-0.140	-0.109	0.112	-0.009	-0.177	0.086	1.000	
Cross listing	-0.031	-0.019	0.020	-0.091	-0.022	0.131	0.058	-0.070	0.256	0.094	0.051	-0.129	1.000

Minority stake is the share of votes held by minority investors, where the largest owner is assumed to be controlling. Offering size is the relative size of the offering measured as a percentage of the firm. Primary share is the share of the offering that is sold on the primary market. Wedge is defined as ratio of the largest owner's share of votes to that owner's share of the cash flow. Dual-class shares is an indicator variable taking the value of 1 if the firm has dual-class shares. Firm size is the log to book value of assets in million BR\$. Return on assets is the ratio of net income to the book value of assets. Debt ratio is the ratio of the book value of debt to the book value of assets. Board size is the number of directors on the board. Outsider ratio is the fraction of non-executive directors on the board. Separation of CEO and chairman equals one if the chairman and CEO positions are separated. Staggered board equals one if directors are elected for terms of two years or more. Cross listing is an indicator of cross listing outside Brazil.

Table 5
Determinants of tag-along rights.

	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)
Minority stake (α_o)	-0.876*** (-3.26)					-0.916*** (-2.67)	-0.914** (-2.52)
Offering size (α_n)		1.324*** (3.92)				1.107*** (3.00)	0.974** (2.51)
Primary share			0.249* (1.69)			0.235 (1.29)	0.214 (1.16)
Wedge				-0.371*** (-2.72)		-0.137 (-0.87)	
Dual-class shares					-0.479*** (-4.65)		-0.252* (-1.79)
Firm size	-0.007 (-0.26)	-0.003 (-0.15)	-0.012 (-0.54)	-0.012 (-0.47)	-0.008 (-0.31)	0.016 (0.88)	0.018 (0.95)
Return on assets	-0.112 (-1.04)	-0.185 (-1.50)	-0.094 (-0.93)	-0.128 (-1.18)	-0.116 (-1.00)	-0.180 (-1.55)	-0.172 (-1.38)
Debt ratio	-0.108 (-0.83)	-0.203 (-1.38)	-0.095 (-0.77)	-0.131 (-1.01)	-0.105 (-0.76)	-0.187 (-1.35)	-0.170 (-1.15)
Board size	-0.015 (-0.62)	-0.021 (-0.80)	-0.029 (-1.27)	-0.014 (-0.56)	-0.001 (-0.04)	-0.020 (-0.78)	-0.013 (-0.47)
Outsider ratio	0.008 (0.01)	0.079 (0.17)	-0.094 (-0.21)	0.231 (0.45)	0.194 (0.33)	-0.079 (-0.14)	-0.116 (-0.20)
Separation of CEO and chairman	-0.066 (-0.38)	-0.083 (-0.60)	-0.022 (-0.14)	-0.087 (-0.53)	-0.064 (-0.36)	-0.008 (-0.05)	-0.009 (-0.05)
Staggered board	-0.289** (-2.52)	-0.284** (-2.47)	-0.253** (-2.31)	-0.333*** (-2.74)	-0.368*** (-3.04)	-0.317** (-2.55)	-0.341*** (-2.66)
Cross listing	-0.005 (-0.04)	0.020 (0.13)	0.041 (0.31)	-0.044 (-0.33)	-0.030 (-0.20)	-0.015 (-0.10)	-0.026 (-0.18)
N	99	99	99	99	99	99	99
Pseudo-R ²	0.163	0.224	0.108	0.177	0.212	0.319	0.332

This table shows the determinants of tag-along rights in a logit model. The dependent variable, full tag-along rights, is an indicator variable taking the value of 1 if the firm extends full tag-along rights to shareholders and 0 otherwise. All reported coefficients represent the marginal effects on the probability of granting full tag-along rights. Minority stake is the share of votes held by minority investors, where the largest owner is assumed to be controlling. Offering size is the relative size of the offering measured as a percentage of the firm. Primary share is the share of the offering that is sold in the primary market. Wedge is defined as the ratio of the largest owner's share of votes to that owner's share of cash flow. Dual-class shares is an indicator variable taking the value of 1 if the firm has dual-class shares. Firm size is the log to book value of assets in million BR\$. Return on assets is net income over book value of assets. Debt ratio is the ratio of the book value of debt to the book value of assets. Board size is the number of directors on the board. Outsider ratio is the fraction of non-executive directors on the board. Separation of CEO and chairman equals one if the chairman and CEO positions are separated. Staggered board equals one if directors are elected for terms of two years or more. t-statistics based on robust standard errors are reported in parentheses.

*** Denotes significance at the 1% level.

** Denotes significance at the 5% level.

* Denotes significance at the 10% level.

in six cases. In all six of these cases, the founder chose to grant full tag-along rights to the new minority investors. We therefore have empirical evidence in favor of Proposition 1 (Hypothesis 2).¹⁰

We test Hypotheses 3 through 5 by estimating the probability of firm i granting tag-along rights using a logit model in which the dependent variable is an indicator variable that takes a value of 1 if the firm extends full tag-along rights to minority shareholders. Thus, the benchmark includes firms that grant partial tag-along rights. We conjecture that the direction of this potential bias will make it harder to produce significant results.¹¹

Table 5 reports the marginal effects on the probability of granting shares with tag-along rights. As the correlation matrix in Table 4 shows that the variables of interest are highly correlated, we test the three hypotheses separately (Models I through V) before we perform a joint test (Models VI and VII). Moreover, we include controls for firm size (log to book value of assets), return on assets, debt ratio, board size, outsider ratio, separation of the chairman and CEO positions, staggered board, and cross-listing in all specifications.

Model I in Table 5 shows our test of Hypothesis 3, which states that companies that issue shares with tag-along rights have a smaller group of existing minority shareholders than companies that issue shares without rights. We measure minority ownership as one minus the largest owner's stake. As predicted by the theoretical model, we find that the incentive to provide tag-along rights is negatively correlated with the minority investors' ownership stake. The marginal effect is significant both economically and statistically: a 10 percentage point increase in the minority stake decreases the probability of granting tag-along rights by 8.8%—an effect that is significant at the 1% level. We undertake a robustness check of the definition of the majority owners and find little effect on the estimated relationship (see Section 3.4). Thus, the evidence is consistent with Hypothesis 3. We also note that the control variables, in general, are insignificant. One exception is staggered board, which is negatively correlated with the propensity to provide tag-along rights. The marginal effect implies that firms with staggered boards are 28.9% less likely to issue tag-along rights than firms in which directors are elected every year. This is consistent with the general finding in the mergers and acquisition literature that the presence of a staggered board is the most consequential of all takeover defenses and is often implemented by entrenched managers (Bebchuk et al., 2002; Faleye, 2007).

Hypothesis 4, which conjectures that firms that issue shares with tag-along rights issue larger claims than companies that issue shares without such rights, is tested in Model II in Table 5. We include the relative size of the offering (the ratio of the number of shares issued to total outstanding shares) to proxy for the offering size. We find a positive and significant correlation between the relative offering size and the probability of granting tag-along rights. The marginal effect reveals that if the relative size of the offering increases by 10 percentage points, the probability of tag-along rights increases by 13.2%. Thus, the incentive to grant tag-along rights to minority shareholders increases with relative offering size, which is consistent with Hypothesis 4.

In Model IV in Table 5, we test Hypothesis 5, which states that firms that issue shares with full tag-along rights have less disproportional ownership than firms that grant no additional rights. To measure the degree of disproportional ownership, we include the wedge—the ratio of the largest owners' votes to his/her cash flow stake. For firms with proportional ownership, the wedge takes the value of one, whereas the wedge is greater than one for firms with disproportional ownership. When we include the wedge among our regressors, we find a negative and significant effect on the provision of tag-along rights. The intuition behind this result is simple: when the founder controls the firm through disproportional mechanisms, the voting rights exceed the cash flow rights. This makes it more expensive to grant tag-along rights to minority shareholders. Our findings in this regard support Hypothesis 5.

Model V in Table 5 shows an additional test related to Hypothesis 5, wherein we include an indicator for dual-class shares. We expect firms with dual-class shares to grant tag-along rights less often, as the presence of such class shares allows the controlling owner to have control with only a small fraction of the cash flow rights. Thus, in firms with dual-class shares, the cost of granting full tag-along rights is higher. We find a negative and significant correlation between firms with dual-class shares and the incentive to grant full tag-along rights to minority investors. The marginal effect is economically large: firms with dual class shares are 48% less likely to grant tag-along rights than firms following a one-share/one-vote rule.

Finally, in Models VI and VII in Table 5, we perform a joint test of Hypotheses 2 through 5. In Model VI, we include the wedge to test Hypothesis 5, whereas in Model VII, we use the indicator variable for dual-class shares. Although multicollinearity causes our results to lose significance in general (see Table 4), our main results are confirmed. Firms with large minority shareholders are less likely to grant tag-along rights when they issue equity, whereas firms with relative large offerings and a high degree of disproportional ownership (or dual-class shares) are less likely to offer tag-along rights.

3.4. Alternative definitions of majority owner(s)

One valid concern is our definition of majority and minority investors. In our analysis, we define the majority owner as the largest owner of the firm. Although ownership is highly concentrated in Brazil (when compared to ownership concentration in other countries), our results might be biased by measurement problems related to this definition. In Table 6, we therefore replicate our empirical analysis using two alternative definitions of the majority owner. In Models I through III, we measure the majority ownership stake as the sum of the three largest owners, whereas in Models IV through VI, we use the controlling coalition reported

¹⁰ Note, that we cannot formally test Hypothesis 2, as the variation in tag-along rights is fully identified by the variable of interest.

¹¹ We obtain identical results in unreported robustness checks in which we include firms with partial tag-along rights and in robustness checks using an ordered probit model.

Table 6
Robustness of determinants of tag-along rights.

Definition of majority owner	Three largest owners			Controlling coalition		
	(I)	(II)	(III)	(IV)	(V)	(VI)
Minority stake (α_0)	-1.454*** (-3.92)	-1.695*** (-3.69)	-1.135*** (-2.55)	-1.258*** (-3.65)	-1.749*** (-2.91)	-1.171** (-2.49)
Offering size (α_n)		1.201*** (3.01)	0.904** (2.36)		1.313*** (3.52)	1.125*** (2.88)
Primary share		0.201 (1.18)	0.172 (0.93)		0.201 (1.19)	0.152 (0.85)
Wedge		0.154 (0.62)			0.115 (0.56)	
Dual-class shares			-0.297** (-1.97)			-0.272* (-1.89)
Firm size	0.006 (0.26)	0.022 (1.23)	0.021 (1.09)	0.001 (0.02)	0.028 (1.52)	0.025 (1.30)
Return on assets	-0.154 (-1.40)	-0.244** (-2.02)	-0.146 (-1.19)	-0.201* (-1.71)	-0.316* (-1.95)	-0.206 (-1.33)
Debt ratio	-0.158 (-1.20)	-0.269* (-1.86)	-0.141 (-0.95)	-0.216 (-1.54)	-0.353* (-1.84)	-0.223 (-1.21)
Board size	-0.021 (-0.80)	-0.032 (-1.18)	-0.009 (-0.25)	-0.019 (-0.73)	-0.031 (-1.09)	-0.009 (-0.29)
Outsider ratio	-0.104 (-0.17)	-0.420 (-0.67)	-0.146 (-0.21)	-0.101 (-0.17)	-0.326 (-0.54)	-0.142 (-0.22)
Separation of CEO and chairman	-0.006 (-0.03)	0.059 (0.31)	-0.009 (-0.04)	-0.104 (-0.61)	-0.070 (-0.45)	-0.108 (-0.64)
Staggered board	-0.355*** (-2.96)	-0.345*** (-2.72)	-0.384*** (-2.89)	-0.321*** (-2.58)	-0.326** (-2.25)	-0.379*** (-2.65)
Cross listing	0.035 (0.25)	0.070 (0.50)	0.043 (0.28)	0.074 (0.54)	0.092 (0.62)	0.055 (0.35)
N	99	99	99	99	99	99
Pseudo-R ²	0.262	0.373	0.392	0.232	0.374	0.391

This table shows the determinants of tag-along rights in a logit model. The dependent variable, *full tag-along rights*, is an indicator variable taking the value of 1 if the firm extends full tag-along rights to the shareholders and 0 if otherwise. All reported coefficients represent the marginal effects on the probability of granting full tag-along rights. *Minority stake* is the share of votes held by minority investors. We use two definitions of majority owners: the collective ownership of the *three largest owners* measured in terms of votes, and the *controlling coalition* reported by the firm in its CVM ownership filing. *Offering size* is the relative size of the offering measured as a percentage of the firm, whereas *primary share* is the share of the offering that is sold on the primary market. *Wedge* is defined as the ratio of the largest owner's share of votes to that owner's share of cash flow. *Dual-class shares* is an indicator variable taking the value of 1 if the firm has dual-class shares. *Firm size* is the log to book value of assets in million BR\$. *Return on assets* is the ratio of net income to the book value of assets. *Debt ratio* is the ratio of the book value of debt to the book value of assets. *Board size* is the number of directors on the board. *Outsider ratio* is the fraction of non-executive directors on the board. *Separation of CEO and chairman* equals one if the chairman and CEO positions are separated. *Staggered board* equals one if directors are elected for terms of two years or more. *t*-statistics based on robust standard errors are reported in parentheses.

*** Denotes significance at the 1% level.

** Denotes significance at the 5% level.

* Denotes significance at the 10% level.

by the firm to the Securities and Exchange Commission of Brazil.¹² Table 6 shows that, in general, none of our results are affected by the chosen definition of majority owner(s). Minority stake is negative and significant, while offering size is positive and significant across all specifications.

4. Conclusion

We show that private contracting can be an effective method of providing additional protection for minority investors in emerging markets. Our analysis finds that investors react positively to announcements of tag-along rights and that a firm's incentives to issue new shares with tag-along rights are shaped by the trade-off between the controlling owner's commitment to value-maximizing corporate governance and rent transfers from controlling owners to existing unprotected minority owners.

More generally, our analysis raises the issue of the extent to which private contracting can act as a substitute for the inadequate legal protection of investors in emerging markets. The ability of private contracting to act as a substitute for effective laws is restricted because the implementation of private contracting ultimately hinges on the quality of the juridical system. Hence, in

¹² Firms in Brazil are required to report ownership stakes in the controlling coalition in the CVM filing, which is the Brazilian equivalent to the 20-F statement in the US.

emerging markets with weak legal institutions, private contracting cannot mitigate all efficiency costs arising from weak corporate governance institutions.

Acknowledgments

We thank an anonymous referee, Marcus Braga-Alves, Murillo Campello (the editor), Klaus Gugler, Randall Morck, and seminar participants at the Asian Finance Association 2007 Meeting in Hong Kong, Copenhagen Business School, the Corporate Governance in Emerging Markets conference in Istanbul, the Corporate Governance and Politics of Finance workshop in Tokyo, the Emerging Markets Finance conference at Cass Business School, the Journal of Corporate Finance 2009 Conference in Beijing for helpful comments and suggestions. Bennedsen and Meisner Nielsen acknowledge financial support from the Danish Social Science Research Council through project 09–061930.

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