

# Founder-Controlled Firms and R&D Investments: New Evidence From Canada

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## Abstract

Our study investigates the R&D investment behavior of founder-controlled Canadian listed firms. We use De Massis et al.'s model of the sufficiency conditions of ability and willingness and adapt it to predict investments in R&D. As founder-controlled firms are heterogeneous in nature, we distinguish four categories: lone founder firms and family founder firms with and without excess voting rights. In line with our predictions, we find that only lone founder firms without excess voting rights have both the ability and the willingness to invest in R&D and so they invest more in R&D than their counterparts.

## Keywords

ownership, excess voting rights, family, founder, R&D

## Introduction

Our study investigates the patterns in the R&D investment behavior of founder-controlled firms. Investment in innovation is a key determinant of economic growth (Romer, 1986), and R&D investments play a major role in innovation and in the success of firms (Chan, Lakonishok, & Sougiannis, 2001). R&D investments are known to have a positive effect on economic growth, firm value, and profitability (see, among others, Cho, 1998; Di Vito & Laurin, 2010; Johnson & Pazderka, 1993; Lev & Sougiannis, 1996). However, different types of firms and/or different types of owners may behave differently with regard to R&D investments. In the family business literature, some studies have argued that firms controlled or managed by their founders invest more in R&D than other nonfounder firms (Block, 2012; Miller, Le Breton-Miller, & Lester, 2011). Nevertheless, when distinguishing between different types of family and founder firms, the literature has yielded mixed results (Block, 2012; Duran, Kammerlander, Essen, & Zellweger, 2016; Fahlenbrach, 2009; Le Breton-Miller, Miller, & Lester, 2010; Miller et al., 2011; Miller & Le Breton-Miller, 2011). The conflicting results are argued

to be linked to measurement differences in distinguishing family firms from nonfamily firms (De Massis, Sharma, Chua, & Chrisman, 2012), to methodological differences due to omitted moderators or mediators in the research model (Chrisman, Chua, Pearson, & Barnett, 2012), and, most important, to the absence of a theoretical model to predict a particularistic behavior, such as the necessary sufficiency conditions of both ability and willingness as proposed by De Massis, Kotlar, Chua, & Chrisman (2014). According to these authors, family firms will pursue a particularistic family-oriented behavior only when they have both the *ability* to make decisions and the *willingness* to favor family-oriented decisions.

In our article, we attempt to clarify the founder–R&D relationship by adapting De Massis et al.'s (2014) sufficiency conditions framework to understand the ability and willingness paradox of founder-controlled firms

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(Chrisman, Chua, De Massis, Frattini, & Wright, 2015) and to identify in which context founder firms may have both the ability and the willingness to pursue R&D and in which context the “willingness” condition may vary. Accordingly, by specifically focusing on founder-controlled firms, in which the founders are the controlling shareholders and, thus, have the power to decide how to allocate their firm’s resources, we control for the first sufficiency condition, which is the “ability” to make decisions that favor R&D. Next, because founder-controlled firms are heterogeneous in nature, we believe that the willingness to invest may differ in the case of family founder firms (where the original founder as well as other family members are involved in management and/or administration of the firm) as opposed to lone founder firms, where the original founder runs the firm alone. This is because when founder firms involve family, the founder may engage in family-oriented idiosyncratic behavior, which should not be the case when the founder is the main/sole decision maker. In fact, behavioral agency theory suggests that family firms are mainly driven to create and preserve socioemotional wealth, and their fear of losing socioemotional wealth may reduce their willingness to invest in risky and uncertain projects such as R&D. This loss aversion may lead family firms to take risky investment decisions to preserve the family’s socioemotional wealth but avoid taking risky decisions such as investing in R&D, which if successful may lead to long-term profitability but may also reduce their socioemotional wealth (Chrisman & Patel, 2012). Consequently, while previous studies generally included lone founder firms in a broader perspective of family-controlled firms, inspired by Cannella, Jones, and Withers (2015), we do not believe that lone founder firms can be considered family firms because they do not have the same behavioral agency issues as family firms with regard to socioemotional wealth.

In addition, we contend that willingness to invest in R&D will also be compromised when founder-controlled firms are endowed with excess voting rights, that is, when founders hold more voting rights than cash flow rights.<sup>1</sup> We disaggregate founder-controlled firms into four categories: lone founders with and without excess voting rights and family founders with and without excess voting rights. We argue that although both lone founders and family founders have the ability (discretionary power) to choose how to allocate their firm’s resources, the willingness to invest in R&D may not be

evident for family founder firms (because of their concerns about preserving family socioemotional wealth) and even less so for founder-controlled firms endowed with excess voting rights. This is explained by the fact that when controlling shareholders have excess voting rights, they have the discretionary power to make opportunistic decisions to extract private benefits of control without bearing the full costs of suboptimal investment choices on the firm’s capital (Bebchuk, Kraakman, & Triantis, 2000). We suggest that this will have a negative impact on the willingness to invest in risky long-term investments such as R&D, which may not be beneficial for controlling shareholders seeking to maximize their private gains.

Accordingly, based on a panel of 303 Canadian firms (1 154 firm-years observations) listed on the Standard & Poor/Toronto Stock Exchange (S&P/TSX) Composite Index between 2002 and 2008, our study shows that only lone founders without excess voting rights have both the ability and the willingness to invest in R&D. On the other hand, family founders seem to have a lesser willingness to invest in R&D. Moreover, as expected, we find that having excess voting rights hinders the willingness of lone founder firms and exacerbates the lower willingness of family founders to invest in R&D.

By highlighting the instrumental role played by excess voting rights in the R&D investment behavior of different types of founder firms (lone founders and family founders), our study contributes to the existing literature in two main aspects. First, we empirically test and confirm De Massis et al.’s (2014) theoretical arguments suggesting the importance of having the two necessary conditions (ability and willingness) to explain a pattern of behavior, which in our study concerns the investment behavior of lone founders and family founders with regard to R&D. Previous studies (Block, 2012; Miller et al., 2011; Miller and Le Breton-Miller, 2011; Le Breton-Miller et al., 2010), relying on agency theory, have implicitly made the assumption that the two conditions, ability and willingness, are present in lone founder firms and have predicted that lone founder firms invest more in R&D than other firms. Our study challenges this implicit assumption by showing that the willingness condition is not present in all lone founder firms but, rather, depends on the presence or absence of excess voting rights. We show that only lone founder firms without excess voting rights, in which case both ability and willingness conditions are met, invest more in R&D.

However, our results show that when endowed with excess voting rights, lone founders invest less in R&D than other companies.

Second, our study also contributes to governance research on excess voting rights by pointing out the critical effect that excess voting rights have on R&D investments of different types of founder-controlled firms. Indeed, previous studies examining excess voting rights do not distinguish lone founders from other family firms and, thus, implicitly assume that excess voting rights will have the same effect on any type of firm. Our results show that excess voting rights not only exacerbate the lack of willingness of family founder firms to invest in R&D but also completely alter lone founders' willingness to do so. Hence, the negative effects of excess voting rights appear to be stronger for lone founder firms.

## Literature and Hypotheses

Although many definitions of a family firm exist (Miller, Le Breton-Miller, Lester, & Cannella, 2007; Villalonga & Amit, 2006), in previous studies, family firms often included firms that are controlled by a lone founder, a founder with the presence of other family members, or even firms that are controlled by heirs, in which the founder is no longer present. Apart from a few studies, prior research focused on family firms as a group, without distinguishing founder-controlled firms, that is, lone founder and family founder firms, from other family firms.<sup>2</sup> Therefore, the empirical evidence on the influence of founder-controlled firms on R&D investments is scarce. Moreover, prior studies that investigated the founder-R&D relationship yielded mixed results. Fahlenbrach (2009) found that founder-CEOs (chief executive officers) of U.S. S&P 500 firms systematically differ from successor-CEOs with respect to investment behavior: Founder-CEO firms invest more in R&D. In a German study, Schmid, Achleitner, Ampenberger, and Kaserer (2014) found a positive relationship between founders who are involved in the management board and R&D investments. However, their results are statistically significant when using a survey technique but inconclusive when using accounting data. More recently, a meta-analysis performed by Duran et al. (2016) showed that founder-CEOs have a positive effect on innovation input, including R&D investments. Interestingly, Le Breton-Miller et al. (2010), Miller et al. (2011), and Block (2012) make a clear distinction

between lone founder firms and family firms. While Le Breton-Miller et al. (2010), Miller and Le Breton-Miller (2011), and Miller et al. (2011) found no significant effect of the lone founder on R&D investments, Block (2012) found that lone founder firms are more active in R&D than all other firms, including family and nonfamily firms.<sup>3</sup>

These mitigated findings suggest that there are important differences in investment behavior between founder firms as opposed to other family and nonfamily firms. Indeed, one reason that may explain these inconclusive findings is the fact that family firms are heterogeneous in nature and that this heterogeneity was not sufficiently considered in those studies. De Massis et al. (2014) suggest that the mixed evidence in family firms may also be due to the lack of a consistent theory that may explain their investment behavior. These authors suggest that family firms will pursue family-oriented particularistic behavior only when two conditions are simultaneously met: (1) *ability*, in terms of the discretion to engage in such behavior, and (2) *willingness*, in terms of the intention (or commitment) to do so. According to De Massis et al., "ability without willingness, or vice-versa, is logically and practically insufficient to produce a particular behavior" (p. 347).

In our study, we examine founder-controlled firms and their behavior with regard to R&D investments, by determining whether the founder is the sole family member involved in running the firm (lone founder firms) or is assisted by other family members (family founder firms), and whether or not these founders have excess voting rights. We apply De Massis et al.'s (2014) sufficiency conditions to explain R&D investment behavior, by demonstrating that the ability and willingness conditions may vary according to the different types of founder-controlled firms. The first section of Appendix A illustrates the relationship between founder firms and R&D investments according to the two sufficiency conditions documented by De Massis et al. (2014).

### Founder-Controlled Firms and the Sufficiency Conditions

*Ability.* In line with De Massis et al. (2014), we define *ability* as the discretion of the founders to direct, allocate, add or, dispose of a firm's resources. We consider that founders, whether lone founders or family founders,

with or without excess voting rights, have the discretionary power to choose how to allocate their firm's resources. This is so because, in founder-controlled firms, founders are the largest shareholders of the firm and their share of the votes is significant (Di Vito, Laurin, & Bozec, 2010; La Porta, Lopez-De-Silanes, & Shleifer, 1999). Moreover, their decision-making power is strengthened as they typically hold top management positions in the firm and often sit on the board of directors (La Porta et al., 1999).

In short, given their involvement in ownership, management, and governance, founders in founder-controlled firms are more likely to have a larger discretionary power over the decision-making process than CEO of nonfamily firms. They, therefore, have the ability to choose whether or not to allocate their firms' resources to R&D activities.

*Willingness.* Once again, based on De Massis et al. (2014), we define *willingness* as the favorable disposition (incentive) of founders to engage in R&D investments. Whereas the ability constraint is likely to be met in all types of founder-controlled firms,<sup>4</sup> the willingness constraint may vary according to each category.

*Founder-controlled firms without excess voting rights.* In this section, we analyze founder-controlled firms' characteristics without addressing the issue of excess voting rights. In other words, the founder-controlled firms discussed in this section are those firms in which the founders' voting rights are equal to their cash flow rights.

*Long-term horizon:* The outcomes of R&D investments are often achieved over the long term, which requires patience and a long-term decision-making horizon. Founder-controlled firms may have a longer decision-making horizon than other family and nonfamily firms, which positively affects their willingness to invest in R&D. This is so because founders usually maintain a long-term presence in the firms they founded, as owner, top manager, and/or director (Fahlenbrach, 2009). Through their significant share of the votes, they are able to block any hostile takeover attempt. As their position in the company is not threatened, they can more easily avoid capital market pressures that often push firms to focus on short-term performance. The founders are thus more likely than professional CEOs to establish long-term strategies that favor R&D investments rather than to set short-term targets (Anderson &

Reeb, 2003). Finally, the longer decision-making horizon of the founders may come from the fact that they usually care about the succession of their businesses to the next generation, especially when their family members are already involved in the firm (James, 1999). Hence, founder-controlled firms are said to have a long-term orientation that requires planning, patience, and tenacity in achieving their goals, whether it is to build financial or socioemotional wealth (Lumpkin & Brigham, 2011).

*Risk-taking attitude:* Given the risky nature of R&D investments (long-term investments with uncertain outcomes and high rates of failure), the decision maker must be predisposed to take risks when investing in R&D. Founders, as opposed to professional CEOs, identify themselves as entrepreneurs and are said to pursue a mission and a strategy of growth (Miller et al., 2011). Entrepreneurs must take calculated risks and therefore must have a certain tolerance for uncertainty (Le Breton-Miller & Miller, 2008). From very humble beginnings, founders sometimes build world-class firms, which end up among the largest publicly listed firms. These achievements most likely reflect managerial competency, innovation, and also the founders' willingness to take well-calculated risks.

*Ownership concentration, incentives, and undiversified wealth:* Not only does ownership concentration provide some decision-making power (ability), it is also a powerful incentive mechanism toward firm value maximization (Jensen & Meckling, 1976; Shleifer & Vishny, 1997). According to this agency perspective, the significant cash flow rights of founders are likely to provide incentives (willingness) to engage in R&D activity because the founders, as large shareholders, will significantly benefit from the value that is created. However, ownership concentration may also imply that a large share of the founders' personal wealth is invested in the firm (Chen & Hsu, 2009). The fact that their personal wealth is so closely linked to the wealth of the firm may increase founders' sensitivity to risk and affects their firms' investment preferences (Duran et al., 2016). This is likely to be even more of an issue for family founder firms, where the founders are more concerned about preserving the firm for their children (Le Breton-Miller et al., 2010). This lack of diversification on the part of founders combined with their concerns about succession may moderate their attitude toward risks and, therefore, their willingness to invest in R&D.

Given their concentrated ownership, which provides incentives, their effective decision making based on a broader horizon, and their positive attitude in terms of risk taking, founder-controlled firms are expected to be more willing to invest in R&D than nonfamily firms. However, we believe that this is only the case for lone founder firms because, unlike family founder firms, they do not have family-specific objectives. As shown below, these noneconomic objectives can be detrimental to R&D investments. Therefore, family founder firms, unlike lone founder firms, are expected to be less willing to invest in R&D than nonfamily firms.

*Noneconomic objectives:* The role of noneconomic objectives in the management of the firm is a key feature that distinguishes family firms from nonfamily firms (Gomez-Mejia, Cruz, Berrone, & de Castro, 2011). Although both family and nonfamily firms tend to pursue economic goals, family firms will primarily pursue noneconomic family-oriented goals that will create what Gomez-Mejia, Haynes, Nunez-Nickel, Jacobson, and Moyano-Fuentes (2007) term *socioemotional wealth*. Indeed, unlike lone founder firms or nonfamily firms, family founder firms have to deal with the personal objectives of family members, including careers, job security, and maintaining corporate control. The long-term horizon of family founder firms, their ability to take risks, and their incentives to do so are not oriented primarily toward efficiency or economic considerations but rather toward the preservation of the family's socioemotional wealth. In fact, studies using the behavioral agency model argue that family firms are primarily driven by a myopic loss aversion regarding their socioemotional wealth and will avoid risky investment decisions such as R&D even if these decisions may lead to long-term economic wealth, because it may reduce the family's socioemotional wealth (Chrisman & Patel, 2012; Gomez-Mejia et al., 2007).

Many reasons could be advanced to explain why R&D investments may threaten the family's socioemotional wealth. R&D projects tend to be specialized and complex, which in turn may require expertise from outside the family circle (Gomez-Mejia et al., 2011). More nonfamily managers in the firm, however, can reduce the decision-making power of the family and, therefore, its socioemotional wealth (Chrisman & Patel, 2012). Furthermore, the desire to provide careers for family members may lead to altruistic behaviors—the tendency

to undertake actions that help family members (Schulze, Lubatkin, & Dino, 2003; Schulze, Lubatkin, Dino, & Buchholtz, 2001). Founders may be inclined to appoint less qualified descendants instead of unrelated professional managers (Bloom & Van Reenen, 2007). This, in turn, may have negative consequences if the family member lacks the talent, expertise, or competency to run the business (Claessens, Djankov, & Lang, 2000; Morck & Yeung, 2003). R&D projects also require substantial funding, but the desire to keep the business in the family can limit access to the capital needed (Block, Miller, Jaskiewicz, & Spiegel, 2013). Indeed, because of the founders' fear of losing control, or even diluting their control, founder family firms may be reluctant to borrow or to raise money from the stock market (Mishra & McConaughy, 1999).

As a result, family founder firms may be more inclined than lone founder or nonfamily firms to opt for harvest strategies to protect their vested interest, rather than growth strategies (Le Breton-Miller & Miller, 2008). Harvest strategies, as opposed to growth strategies, have a hindering effect on long-term risky investments such as R&D. While lone founder firms and family founder firms both have the ability (discretionary power) to choose how to invest the firm's resources, they differ in terms of willingness to engage in R&D investments. We expect lone founder firms without excess voting rights to have both the ability and the willingness sufficiency conditions to invest in R&D compared with other firms. In contrast, the behavior of family firms is primarily driven by their myopic loss aversion regarding socioemotional wealth. Accordingly, family founder firms may have the same family-oriented concerns that outweigh the potentially positive long-term economic wealth that may be generated by risky investments such as R&D. Hence, we predict that family founder firms, notwithstanding the additional hampering effect of excess voting rights, will be less willing to invest in R&D than other, nonfamily firms. This leads us to predict the following two hypotheses:

**Hypothesis 1 (H1):** Lone founder firms without excess voting rights are positively associated with R&D investments.

**Hypothesis 2 (H2):** Family founder firms without excess voting rights are negatively associated with R&D investments.



*Founder-controlled firms with excess voting rights.* Excess voting rights occurs when controlling shareholders hold more voting rights than cash flow rights. Excess voting rights is widespread throughout the world, especially in family businesses (Claessens et al., 2000; Faccio & Lang, 2002; La Porta et al., 1999). It is most often achieved through the use of dual-class shares and/or pyramidal ownership structures. In a dual-class share structure, a firm generally issues two classes of common shares, one with more votes per share than the other. For example, at Bombardier, a Canadian aerospace multinational corporation, the Class A common shares entitle holders to 10 votes per share, whereas Class B common shares allow 1 vote per share. In 2008, Bombardier family members held approximately 80% of the Class A shares and less than 1% of the Class B shares, allowing them to control 57% of Bombardier's voting rights with a total equity interest (cash flow rights) of 15%.<sup>5</sup>

Dual-class share structures were designed to allow entrepreneurs to access capital market equity financing without losing control over the firm. While excess voting rights may allow entrepreneurs to finance the growth of the companies they have founded, the gap between their voting rights and cash flow rights can become a major source of agency conflict with the rest of the shareholders (La Porta et al., 1999). Excess voting rights allows controlling shareholders to maintain control over the firm while having minimal cash flow rights, as shown in the case of Bombardier. Once control is secured, controlling shareholders can impose their own preferences. At the same time, their low cash flow rights leads to agency problems, including non-value-maximizing investment and incentives to divert resources. As such, most empirical studies have found that excess voting rights decreases family firms' value (Bozec & Laurin, 2008; Claessens, Djankov, Fan, & Lang, 2002; Cronqvist & Nilsson, 2003; Gompers, Ishii, & Metrick, 2009; Villalonga & Amit, 2006), as well as their stock and accounting returns (Baek, Kang, & Park, 2004; Joh, 2003; Mitton, 2002).

We argue that excess voting rights is an important determinant that can alter lone founders' willingness to invest in R&D and exacerbate family founder's lower willingness to do so. As for founder firms without excess voting rights, the founders have a great discretion (ability) to engage in R&D activities. However, we argue that in the presence of excess voting rights they may have a lesser incentive (willingness) to do so. Indeed, the lower

the cash flow rights, the lesser the financial incentives for founders to invest in R&D, because they will benefit very little as shareholders. Furthermore, as discussed in Bebchuk et al. (2000), excess voting rights theoretically give founders both the power and the incentives to derive private benefits of control. Founders and their families could, for instance, use company resources to provide themselves a generous compensation or high dividends, rather than to focus on costly investment activities. Thus, the more the company's resources are used for private purposes by the founders and/or their family members, the less these resources are available to undertake large-scale R&D projects (Bebchuk et al., 2000). The presence of excess voting rights can also be detrimental to R&D investments as it increases the firms' cost of capital (Boubakri, Kang, & Park, 2010; Guedhami & Mishra, 2009). Rational investors who anticipate the agency costs of excess voting rights will likely require a risk premium, which in turn will inevitably increase the financing costs of investment projects. In this context, private benefits of control may appear more attractive to founders and their families rather than risky and costly R&D investments, for which returns are uncertain and, if any, the founders and their families would benefit very little as their cash flow rights are low.

We therefore argue that the negative effects of excess voting rights will impede the willingness condition present in lone founder firms and exacerbate the lower willingness of family founder firms to invest in R&D. We expect the negative effect of excess voting rights on R&D to be the strongest for lone founder rather than family founder firms. First, lone founders do not have to worry about the effect of their decisions on other family members involved with the firm. Hence, if lone founders engage in self-opportunistic behavior that may expropriate minority shareholders of their wealth, they will not have additional concerns as to how their behavior might affect the economic welfare of other members of the family involved in the firm because there are none. Second, R&D investments require patience and a long-term decision-making horizon, but excess voting rights may adversely affect the long-term decision-making horizon of lone founders. Indeed, since the presence of excess voting rights is positively associated with the age of the firm (Di Vito et al., 2010), lone founder firms with excess voting rights are older, and consequently, so are their founders. Therefore, the long-term horizon of lone founder firms with excess voting rights may not be

as important as that of lone founder firms without excess voting rights. As such, when the long-term horizon is hindered, so will the willingness to invest in risky long-term projects such as R&D be lessened for lone founder firms with excess voting rights.

Hence, we predict that, whereas lone founder firms without excess voting rights should favor R&D investments (H1), because both the sufficiency conditions of ability and willingness to invest in R&D are present, lone founder firms with excess voting rights should have fewer incentives to invest in R&D because in this context the willingness condition is no longer evident. On the other hand, while we have argued that family founders have a lesser willingness to invest in R&D, the presence of excess voting rights should only exacerbate that lower willingness, because, with excess voting rights, the costs of any family-oriented opportunistic investment behavior will be externalized to minority shareholders. In this perspective, family founder firms may then feel less concerned about the financial costs associated with noneconomic objectives or preserving their socioemotional wealth. We therefore predict that the presence of excess voting rights should exacerbate the lower willingness of family founders to invest in R&D. This leads us to predict the following two hypotheses:

**Hypothesis 3 (H3):** Lone founder firms with excess voting rights are negatively associated with R&D investments.

**Hypothesis 4 (H4):** Excess voting rights will worsen the negative relationship between family founder firms and R&D investments.

Our research hypotheses and predicted signs are summarized in the second section of Appendix A.

## Method

### Sample Selection

We conducted our study on a sample of Canadian firms listed on the S&P/TSX Composite Index for the period 2002 to 2008 from the Stock Guide database<sup>6</sup> (1,475 firm-year observations). We then excluded financial sector firms ( $n = 171$ ), in line with other studies (e.g., Di Vito et al., 2010), because of the differences in regulations and investment practices in that industry. Finally, we deleted firm-year observations with incomplete data for our ownership and control variables ( $n = 150$ ). Our

final sample was an unbalanced panel of 303 Canadian listed firms with 1,154 firm-year observations.

### Firms Classification, Ownership, and Control

This study focuses specifically on the founder of the company, but only when the founder is the principal shareholder, that is, the largest shareholder holding at least 10% of the voting rights.<sup>7</sup> However, holding a minimum of 10% of the voting rights does not necessarily give one full control over the decision making in a firm, as this may crucially depend on other governance attributes. However, not only do our sample founder-controlled firms hold a significant proportion of voting rights (average voting rights of founder-controlled firms are close to 50%), but these founders are also actively involved in the management and administration of their firms by either holding a management position (75% of our sample founder-controlled firms) or sitting on the board of directors (99% of our sample founder-controlled-firms). Even in the very rare cases where the founders hold less than 20% of the voting rights, they still remain the only block holder of their firm as the rest of the share capital is widely dispersed. Thus, because of their control of the votes, our sample firms' founders are in a position to control the decision-making process of the company, which gives them the ability to make strategic investment decisions, such as whether to undertake R&D investment projects.

Using the firms' proxy circulars available on the SEDAR website,<sup>8</sup> we identified the principal shareholder of the selected companies and collected ownership variables. We used the same methodology as La Porta et al. (1999), Claessens et al. (2000), and Faccio and Lang (2002) and focused on "ultimate" rather than "immediate" ownership and control. Accordingly, when the principal shareholder of a firm is another corporate entity, we looked for the principal shareholder of that entity, and so on, until we found the ultimate principal shareholder. Thus, the latter may be either an individual or a group of individuals, or a corporation (a widely held firm or a financial institution). Once the ultimate principal shareholder was identified, we verified whether it is the founder of the company. To do so, we relied on the firm's proxy circulars and also on various Internet sources, such as the company's corporate website. We define *founder-controlled firms* as controlled firms in which the ultimate principal shareholder is the original

**Table 1.** Descriptive Statistics on Sample Firms' Ownership and Control.

	Lone founder firms	Family founder firms	Heirs-controlled firms	Others
<i>n</i>	108	139	145	762
% of the sample	9	12	13	66
Mean				
VOTES	0.40	0.56	0.58	0.10
CASH	0.18	0.26	0.21	0.10
EXCESS	0.22	0.30	0.37	—
SEP	0.49	0.60	0.86	—

founder of the firm. Founder-controlled firms are then divided into two groups: (1) *lone founder firms* (LONE FOUNDER), that is, founder firms in which the original founder is the sole family member—no other member of his or her family is involved in the firm as shareholder, executive, or director,<sup>9</sup> and (2) *family founder firms* (FAMILY FOUNDER), that is, founder firms in which the original founder is not the only family member involved—at least one other member of his or her family is involved in the firm as shareholder, executive, or director.

We categorize as *heirs* those family-controlled firms where the founders are no longer active in the business but their heirs have become the ultimate principal shareholders of the firm. Apart from recent studies by Block (2012), Le Breton-Miller et al. (2010), Miller and Le Breton-Miller (2011), and Miller et al. (2011), most previous studies considered family founder firms, lone founder firms, and heirs-controlled firms as being in one category called “family firms.”

Finally, we grouped into a category named *others* those firms in which the ultimate principal shareholder is a corporation and also firms without an ultimate principal shareholder (widely held firms). In our regression analyses, HEIRS will be treated as a control variable and OTHERS as the reference group.

We then manually collected the ownership variables. We collected the ultimate principal shareholder's voting rights (VOTES) and cash flow rights (CASH). When voting rights are higher than cash flow rights, the firm is said to be endowed with excess voting rights. Consistent with prior studies (e.g., Di Vito et al., 2010; Villalonga & Amit, 2006), excess voting rights is measured as the difference between voting rights and cash flow rights (EXCESS). We also use a binary variable (SEP), which takes the value of 1 when the firm's ultimate principal shareholder has excess voting rights, and 0 otherwise.

In our database, for instance, Shaw Communications, one of the largest telecommunications service provider companies in western Canada, founded by James R. Shaw in 1966, is classified as a family founder firm with excess voting rights. This is so because the founder, Shaw, who is still present in the firm and also the CEO, owns 79% of the voting rights of the corporation (according to our year 2008 observation), while holding only 11% of the cash flow rights. Because other family members are also involved in the firm, we qualify this firm as a family founder firm. On the other hand, Alimentation Couche-Tard, a Quebec-based corporation and a leader in the convenience store industry, founded in 1980, is classified as a lone founder firm with excess voting rights. This is so because Alain Bouchard, the founder, is still present in the firm and acting as CEO (according to our year 2008 observation) but has no other member of his family involved in the corporation. In addition, Bouchard holds 53.3% of the voting rights but only 8.6% of the cash flow rights, which grants him 44.6% of excess voting rights. Finally, Bombardier, a world-class leader in the aerospace industry, founded in 1942 by the late Joseph-Armand Bombardier and now controlled by the founder's descendants, heirs of the corporation, would be classified as an heir-controlled firm in our sample.

Descriptive statistics on firm classification and ownership are presented in Table 1. Sixty-six percent of the sample firms are nonfamily firms, and 34% are what the previous studies would call family firms, categorized as 9% lone founder firms, 12% family founder firms, and 13% heirs-controlled firms. The lone founder controls on average 40% of the votes and holds 18% of the cash flow rights and, in almost half of the cases, has excess voting rights. Voting rights concentration as well as the presence of excess voting rights appear even higher in family founder firms. Furthermore, unreported results reveal that lone founders or family founders are actively



involved in the company because they sit on the board of directors in 99% of the cases and, in almost 75% of the cases, also hold a top management position. In addition, in almost 85% of founder-controlled firms, the founders hold more than 20% of the voting rights, and in more than 50% of founder-controlled firms, the founders have the majority of votes. In the few cases where founders hold between 10% and 20% of the voting rights, there are generally no other block holders and the other voting shares are widely dispersed. This confirms the decision-making power of founders.<sup>10</sup>

Overall, the statistics presented in Table 1 are consistent with previous studies focusing on Canadian ownership structure for different time periods, and they highlight the prevalence of ownership concentration, excess voting rights, and family ownership in Canada.<sup>11</sup> Moreover, Canada is not unique as the ownership structure in many countries around the globe is similar (King & Santor, 2007; La Porta et al., 1999). Canada therefore offered an ideal setting to conduct our study and examine the relationship between founders and R&D investments.

### Empirical Model and Data

To test our research hypotheses, we perform panel regression analyses using the following research model:<sup>12</sup>

$$\begin{aligned} \text{R\&D} = & \alpha_0 + \alpha_1 \text{FOUNDER TYPE} + \alpha_2 \text{SIZE} + \alpha_3 \text{DEBT} \\ & + \alpha_4 \text{ROE} + \alpha_5 \text{GROWTH} \\ & + \alpha_6 \text{GOVERNANCE} + \alpha_7 \text{CEO-AGE} \\ & + \alpha_8 \text{CEO-TENURE} + \alpha_9 \text{FIRM-AGE} \\ & + \alpha_{10} \text{INSTITUTIONAL} + \alpha_{11} \text{HEIRS} \\ & + \text{Fixed Effects} + \varepsilon. \end{aligned}$$

The dependent variable R&D represents the level of investments made in R&D as measured by annual R&D expenditures scaled by total assets at the year end. This measure of R&D intensity is commonly used by many other studies to capture R&D intensity (e.g., Block, 2012; Cho, 1998; Di Vito et al., 2010).

Founder type refers to lone founder firms and family founder firms. To test whether the founder's excess voting rights affect R&D investments, we used binary variables that identify lone founder and family founder firms with or without excess voting rights. Hence, we introduce the following four binary variables: NOSEP-LONEFOUNDER, NOSEP-FAMILYFOUNDER, SEP-LONEFOUNDER and SEP-FAMILYFOUNDER.

To control for firm-specific characteristics, we include a set of control variables that are known in the literature to affect R&D investment intensity (Block, 2012; Czarnitzki & Kraft, 2009; Di Vito et al., 2010). Accordingly, included in our analyses are the firm size (SIZE), measured as the log of total assets; leverage (DEBT), measured as the ratio of long-term debt scaled by total assets; performance (ROE), the return on equity ratio; growth (GROWTH), measured as the price-to-book ratio; and the age of the firm (FIRM-AGE), the number of years since the firm was founded. We also include several corporate governance variables because firm governance characteristics may have an effect on investment decisions. As such, we include the total *Globe and Mail Report on Business* score (GOVERNANCE) to capture the overall quality of the different dimensions of corporate governance practices, such as compensation, disclosure, shareholder rights, and board of directors.<sup>13</sup> In line with previous studies that have found significant effects of certain CEO characteristics on corporate investments, we include the age (CEO-AGE) and tenure (CEO-TENURE) of CEOs. We also control for the impact of institutional investor ownership on corporate investments by including the percentage of voting rights held by the institutions (INSTITUTIONAL) in our analyses (Di Vito et al., 2010; Graves, 1988). Previous studies (Miller et al., 2011; Villalonga & Amit, 2006) have shown the importance of distinguishing heir-controlled firms from other family firms, given their poor performance. Our analyses include a binary variable HEIRS, so that the lone founder and family founder firms can be compared with nonfamily firms.

Finally, the independent variables included in the model are 1-year time lagged. We also control for year and industry fixed effects, because R&D investments may be affected by unobservable characteristics that are specific to an industry and/or a given financial period. This way, our empirical model reduces the potential biases from omitted variables and endogeneity. We opted to perform a pooled regression model because our founder-type variables are dichotomous (binary) and generally do not vary over time.<sup>14</sup> Appendix B provides a complete and detailed list of the dependent and independent variables.

Descriptive statistics and Pearson correlations are presented in Table 2. The average level of R&D investments is approximately 2% of the total assets, which is in line with most previous research. The average ROE is

**Table 2.** Descriptive Statistics and Correlation Matrix.

	Mean	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 R&D	0.019	1														
2 SEP-LONEFOUNDER	0.042	-.058*	1													
3 SEP-FAMILYFOUNDER	0.072	-.089**	-.054	1												
4 NOSEP-LONEFOUNDER	0.043	.124**	-.044	-.056*	1											
5 NOSEP-FAMILYFOUNDER	0.048	-	-.044	-.056*	-.026	1										
6 HEIRS	0.130	-.112**	-.073**	-.094**	-.076**	-.075**	1									
7 SIZE	14.425	-.329**	.020	.066*	-.134**	-.056	.230**	1								
8 DEBT	0.213	-.279**	-.006	.135**	-.040	.005	.172**	.402**	1							
9 ROE	7.165	-.237**	-.008	.021	-.083**	.006	.033	.199**	.007	1						
10 GROWTH	5.88	.038	-.013	-.017	-.009	-	.061*	-.037	.094**	-.028	1					
11 GOVERNANCE	66.434	-.061*	-.102**	-.149**	-.088**	-.095**	-.106**	.391**	.121**	.089**	.003	1				
12 CEO-AGE	53.274	-.115**	.038	.073**	-.019	-.006	.056*	.104**	-.004	.003	-.012	.116**	1			
13 CEO-TENURE	8.071	-.085**	.207**	.141**	.011	.184**	-.003	-.012	.032	.035	-.024	-.113**	.428**	1		
14 FIRM-AGE	27.942	-.094**	-.055*	-.018	-.123**	.000	.135**	.284**	.007	.073*	.005	.213**	.148**	-.003	1	
15 INSTITUTIONAL	0.026	-.025	-.013	.007	.028	.031	-.030	-.033	.002	.006	.100**	.021	.044	.065*	.076**	1

\*Two-tailed correlation significant at the .05 level. \*\*Two-tailed correlation significant at the .01 level.

7%, while the average debt ratio is approximately 21%. Growth, calculated by the price-to-book ratio, shows an average of 5.88. The average age of CEOs is 53, and the CEOs hold their position for an average of 8 years. The firms have been in operation for an average of approximately 28 years. The average level of institutional ownership of our sample firms is 3%.

As for the two-tailed correlation analysis, our results reveal statistically significant correlations between our control variables and R&D investments, which shows the importance of including these variables in our regression model. Furthermore, lone founder firms with no excess voting rights (NOSEP-LONEFOUNDER) are positively and significantly correlated to R&D investments. However, when endowed with excess voting rights, lone founder firms (SEP-LONEFOUNDER) are negatively correlated with such investments. These preliminary results are consistent with our hypotheses (H1 and H3). With regard to family founder firms, a negative correlation with R&D investments is observed, but only in the presence of excess voting rights (SEP-FAMILYFOUNDER), which corroborates our fourth hypothesis (H4) but not our second one (H2).

## Results

### Mean Comparison Analyses

We compare the means of R&D investments as well as other firm-specific and governance variables used in our study between our different types of founder-controlled firms and *others* (nonfamily firms, including widely held firms, as well as firms controlled by financial institutions or corporations). These mean comparison analyses are presented in Table 3. As expected, lone founder firms with no excess voting rights (NOSEP-LONEFOUNDER) invest significantly more in R&D than *others* (OTHERS). They also have higher R&D spending than lone founder firms with excess voting rights (SEP-LONEFOUNDER), which is consistent with H1 and H3. On average, investments in R&D by family founder firms with no excess voting rights (NOSEP-FAMILYFOUNDER) are lower than those by nonfamily firms (OTHERS), but they are higher than family founder firms with excess voting rights (SEP-FAMILYFOUNDER).

The results reported in Table 3 also highlight some distinct characteristics of founder firms. Whether lone founder firms or family founder firms, when endowed

with excess voting rights, these firms are generally larger, are more in debt, and have a more concentrated shareholding than all other firms. Their CEOs, who are often the founders, have been in office for a greater number of years. In addition, they differ from all other firms in terms of weaker governance practices. However, lone founder firms with no excess voting rights appear to be significantly younger and smaller than any other category of firms.

### Regression Results

Regression results are presented in Table 4. Our first model (M1) is similar to the one used by previous studies (see Miller et al., 2011) and tests the effect of founder firms without taking into account the presence of excess voting rights. Lone founder firms and family founder firms are compared with nonfamily firms—OTHERS, which is the reference group. The coefficients of the LONEFOUNDER and FAMILYFOUNDER variables are not statistically different from 0 according to the conventional thresholds. Generally speaking, founder firms do not differ from nonfamily firms in terms of R&D investments. These results converge with those of Miller et al. (2011). The absence of a significant effect of founder firms on R&D can be explained by the fact that the model does not control for an important dimension of some family firms, namely the presence of excess voting rights.

Our second model (M2) aims to test the link between founder firms and R&D investments while measuring the moderating effects of excess voting rights. We therefore include four dichotomous variables: SEP-LONEFOUNDER, SEP-FAMILYFOUNDER, NOSEP-LONEFOUNDER, and NOSEP-FAMILYFOUNDER. The results show a positive effect for the variable NOSEP-LONEFOUNDER ( $\beta = .018, p < .10$ ) and a negative effect for the variable SEP-LONEFOUNDER ( $\beta = -.017, p < .01$ ). These findings suggest that lone founder firms without excess voting rights invest more in R&D than nonfamily firms and that lone founder firms with excess voting rights invest less. These results support our first and third research hypotheses (H1 and H3), that lone founder firms without excess voting rights are positively associated with R&D expenditures whereas the presence of excess voting rights is negatively associated with R&D. The results obtained from M2 also show no significant effect of family founder firms without excess voting rights (NOSEP-FAMILYFOUNDER) on R&D and,

**Table 3.** Mean Comparison (t Test) Analyses.

	NOSEP-		SEP-		NOSEP-		SEP-		(1)-(5)	(3)-(5)	(1)-(2)	(3)-(4)
	LONEFOUNDER	LONEFOUNDER	LONEFOUNDER	LONEFOUNDER	FAMILYFOUNDER	FAMILYFOUNDER	FAMILYFOUNDER	OTHERS				
	(1)	(2)	(2)	(3)	(3)	(4)	(4)	(5)	(1)-(5)	(3)-(5)	(1)-(2)	(3)-(4)
R&D	0.054	0.002	0.002	0.015	0.015	0.000	0.000	0.025	1.925*	-1.951*	3.358***	3.068***
SIZE	13.478	14.600	14.600	14.035	14.035	14.781	14.781	14.321	-5.806***	-2.000**	-4.507***	-4.498***
DEBT	0.183	0.212	0.212	0.216	0.216	0.291	0.291	0.194	-0.507	1.020	-0.924	-2.690***
ROE	6.607	7.995	7.995	8.077	8.077	9.877	9.877	7.395	-3.260***	0.122	-1.880*	-0.790
GROWTH	3.479	2.524	2.524	1.755	1.755	2.456	2.456	2.878	1.257	-6.268***	1.861*	-2.980***
GOVERNANCE	61	59	59	60	60	59	59	69	-5.688***	-4.614***	0.705	0.783
FIRM-AGE	11	20	20	28	28	26	26	28	-12.459***	0.092	-6.495***	0.876
CEO-AGE	53	55	55	53	53	55	55	53	-0.309	0.108	-1.701*	-1.084
CEO-TENURE	8	16	16	15	15	12	12	7	1.677*	4.436***	-4.510***	1.212
INSTITUTIONAL	0.034	0.022	0.022	0.035	0.035	0.028	0.028	0.021	1.448	1.436	0.836	0.670
VOTES	0.235	0.567	0.567	0.318	0.318	0.711	0.711	0.102	9.301***	10.353***	-12.782***	-15.291***
EXCESS	—	0.443	0.443	—	—	0.495	0.495	0.004	-1.263	-4.879***	—	—
SEP	—	1.000	1.000	—	—	1.000	1.000	0.015	-1.418	-1.405	—	—



**Table 4.** Regression Analyses on R&D Investments.

	M1	M2
Intercept	0.176*** 6.821	0.168*** 5.960
SIZE	-0.006*** -5.221	-0.005*** -4.349
DEBT	-0.047*** -6.918	-0.048*** -7.227
ROE	0.000 -1.146	0.000 -1.152
GROWTH	0.000 -1.323	0.000 -1.094
GOVERNANCE	0.000*** 3.874	0.000*** 3.256
CEO-AGE	0.000 -0.255	0.000 -0.172
CEO-TENURE	0.000*** -5.340	-0.000*** -4.666
FIRM-AGE	0.000 0.324	0.000 0.091
INSTITUTIONAL	-0.013 -1.407	-0.017* -1.760
HEIRS	-0.005* -2.411	-0.007*** -4.900
LONEFOUNDER	0.002 0.271	
FAMILYFOUNDER	-0.006 -1.450	
SEP-LONEFOUNDER		-0.017*** -4.073
NOSEP-LONEFOUNDER		0.017* 1.792
SEP-FAMILYFOUNDER		-0.009*** -4.288
NOSEP-FAMILYFOUNDER		-0.006 -0.968
Adjusted R <sup>2</sup>	0.363***	0.370***

therefore, do not support our second research hypothesis (H2). However, consistent with H4, the significantly negative coefficient of SEP-FAMILYFOUNDER ( $\beta = -0.009$ ,  $p < .01$ ) suggests that excess voting rights in family founder firms is negatively associated with R&D.

With regard to the control variables, in both model specifications, we find SIZE, DEBT, CEO-TENURE, and HEIRS to have a significantly negative effect on R&D investments, whereas GOVERNANCE has a significantly positive effect. The positive coefficient for

GOVERNANCE suggests that the firms with good corporate governance practices are more active in R&D. The negative coefficients for SIZE and DEBT are in line with previous studies, indicating that larger and highly leveraged firms, monitored closely by their creditors, tend to invest less in risky projects such as R&D (Czarnitzki & Kraft, 2009). CEO-TENURE has a negative effect on R&D investments, meaning that the longer CEOs hold their position in the firm, the more entrenched they become and the less willing they will be to undertake risky projects. Consistent with Block (2012), we find that institutional ownership decreases R&D investments, suggesting that institutional investors could potentially put pressure on firms to achieve short-term results, which seems to hamper long-term investments such as R&D, although the negative coefficient is only significant in our second model (M2). Finally, in line with many previous studies on family firms, including heir-controlled firms, we find a negative coefficient for HEIRS (Chrisman & Patel, 2012; Le Breton-Miller et al., 2010; Muñoz Bullón and Sanchez-Bueno, 2011).

In summary, the results of Table 4 suggest that it is relevant to differentiate lone founder firms with excess voting rights from lone founder firms without excess voting rights. Without this distinction being taken into account, the two opposing effects neutralize each other, and no significant effect is detectable (see Model 1).

### Robustness Checks

To test the robustness of our results, we rerun Model 2 of Table 4, but applying the following four treatments. (The results are reported in Table 5.) First, because fewer than 2% of the nonfamily firms (OTHERS) in our sample are endowed with excessive voting rights (see Table 3), we remove them from the analysis. This allows for a more accurate comparison of lone founder and family founder firms with nonfamily firms. The results remain qualitatively unchanged (Table 5, Column 1). Second, we replace our binary variables of lone founder and family founder firms with continuous ones, measuring ownership by the proportion of cash flow rights (CASH) as well as the level of excess voting rights (EXCESS). The following four continuous variables are therefore included: CASH-LONEFOUNDER, EXCESS-LONEFOUNDER, CASH-FAMILYFOUNDER, and EXCESS-FAMILYFOUNDER. These continuous variables allow us to test the linear relationship between the

**Table 5.** Robustness Tests: Regression Analyses on R&D Investments.

	M1	M2	M3 (Tobit)	M4 (Probit)
Intercept	0.172***	0.171***	0.155***	-0.031
	5.519	6.567	7.871	-0.049
SIZE	-0.007***	-0.006***	-0.006***	0.098*
	-4.794	-4.648	-4.718	2.337
DEBT	-0.066***	-0.049***	-0.083***	-3.791***
	-7.628	-7.947	-8.059	-10.327
ROE	0.000	0.000	0.000***	-0.004**
	-1.141	-1.131	-5.737	-3.164
GROWTH	0.000*	0.000	0.000	-0.001
	-1.655	-1.553	-0.636	-0.426
GOVERNANCE	0.000*	0.000***	0.000	-0.004
	1.871	5.827	0.162	-0.872
CEO-AGE	0.000	0.000	0.000	-0.017*
	0.879	-0.475	-0.277	-2.440
CEO-TENURE	0.000***	0.000***	0.000*	0.005
	-4.824	-4.536	-1.713	0.719
FIRM-AGE	0.000	0.000	0.000	-0.001
	0.749	0.946	-0.078	-0.584
INSTITUTIONAL	-0.009	-0.013	-0.025	-0.440
	-0.884	-1.419	-1.105	-0.650
HEIRS	-0.006***		-0.017***	-0.345*
	-3.192		-3.451	-2.032
EXCESS-LONEFOUNDER		-0.032***		
		-4.515		
EXCESS-FAMILYFOUNDER		-0.004**		
		-2.668		
CASH-LONEFOUNDER		0.105***		
		3.527		
CASH-FAMILYFOUNDER		-0.005		
		-1.022		
SEP-LONEFOUNDER	-0.013***		-0.014*	-1.132***
	-2.883		-1.911	-3.553
NOSEP-LONEFOUNDER	0.018**		0.021**	0.397**
	1.925		3.106	1.863
SEP-FAMILYFOUNDER	-0.010***		-0.021**	-0.329
	-3.122		-3.260	-1.384
NOSEP-FAMILYFOUNDER	-0.004		-0.008	0.004
	-0.545		-1.096	0.019
Adjusted R <sup>2</sup> (M1 and M2), log likelihood (M3), and likelihood ratio (LR) (M4)	0.338***	0.370***	1817.645	324.7***

founders' ownership concentration as well as their level of excess voting rights and R&D investments. The reported results show significant negative coefficients for both EXCESS variables (Table 5, Column 2). This indicates that R&D investments decrease with the

increase in the level of excess voting rights of lone founders ( $\beta = -0.032$ ,  $p < .01$ ) and family founders ( $\beta = -0.004$ ,  $p < .10$ ). However, in line with our first hypothesis (H1), ownership concentration for lone founder firms is positively associated with R&D

expenditure, suggesting a better alignment of interests between the lone founders and the rest of the shareholders.

Third, given that our dependent variable (R&D) is censored at 0, we repeat Model 2 of Table 4 using a Tobit regression analysis. The Tobit model is designed to estimate linear relationships between variables when there is either *left* or *right censoring* in the dependent variable. As shown in Table 5, Column 3, the results of the Tobit analysis are qualitatively similar to those presented in Table 4. Lone founder firms without excess voting rights (NOSEP-LONEFOUNDER) are positively associated with R&D. On the other hand, when endowed with excess voting rights, both lone founders and family founders have significantly negative effects on R&D investments

Fourth, another way to deal with the characteristics of our dependent variable (R&D) is to do a Probit analysis (Gentry, Dibrell, & Kim, 2016; Munoz-Bullon & Sanchez-Bueno, 2011). Probit models are appropriate when attempting to model a dichotomous dependent variable. Consequently, we replaced our dependent variable R&D with the binary variable DUMMY-RD, which is coded 1 when the firm incurred R&D expenditure and 0 otherwise. We rerun M2 using DUMMY-RD as a dependent variable. As seen in Column 4 of Table 5, again the results remain qualitatively similar, except for the SEP-FAMILYFOUNDER variable, whose negative coefficient is not statistically significant at the conventional thresholds.

## Discussion

Our study contributes to the existing literature by empirically demonstrating De Massis et al.'s (2014) theoretical position on the importance of identifying the presence of both sufficiency conditions (ability and willingness) to depict patterns of investment behavior in different types of founder firms. Accordingly, we have predicted that while all founder-controlled firms have the ability to make investment decisions, only lone founder firms without excess voting rights have both the ability and the willingness to invest in R&D. Consequently, our results show that when lone founders are not endowed with excess voting rights, they invest more in R&D than other firms. However, when lone founders have excess voting rights, they invest significantly less. On the other hand, although family founders have the ability to invest in R&D, according to behavioral agency theory, their primary concern is

preserving socioemotional wealth (Chrisman & Patel, 2012), which we argue may hinder their willingness to invest in risky projects such as R&D. As such, we find a negative yet nonsignificant relationship between family founders without excess voting rights and R&D. Our study also shows that when founders are endowed with excess voting rights, they are less willing to invest in R&D. Consequently, our results indicate that both lone founders and family founders with excess voting rights invest significantly less in R&D than other, nonfamily firms.

When previous studies, based on agency theory, predict a positive relationship between lone founder firms and R&D (Block, 2012; Le Breton-Miller et al., 2010; Miller et al., 2011; Miller and Le Breton-Miller, 2011), they implicitly assume that the conditions of ability and willingness are both present in lone founder firms. This is so because agency theory primarily focuses on the sole pursuit of economic goals and therefore implicitly suggests that when the ability condition is met then so should the willingness condition. Hence, not considering that the willingness condition may vary is an important limitation in agency theory when examining founder firms' investment behavior. Our study contributes to the existing literature by challenging this implicit assumption and showing that willingness to invest in R&D does, in fact, vary among lone founder firms depending on the presence or absence of excess voting rights. Accordingly, we show that only lone founder firms without excess voting rights, in which case both ability and willingness conditions are met, invest more in R&D. We also show that with excess voting rights, lone founders invest less in R&D than other firms.

The relationship between founder-controlled firms and R&D investments can be explained by the complexities of agency conflicts between controlling and minority shareholders, which are very present in concentrated ownership structures, especially when these firms have control-enhancing mechanisms empowering founders even more in the decision-making process. First, when examining lone founder firms and family founder firms, without distinguishing whether or not they have excess voting rights, lone founder firms (family founder firms) seem to have a positive (negative) yet not statistically significant effect on R&D investments. These findings can be explained by the fact that, in general, lone founders should have both the ability and the willingness to pursue risky and long-term value-enhancing investments such as R&D, whereas family founder firms are bound by particular behavioral

agency issues. Thus, family founder firms will tend to make decisions in line with their family members' noneconomic benefits associated with preserving socioemotional wealth and avoid taking risky investment decisions such as R&D, which may destroy it. Hence, these specific family-particularistic considerations will directly affect the willingness of family firms to invest in R&D. The nonsignificant coefficients for lone founders and family founders in our first regression analysis indicate that there is noise in our two founder variables when not distinguishing excess voting rights, which has a direct negative effect on the willingness condition, necessary for predicting R&D investment behavior. Also, with about 55% of our founder-controlled firms having excess voting rights, it is necessary to distinguish between lone founder and family founder firms with and without excess voting rights in order to understand in which context both ability and willingness conditions are present. The presence of excess voting rights amplifies agency costs because founder firms are even more empowered to make decisions that will favor their personal or family wealth while externalizing the costs of any investment decision that would be suboptimal for the firm as a whole. In our second model (M2), when isolating lone founders and specifying whether or not they have excess voting rights, the picture becomes much clearer. When other family members are not involved in the firm's management or administration and when no excess voting rights are involved, lone founder firms seem to invest significantly more in R&D than any other type of firm. These findings are consistent with our first research hypothesis (H1). Indeed, lone founders do not have specific altruistic concerns regarding the other family members, and when their wealth is invested in the company, the beneficial effects of entrepreneurial risk taking are well observed, as both ability and willingness to invest in R&D are present.

What raises some important concerns is that when lone founders have excess voting-rights, they invest significantly less in R&D than their counterparts. These findings are consistent with our third research hypothesis (H3). Since excess voting rights will hinder the willingness to invest in R&D, the larger the proportion of excess voting rights, the less lone founder firms invest in R&D. These results may be due to the fact that lone founder firms with excess voting rights are generally older than those without excess voting rights. Indeed, as the firm grows, the need for founders to use control-enhancing mechanisms such as dual-class shares may be important to ensure that they retain control of the firm. Another plausible explanation is that the additional empowerment gained by excess

voting rights allows lone founders to externalize the costs of suboptimal yet self-profitable investments without additional concerns with regard to optimizing family-controlled wealth. Hence, in the case of lone founder firms, the negative effect of excess voting rights on willingness to invest in R&D is stronger than for family founder firms with excess voting rights. Our study, therefore, also contributes to the existing literature by showing that the negative effects of excess voting may differ according to the different types of founder-controlled firms. The fact that excess voting rights has a stronger effect on lone founder firms, altering their willingness to invest in R&D, indicates that we cannot assume, as many previous studies have done, that excess voting rights will have the same effect on any type of firm.

On the other hand, even when distinguishing between family founder firms with and without excess voting rights, we observe a negative effect on R&D for both subgroups; however, only the coefficient for family founder firms with excess voting rights is statistically significant, which supports our fourth research hypothesis (H4) but not our second one (H2).

## Conclusion

In this article, we explore one possible path through which founders achieve higher firm value: their investments in R&D. We apply De Massis et al.'s (2014) family firms' particularistic behavior model and adapt it to understand founder firms' behavior with regard to R&D. Thus, we analyse the R&D investment behavior of lone founder firms and family founder firms with and without excess voting rights by examining whether our different types of founder firms have both the ability and the willingness to invest in R&D. To predict investment behavior, both of these sufficiency conditions (ability and willingness) must be present. While all founder-controlled firms have the ability to invest in R&D, our findings indicate that only lone founder firms without excess voting have also the willingness to do so. Our findings also indicate that when lone founders are endowed with excess voting rights, their investment behavior is altered as they lose the willingness to invest in R&D. As for family founder firms, we find a negative yet nonsignificant effect on R&D when there is no excess voting rights, suggesting a lower willingness to invest in R&D. However, as predicted, we show that this lower willingness is amplified when family founder firms are endowed with excess voting rights, which leads to a negative and statistically significant effect on R&D.



Our study completes our understanding of the impact founders have on firm value by examining their investment behavior toward value-enhancing investments such as R&D. Our study highlights the predominant effect of excess voting rights in hindering founders' willingness to invest in R&D. These results provide an important contribution to the existing literature because many firms throughout the world are endowed with excess voting rights. Our results can be generalized to many other economies, particularly in Europe and Asia, where family- or founder-controlled firms and the use of excess voting rights are common characteristics of ownership structures.

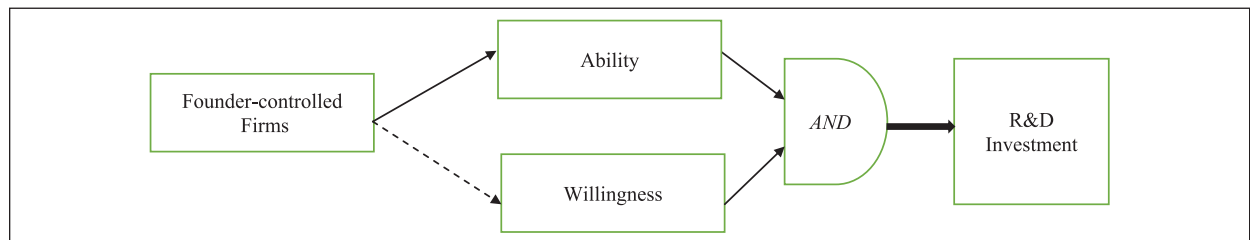
Our study is subject to certain limitations. First, the period covered in this study (2002–2008) is not recent. However, ownership structures are reported to be relatively stable over time, hence our results may be generalizable to the current economic situation. Second, while studying founders' ability and willingness to pursue investments in R&D, we do not measure their capability of choosing R&D investments efficiently. This is an important aspect that needs future investigation, as not all R&D expenditures lead to value creation. Furthermore, while founder-controlled firms have the ability to choose to invest in R&D, they may not have the "ability" in terms of financial resources to do so. Finally, R&D investing is only one way that firms can create value through innovation. Some firms may opt to innovate by acquiring existing technologies, which sometimes can be just as beneficial as R&D expenditures. These questions pave the way for future research.

The dominant effect of excess voting rights on R&D investments documented in this study has policy implications. Since excess voting rights is commonly achieved via the use of devices such as dual-class shares and pyramid structures, governance policies should be enacted to regulate such practices. Our study shows that it is the presence of these arrangements more than the concentration of ownership per se that has a negative impact on the level of R&D investments. High ownership concentration and excess voting rights characterize the corporate governance landscape around the globe. This governance feature is also more likely to persist in the near future. Consequently, it is imperative that the tactics used to achieve dominance or control be regulated. Governance regulators should also be aware of the detrimental effects of excess voting rights on innovation and should promote transparency and disclosure of investment opportunities and perhaps require a one share/one vote system to decide on major investments.

Our research also bears practical implications. Our findings suggest that family founders' concerns with regard to socioemotional wealth reduces their willingness to invest in R&D. Because family controlled-firms are predominant throughout the world, their contribution to innovation is vital to ensure economic growth. Corporate boards of directors should be made aware of these issues and adequately monitor investment activities in family-controlled firms.

## Appendix A

### Section 1. Model of the sufficiency conditions to predict founder firms' behavior with regard to R&D investments.



Source. This illustrated figure above is a modified version of the family-oriented particularistic behavior model of De Massis et al. (2014), adapted to understand the relationship between founder firms and R&D investments.

### Section 2. Predicted Behavior of Different Founder Firms According to the Above Illustrated Sufficiency Conditions Model.

Type of founder-controlled firm	Ability	Willingness	Predicted sign for R&D
Lone founder without excess voting rights	Yes	Yes	+
Family founder without excess voting rights	Yes	No	-
Lone founder with excess voting rights	Yes	No	-
Family founder with excess voting rights	Yes	No	-

## Appendix B

Variables	Definition
R&D	Total R&D expenditures divided by total assets at current year end
FOUNDER-CONTROLLED FIRMS	Firms in which the original founder is the ultimate principal shareholder (largest shareholder with 10% or more of the votes)
LONEFOUNDER	Founder firms in which the founder is alone (without any other family members)
FAMILYFOUNDER	Founder firms in which the founder is not alone—at least another member of his or her family is involved as shareholder, executive, or director
HEIRS	Firms in which the founder's heirs are the ultimate principal shareholder
NOSEP-LONEFOUNDER	Lone founder firms in which the founder's voting rights are equal to his or her cash flow rights
SEP-LONEFOUNDER	Lone founder firms in which the founder's voting rights are superior to his or her cash flow rights
NOSEP-FAMILYFOUNDER	Family founder firms in which the founder's voting rights are equal to his or her cash flow rights
SEP-FAMILYFOUNDER	Family founder firms in which the founder's voting rights are superior to his or her cash flow rights
CASH	Proportion of cash flow rights held by the ultimate shareholder at the beginning of the current year
VOTES	Proportion of voting rights held by the ultimate shareholder at the beginning of the current year.
EXCESS	The difference between VOTES and CASH
SEP	Firms endowed with excess voting rights (EXCESS)
<i>Firm characteristics</i>	
SIZE	Log of total assets at previous year end
DEBT	Long-term debt divided by total assets at previous year end
ROE	Net earnings divided by equity at previous year end
GROWTH	Price-to-earnings ratio at previous year end
GOVERNANCE	ROB index of governance rating from <i>The Globe and Mail</i> (scores from 0 to 99) at previous year end
CEO-AGE	Age of the CEO at the beginning of the current year
CEO-TENURE	Number of years the current CEO held his or her position at the beginning of the current year
FIRM-AGE	Number of years the firm is in operation
INSTITUTIONAL	Total proportion of voting shares held by institutional investors at the beginning of the current year

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### Notes

1. Excess voting rights, usually achieved through the use of dual-class shares and through pyramid structures, allow

controlling shareholders to have the necessary voting rights to control the firm while having a lower level of cash flow rights.

2. See, among others, Chrisman and Patel (2012), Muñoz-Bullón and Sanchez-Bueno (2011), Le Breton-Miller et al. (2010), Di Vito et al. (2010), Munari, Oriani, and Sobrero (2010), Chen and Hsu (2009), and Lee and O'Neil (2003).
3. Nonfamily firms include widely held firms, firms controlled by institutions, and widely held or private corporations.
4. Our descriptive statistics presented in Table 1 are consistent with this statement.

5. See Bombardier's proxy circular.
  6. StockGuide is a Canadian database that gathers financial data for Canadian listed firms. Sources include firms' quarterly and annual reports as well as proxy statements.
  7. In Canada, information on the principal shareholders is only mandatorily disclosed when they hold at least 10% of the firm's voting rights.
  8. SEDAR ([www.sedar.com](http://www.sedar.com)) is the equivalent of EDGAR in the United States. It is the official site that provides access to most public securities documents and information filed by issuers in Canada.
  9. The family members of the founder are identified primarily on the basis of the surname and also by consulting the proxy statements and corporate website where the kinship between the members of the company (shareholders, directors, executives) is voluntarily disclosed.
  10. Therefore, the sufficiency condition of *ability* can be expected to be met for our sample founder-controlled firms.
  11. See Morck, Stangeland, & Yeung (2000), Ben-Amar and André (2006), Bozec and Laurin (2008), and Amoako-Adu, Baulkaran, and Smith (2011), which cover the period from 1988 to 2006. These results also suggest that the ownership structure of firms remains stable over time.
  12. Our regression analyses were performed using EViews software.
  13. *The Globe and Mail* is a Canadian newspaper. Canadian firms listed on the S&P/TSX Composite Index are ranked annually according to the quality of their governance practices. This governance score was used by Klein, Shapiro, and Young (2005) and Bozec, Dia, and Bozec (2010) to test the link between governance and corporate performance.
  14. When our founder variables are continuous variables (M1 of Table 5), we use a panel regression analysis with fixed effects for firms and years. We also run a random-effects regression model. However, the Hausman (1978) test revealed significant differences between the fixed-effects and the random-effects regression models (chi-square statistic = 155,  $p < .01$ ).
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