



Management innovations in family firms after CEO successions: Evidence from Japanese SMEs

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ABSTRACT

We examine management innovation of family and non-family firms after CEO successions by using data of small- and medium-sized enterprises (SMEs) in Japan. Consistent with predictions based on the resource-based view and agency theory, we find that family firms managed by non-family professional CEO successors are less innovative than those managed by family CEO successors or non-family firms. Further analyses indicate that limited access to family-based resources is a key determinant of the conservativeness of professional CEO successors. Our findings suggest the importance of the congruence of ownership and management in family firms due to CEOs' access to family-based resources.

1. Introduction

Leadership succession is a challenging and pivotal time for every company because the selection of a new CEO shapes the business organization, strategies, relationships, and capabilities of the firm for many years to follow (e.g., Helmich, 1975; Reinganum, 1985; Tushman and Romanelli, 1985; Greiner and Bhambri, 1989; Miller, 1993; Shen and Cannella, 2002, 2003; Zhang and Rajagopalan, 2004, 2010). This is especially relevant for family firms due to unique factors such as socio-emotional factors, personal objectives, and family conflicts involved in the succession (Gómez-Mejía et al., 2001; Miller et al., 2003; Bennesen and Fan, 2014). The focus on successors' origin is also important because CEOs' talent, personality and (self and social) identity matter for firms to be successful and thrive (Hambrick and Mason, 1984; Bertrand and Schoar, 2003; Gibbons and Henderson, 2012a; Giorcelli, 2019; Bennesen et al., 2020; Fladerer et al., 2021), especially after business succession, and in the case of family firms (Bennesen and Fan, 2014; Amore et al., 2021). It is therefore important to answer whether family firms that have experienced a succession perform better or worse than non-family firms and whether family CEO successors outperform or underperform non-family CEO successors.

To answer these questions that are both theoretically and practically important, a number of studies have examined family firms after the CEOs' succession from various dimensions: accounting and financial performance (Pérez-González, 2006; Bennesen et al., 2007; Miller et al., 2007; Cucculelli and Micucci, 2008; Saito, 2008; Chung and Luo, 2013; Chang and Shim, 2015; Amore et al., 2021); financial policies and capital expenditures (Fahlenbrach, 2009; Ellul et al., 2010; Amore et al., 2011); labor costs (Sraer and Thesmar, 2007; Bach and Serrano-Velarde, 2015; Amore et al., 2021); and ability/willingness to introduce technology-based, product and process innovation (Beck et al., 2011; Hauck and Prügl 2015; Krafczy et al., 2015; Werner et al., 2018; Zybura et al., 2021). However, there remains an important and unexplored performance dimension in the literature on family firms after succession: management innovation.

In the broadest sense, the notion of management innovation encompasses the development and introduction of new management ideas, practices, routines, and organizational structures intended to enhance the performance of the firm and deal with business opportunities and threats (Kimberly, 1981; Birkinshaw et al., 2008; Mol and Birkinshaw, 2009; Gebauer, 2011; Damanpour and Aravind, 2012). Numerous real-world examples indicate the importance of management

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innovation, e.g., the moving assembly line invented by Ford Motors; the statistical quality control pioneered by Western Electric; and the involvement of employees at the forefront in an ongoing process of quality improvement pioneered by Toyota Motors (Birkinshaw and Mol, 2006; Hamel, 2006). As Brea-Solis et al. (2015) suggest, Walmart's impressive performance can be largely explained by its ability to innovate management during the company's leadership transitions from Sam Walton to Lee Stott (in the study's period), up to Doug McMillon. Empirical studies also show that management innovation has been a key source of competitive advantage for firms, influencing their operational efficiency, and dynamic capabilities (e.g., see the reviews by Bloom et al., 2014; Walker et al., 2015; Khosravi et al., 2019).

Given the critical role that top executives and cultural and relational factors play in the adoption of management innovations that are shared and well-received within the company at all hierarchical levels (Young et al., 2001; Birkinshaw et al., 2008), we expect that family-owned and/or family-managed firms have distinct preferences for management innovation. However, scant attention has been paid to the management innovation of these firms, which calls for new research on this subject.¹ In this paper, we contribute to fill this gap by exploring whether family firms are more or less likely to introduce management innovation than non-family firms in the aftermath of a leadership change, by focusing on the origin of CEO successors as an important confounding factor.

Based on theoretical considerations, we test two hypotheses on the effect of the origin of CEO successors on whether family-owned firms are more or less likely to introduce management innovation than non-family firms. Firstly, based on the human capital perspective, we can predict that family firms managed by professional CEO successors are more likely to introduce management innovation after succession than those managed by family CEO successors. Family CEO successors are more disadvantageous than professional CEO successors in the family or non-family firms because of little attention to the human capital of family successors (Chandler, 1990; Lazonick, 1993; Bhattacharya and Ravikumar, 2005; Bertrand and Schoar, 2006a, 2006b; Caselli and Genaioli, 2013) and their too close a relationship with founders that restricts their discretion (Mitchell et al., 2009; Quigley and Hambrick, 2012; Miller et al., 2003).

Secondly, however, agency and resource-based theories suggest that family firms managed by family successors are more likely to introduce management innovation after succession than those managed by non-family CEO successors. The relative advantage of family CEOs reflects the access to intangible family-based resources (Habbershon and Williams, 1999; Cabrera-Suárez et al., 2001), embeddedness with the business culture and organization (Arregle et al., 2007; Chung and Luo, 2013) and lower ownership-management agency problems (Miller et al., 2013) that increase their ability and willingness to initiate changes in the management style and practices. We investigate which of these predictions hold, and thereby how differences in the origin of CEO successors affect the likelihood of introducing management innovation within family firms and as compared with non-family firms.

We test these hypotheses using data of small- and medium-sized enterprises (SMEs) from Japan. The focus on Japan is relevant because

¹ Two recent and comprehensive surveys on management innovation (Walker et al., 2015; Khosravi et al., 2019) mention only two papers on family firms, which do not provide a comparison between family and non-family firms, or an assessment of the role of the origin of CEO successors. See Section 2.2 for a more detailed account of the related literature.

there are many family-owned as well as family-managed firms in Japan.² In our analysis, we use data of 1162 SMEs that have experienced a CEO succession. We obtained these data from the Survey of Corporate Finance in Japan, a corporate survey conducted in 2014 by a group of researchers, including one of the authors of this paper. From the survey, we draw information on firms' ownership structure, management and generation, and identify family versus non-family firms and family-managed versus professional-managed family firms after business successions. We also take advantage of the information on management innovation after the CEO succession from the survey. To operationalize the notion of management innovation, the survey asks for the introduction of management innovations related to the identification and exploitation of new opportunities in the incumbent business activities and other business fields (Gebauer, 2011; Harris et al., 2013). We run regressions on the determinants of the likelihood of this possible innovative behavior by CEO successors, and examine whether and how family ownership and/or family management affect the likelihood.

By way of preview, our results indicate that without conditioning the origin of CEO successors, family-owned firms after a CEO succession are not more or less likely to introduce management innovations than non-family firms that have also experienced a succession of leadership. However, when we take into account the origin of the CEO successor, we find that behind this null effect for average firms, there are heterogeneous effects within family firms depending on the origin. Specifically, family firms run by professional successors are less likely to introduce management innovation than non-family firms, while family-managed family firms are, on the contrary, equally likely to innovate management practices after the succession than non-family firms. These results are robust to different specifications.

Our results imply that the separation of ownership and management is harmful to family firms experiencing business succession by making them less willing to take innovative measures in managing the firms. This finding is consistent with both the agency theory, according to which family firms conducted by family CEO successors benefit from an alignment of interests between ownership and management (Miller et al., 2013), and the resource-based view of family firms, which views the "familiness" of the firm as a unique bundle of intangible, family-based resources and capabilities related to organizational culture, reputation, knowledge and connections that are, exclusively or predominantly, accessible to family members (Habbershon and Williams, 1999; Cabrera-Suárez et al., 2001; Huybrechts et al., 2011; Bennedsen and Fan, 2014).

To disentangle which of the two views are more likely to hold, resource based view or agency theory, we conduct a further analysis. In this analysis, we introduce two further conditioning factors that could affect the relative likelihood of family versus professional successors to introduce management innovation within family firms: the degree of family participation in the business ownership and the CEOs' past working experience at the firm. On the one hand, the family CEO's access to family resources should increase, and agency conflict should decrease, with the family ownership share. Thus, both the resource-based view and agency theory suggest that the likelihood of introducing management innovation increases with the family ownership share. On the other hand, we can draw from the two theories opposite predictions on the effect of the successor's past working experience, because the increase in access to family resources through the experience should be observed mostly for family CEO successors, while the mitigation of agency conflicts through the experience should matter

² Saito (2008) reports that 38% of his sample of almost whole listed firms in Japan (from 1990 to 1998) are family firms (where the founding family is the largest shareholder), and 36% are family-managed. Morikawa (2013) reports that for 68% of his sample SMEs (taken from the Survey of Corporate Management (Small and Medium Enterprise Agency) in 1998), the ownership share of family members is at least 5%, and 62% of the SMEs are family-managed.

mostly between family owners and non-family CEO successors.

Consistent with these predictions, we find a higher likelihood of introducing management innovation by family CEO successors for firms with a larger ownership share by family members. On the other hand, we find that a past working experience of CEO successors increases the likelihood of introducing management innovation by family CEO successors. These findings lend support to the resource-based view and not to the agency theory. Summing up, the findings in this paper indicate that there are beneficial effects of the integration of ownership and management on management innovation of family firms after CEO succession, and that the effects stem from the opportunity for family CEO successors to access the bundle of intangible, family-based resources and capabilities related to organizational culture, reputation knowledge and relationships.

Our study contributes to the literature on innovation and CEO succession of family firms by focusing on management innovation in the post-succession period and by comparing three types of firms, i.e., family firms managed by family CEO successors, those managed by non-family professional CEO successors, and non-family firms. Although there are a number of studies that focus on individual related aspects, i.e., quality of management practices and post-succession performance of family and non-family firms, very limited attention has been paid to management innovation of family firms in the post-succession period, and there has been no systematic comparison of post-succession management innovation within non-family counterparts (see Section 2 for a review of the literature). We also inform the debate on beneficial and detrimental effects of the family origin of CEO successors for firms' performance by considering two important moderators (i.e., family involvement in ownership and successors' past work experiences) that help to distinguish between the entrepreneurial human capital perspective, agency theory and the resource-based view.

Our findings do indicate that the three types of firms are different in terms of management innovation. Especially, the conservativeness of non-family successors at family firms in terms of management innovation—our main result—is in contrast to evidence from much of the existing literature that finds that the transfer of the CEO position from the family to professional managers enhances post-succession performance of family firms (Pérez-González, 2006; Chung and Luo, 2013; Chang and Shim, 2015). Possible benefits of family involvement in management are attributable to the presence of a founding CEO premium (Anderson and Reeb, 2003; Villalonga and Amit, 2006), while the presence of family-descendant CEOs erodes value (Bennedsen et al., 2007; Cucculelli and Micucci, 2008; Saito, 2008). However, our finding of a greater propensity to innovate the firm's management style, practices and structures by family CEO successors in the post-succession period is in line with recent evidence provided by Amore et al. (2021), who show that family firms experiencing a transition from a professional CEO back to a family CEO increase their profitability, and Zybura et al. (2021), who find that family firms run by family CEO successors are more likely to introduce product innovations after the transition.

The remainder of this paper is organized as follows. In Section 2, we discuss the related literature and establish our hypotheses. Section 3 explains our data, and Section 4 describes the empirical strategy and the variables. In Section 5, we report the regression results. Section 6 concludes the paper.

2. Background theories, evidence and hypotheses

2.1. Management innovation in family-owned enterprises

Extant research suggests that family firms' strategic orientation to innovation is ambivalent (Calabrò et al., 2019). On the one hand, distinctive features of family-owned enterprises, such as integration of ownership and control, the concentration of decision power, shared values, long-term goals, family embeddedness, and legacy and informal sharing of knowledge, can foster their propensity to innovate (Miller and LeBreton-Miller, 2006; Bennedsen and Foss, 2015; Chrisman et al., 2015a, 2015b). On the other hand, many of these same features have been recognized as possible obstacles to innovation because they generate risk aversion, vested interests, cronyism, conflicts within ownership and family, and organizational inertia that reduce family firms' ability and willingness to innovate (Morck et al., 2000; Bertrand and Schoar, 2006a, 2006b; Roessl et al., 2010; König et al., 2013). The ambivalent theoretical nexus between family ownership and innovation is largely confirmed by the mixed findings of the empirical research (Calabrò et al., 2019).

However, the research on the innovation ability of family firms has mostly focused on technology, product and process innovation or R&D activities. There is another type of innovation that also matters: management innovation, i.e., the initiation and implementation of innovations in the management style, practices and business models. Despite its importance for the efficiency, productivity, profitability and dynamic capabilities of firms (Mol and Birkinshaw 2009; Evangelista and Vezzani, 2010; Gebauer, 2011; Alexopoulos and Tombe, 2012; Gibbons and Henderson 2012a; Bloom et al., 2014; Khosravi et al., 2019), management innovation has received limited attention in the literature on family firms (Diéguez-Soto et al., 2016).

Typically, management innovation is less capital intensive and make less use of tangible external resources, such as finance or codified knowledge, than R&D investments and technological innovations, but call for the availability of appropriate intangible internal, cultural, relational and leadership capabilities in order to be initiated and successfully implemented (Young et al., 2001; Gibbons and Henderson 2012b; Vaccaro et al., 2012; Lin et al., 2016). Because the availability of these capabilities likely differs between family and non-family firms, it is important and interesting to examine the difference in the likelihood of introducing management innovation between these firms.

When it comes to the direction of such a difference, however, theoretical predictions are ambivalent as they are for other types innovation (as mentioned above). Distinguishing features of family-owned firms, such as the involvement of the family in the ownership and management, the attachment to the organization, values and name, the preservation of socio-emotional and relational wealth and the long-term vision, might affect the ability and willingness of introducing management innovation in either way. Therefore, whether, and when family firms and non-family firms are different in terms of the likelihood of introducing management innovation is a key open question, which underlies throughout this paper.

To answer this question, we consider a possible moderator that could take into account the differences that exist between different types of family businesses. Specifically, we focus on the origin of the CEO successor as such a moderator. As explained below, this moderator can theoretically explain a difference in the ability and willingness to introduce management innovations within family firms and as compared with non-family firms.

2.2. CEO successor origin and management innovation

The ambivalence of the effect of family ownership on the intensity of management innovation can be resolved by considering differences in the origin of CEO successors. There is a consensus that CEOs, his/her' talent, personality and (self and social) identity matter for firms to be successful and thrive (Hambrick and Mason, 1984; Bertrand and Schoar, 2003; Gibbons and Henderson, 2012a; Giorcelli, 2019; Bennedsen et al., 2020; Fladerer et al., 2021). The selection of a new CEO thus shapes the business organization, strategies, relationships, and capabilities of the firm for many years to follow (e.g., Helmich, 1975; Reinganum, 1985; Tushman and Romanelli, 1985; Greiner and Bhambri, 1989; Miller, 1993; Shen and Cannella, 2002, 2003; Zhang and Rajagopalan, 2004, 2010). This is especially true in the case of family firms because of the complex socioemotional factors, personal objectives, and family conflicts involved in passing the baton from one generation to another (Gómez-Mejía et al., 2001; Miller et al., 2003; Bennedsen and Fan, 2014). Therefore, it makes sense to focus on the effect of CEOs' origin on management innovation after they succeeded the business.³

Drawing on three theories, specifically entrepreneurial human capital perspective, agency theory, and resource-based theory, we can hypothesize specific effects of the origin of CEO successor as a moderator on the effect of family ownership on the propensity to introduce management innovation. Based on entrepreneurial human capital perspective of family firms, we can expect that there is an advantage of professional CEO successors over family CEO successors in terms of management innovation. The passing of the baton of leadership in family businesses is often primarily driven by dynastic motivations that lead to choose the successor from family members, paying little attention to the human capital of candidates, or at least not prioritizing their entrepreneurial and managerial skills (Chandler, 1990; Lazonick, 1993; Bhattacharya and Ravikumar, 2005; Bertrand and Schoar, 2006a, 2006b; Caselli and Gennaioli, 2013). In this perspective, nepotistic succession has arguably negative effects on corporate strategies, organizational policies and performance, undermining post-succession management innovation and dynamic capabilities of the firm.

Also, succession in family firms is typically influenced by the strong personality and exceptional entrepreneurial competencies of the founder and by his/her emotional relationships with the firm and the successor. Departing founders are often reluctant to leave the company, and try to perpetuate their presence and managerial style by keeping a key position on the board or continuing to participate to the company from the outside. This restricts the discretion of successors, especially if family members, and the ability to fully express their entrepreneurial skills and introduce drastic management innovations (Mitchell et al., 2009; Quigley and Hambrick, 2012). In turn, the emotional relationships of CEO successors with the founder make dysfunctional reactions of extreme conservatism, indecision, or rebellion likely on the part of the new leadership (especially if chosen with the family) who can end up blocking management innovation or generating chaotic changes in the organization (Miller et al., 2003). Therefore, we can establish the

³ We do not examine the effect of business succession per se, because the firms in our sample are all those that experienced business succession. There are however related studies to focus on the effect of succession. Some studies find that CEOs succession is an opportunity to inject fresh energy, expertise, and experience into the organization, a potential trigger point to overcome organizational inertia and introduce innovations in the management style, organizational structures and business activities (Miller and Friesen, 1980; Miller, 1991, 1993; Kesner and Dalton, 1994; Romanelli and Tushman, 1994; Gordon et al., 2000; Shen and Cannella, 2002). However, other studies find that the CEO succession invites sharp and drastic changes in the social and cultural context of the firm, which generate instability and uncertainty in the organization, and halt the spontaneous changes taking place in the management systems before the succession, and impede innovations in the organization and management practices (Miller et al., 2003).

following hypothesis based on human capital perspective:

H1a. (*human capital perspective*): *Family firms managed by family CEO successors are less likely to introduce management innovation after successions than those managed by professional CEO successors or non-family firms.*

However, we can also expect the opposite effects based on the agency and resource-based theories. The opportunity to identify the successor within the family allows a family firm to prepare for the succession at the head of the company well before the founder's departure. For all firms, whether family or non-family, "relay" successions have the benefit of mitigating turbulence associated with leadership succession. For family firms in particular, the resource-based view of family firms' competitive advantage indicates that family successors can rely on intangible family resources including business commitment, culture, trust, reputation, collective tacit knowledge, shared values, intra- and inter-organizational social capital and relationships (Habbershon and Williams, 1999; Cabrera-Suárez et al., 2001; Perry-Smith and Shalley, 2003; Arregle et al., 2007; Huybrechts et al., 2011; Bennedsen and Fan, 2014; Carillo et al., 2019). Non-family successors of family firms, or successors of non-family firms, do not have access to such resources, even if they have sufficient human capital. Due to this difference, family firms with family successors could effectively and smoothly transit from the past to the present and future of the organization, and improve the ability to introduce non-traumatic, shared changes in the management style and practices required to sense and seize new business opportunities and reconfigure the use of the firm's resources successfully (Zhang and Rajagopalan, 2004; Teece, 2007, 2019; Gebauer, 2011; Harris et al., 2013). Similarly, family-appointed executives decrease agency issues related to information asymmetry and conflict of interest between ownership and management, and facilitate the well reception of changes in management styles and practices within the organization.

Overall, even if professional CEOs can be better equipped with general human capital and experiences to successfully overcome the uncertainties, insecurities, and anxieties of the succession phase, the family-based resources and relational assets of family-descendant successors and their interest alignment with shareholders can be as important as such skills and experiences to promote the process of management innovation (Lee et al., 2003; Verbeke and Kano, 2010, 2012). Drawing on these theories, we expect that family firms managed by family successors are more likely to introduce management innovation than those managed by non-family successors or non-family firms:

H1b. (*agency and resource-based theories*): *Family-owned firms managed by family successors are more likely to introduce management innovation after successions than family-owned firms managed by non-family CEO successors or non-family firms.*

To the best of our knowledge, there have been no empirical study to test these hypotheses. Related to the hypotheses, there are a number of studies that have analyzed financial performance of family firms around CEOs succession by distinguishing family and professional successors.⁴ Attention has also been paid, to a lesser extent, to post-succession

⁴ For the most part, the results on financial performance indicate that family firms that transfer the CEO position within the family tend to underperform both family firms with non-family professional CEO successors and non-family firms (Bennedsen et al., 2007; Cucculelli and Micucci, 2008; Wennberg et al., 2011; Chang and Shim, 2015). Some studies, however, find that this negative gap is mitigated or nullified for highly educated and "adult" heirs, family firms in traditional industries, or firms in which the family has a large ownership stake in the company (Smith and Amoako-Adu, 1999; Pérez-Gonzales 2006; Chung and Luo, 2013; Yoo et al., 2014), while a few empirical studies have documented the positive impact of family-descendant CEO successor on post-succession financial performance of family firms (McConaughy et al., 1998; Sraer and Thesmar, 2007; Ahrens et al., 2019; Amore et al., 2021).

management performance.⁵ However, these studies do not investigate management innovation. There are some studies that have analyzed the quality of management practices adopted by inherited family-owned firms run by family and professional CEOs. Their results indicate that family firms led by family CEOs display worse management practices than family firms led by professional CEOs (Bloom and Van Reenen, 2007; Bloom et al., 2012; Carillo et al., 2019; Lemos and Scur, 2019). However, these studies neither directly focus on management innovation, nor make a comparison with non-family firms.⁶

We are aware of only two empirical studies that directly focus on management innovation, and they report mixed results.⁷ Diéguez-Soto et al. (2016) analyze a sample of Spanish family firms and find that those managed by non-family professional CEOs more frequently introduce management innovation than family firms managed by family members, especially if the professional CEOs are highly educated. However, differently from our present study, the sample considered by Diéguez-Soto et al. (2016) excludes non-family firms, and it includes first-generation family firms (run by founders). Hauck and Prügl (2015) use a small sample of hotels and guesthouses located in Austria, and find that when family members strongly identify themselves with the family business and when the authority of the older generation is not dominant, the succession phase is perceived as a key opportunity to introduce innovations in the organizational structures and business models (in addition to product and process innovations). However, they do not examine whether the management innovativeness of family firms is high or low relative to non-family firms, and whether it depends on the family or non-family origin of the CEO successor.

2.3. Family ownership and CEO work experience

We also perform analyses to further disentangle the ambiguous effects of family ownership on management innovation. We use two further interactive moderators that could change the magnitude of the effect of the CEO origin among family firms: a family ownership share and a past work experience of CEO successors within the firm. These moderators could help us to corroborate the predictions based on entrepreneurial human capital perspective, agency theory, and the resource-based view of family firms.

2.3.1. Ownership share

As for the family ownership share, the dynastic motivations in business succession and successor entrenchment problems are likely pronounced when the share of the firms that the family owns is high (Morck and Yeung, 2003). Due to these problems, firms with a higher share of family ownership would pay less attention to the entrepreneurial human capital of family successors and reduce their ability to initiate and implement innovations in management style and practices,

⁵ In general, leadership succession is found to be associated with intense changes in many firms' organizational and strategic dimensions, especially when the new CEO is recruited from outside the organization (Helmich and Brown, 1972; Tushman et al., 1985; Greiner and Bhambri, 1989; Miller, 1993).

⁶ For example, Bloom and Van Reenen (2007) document that management practices of later-generation family firms with a family CEO are significantly worse only in countries where succession is dominated by the primogeniture tradition, and the head of the firm is passed to the eldest son in the family independent of his/her entrepreneurial talent. Similarly, Carillo et al. (2019) find that the negative impact of family CEOs on the management quality of family-owned firms as well as the share of badly managed family firms are significantly larger in societies characterized by a strong collectivistic culture and in less dynamic industrial sectors, in which dynastic motivations are more valuable and likely to predominate.

⁷ Relatedly, Kraus et al. (2012) explore the effects of managerial and organizational innovations on sales growth and employment of a sample of Finnish family and non-family firms, but they do not explore the determinants of management innovation.

and seize new business opportunities. Therefore, we can establish the following hypothesis based on this human capital perspective, which is expected to hold together with H1a:

H2a. (*human capital perspective*): Among family firms, the likelihood of introducing management innovation by family successors is lower in those with a higher share of family ownership, while the likelihood remains largely unaffected by the share in the case of professional successors.

By contrast, ownership concentration mitigates owner-owner agency problems related to the involvement of the family in the management and the risk that family CEO successors expropriate minority shareholders by tunneling resources from the firm to the family (Corbetta and Salvato, 2004; Miller et al., 2013). Lower conflicts between controlling family and minority shareholders increase the ability of family successors to introduce management innovations that are expected to be received with less suspicion within the firm. Likewise, the strong involvement of the family in the ownership increases the value-creating role of access of family successors to intangible family-based resources, enabling them to sense and seize new business opportunities and reconfigure the organization's management style and practices (Chung and Luo, 2013). Thus, we can establish this hypothesis based on agency theory or resource-based view, which is expected to hold together with H1b:

H2b. (*agency and resource-based theories*): Among family firms, the likelihood of introducing management innovation by family successors is greater in those with a higher share of family ownership, while the likelihood is lower with the share in the case of professional successors.

2.3.2. Past work experience

A second relevant conditioning factor is the past work experiences of the CEO successor within the firm (Cannella and Lubatkin, 1993; Zhang and Rajagopalan, 2010; Ahrens et al., 2019). Drawing on entrepreneurial human capital theory, we can expect that having worked for the company before assuming the position of CEO allows the successor, whether she/he is a non-family professional or a family member, to improve her/his knowledge of the company, its competitive advantages and weaknesses, with positive effects on dynamic capabilities of firms and the ability to reconfigure management resources. Therefore, we establish the following hypothesis that we expect to hold when we find support for H1a:

H3a. (*human capital perspective*): Among family firms, both in the cases of family and non-family CEO successors, the likelihood of introducing management innovation is positively affected by the successors' past work experiences at the firm.

Drawing on the resource-based view of family firms, on the other hand, we can expect that having had the opportunity to have an apprenticeship and a work experience within the firm enhances the access of family successors (but not of professional successors outside the family) to the network of family contacts and the absorption of family memory and values, and enables them to gain legitimacy and support from the management staff and employees. These circumstances decrease the organizational turbulence associated with CEO succession and increase the ability and willingness of family successors (but not that of professional successors) to perceive the succession as an opportunity for introducing management innovation. Thus, to the extent that intangible family-based resources matter, a working period in the firm is helpful for family successors, although it is largely neutral for a professional successor that does not have access to such family-based intangible resources. Therefore, we establish the following hypothesis, which should hold when we find support to H1b:

Table 1

Employee-size distribution and the representativeness of the sample. To check the representativeness of our sample, this table compares the employer-size distribution of the firms in the sample for our analysis (column (3)) with that of the 2012 Economic Census in Japan, and with target firms of the Survey of Corporate Finance in Japan (column (2)).

Number of employees	(1) 2012 Economic census			(2) Target firms		Number of employees	(3) Regression Sample	
	Number of firms	(%)	(% excl. 0–4 and 300-)	Number of firms	(%)		Number of firms	(%)
0–4	993,351	58.2	NA	0	0	0–5	0	0.0
5–19	488,049	28.6	69.7	6750	50	6–20	490	42.2
20–49	137,119	8	19.6	4050	30	21–50	441	38.0
50–99	45,730	2.7	6.5	2025	15	51–100	194	16.7
100–299	29,510	1.7	4.2	675	5	101–300	37	3.2
300-	12,711	0.7	NA	0	0	300-	0	0.0
Total	1706,470	100	100	13,500	100	Total	1162	100

H3b. (*resource-based theory*): Among family firms, the likelihood of introducing management innovation by family CEO successors is positively affected by their past work experiences at the firm, while the likelihood of introducing management innovation by professional successors is not significantly affected by the experiences.

Based on agency theory, however, the periods of work spent by the successor (especially in the case of professionals outside the family) within the company prior to the appointment as CEO allow the founder and other family shareholders to gain a deeper understanding of his/her temperament, personality and mentality. This, if anything, should mitigate future agency problems and facilitate the introduction of new management practices and new business activities by reducing asymmetric information between owners and managers. This effect is especially important for professional successors for which owner-manager agency problems are stronger, while it should be rarely important for family successors that suffer less from the problems in the first place. Thus, the hypothesis based on agency theory is:

H3c. (*agency theory*): Among family firms, the likelihood of introducing management innovation by professional CEO successors is positively affected by the successors' past work experiences in the firm, while the likelihood of introducing management innovation is not significantly affected by the experiences in the case of family successors.

3. Data

The data used in this paper is obtained from a corporate survey, the Survey of Corporate Finance in Japan, conducted in 2014.⁸ The aim of this survey is to obtain information on the financing of small- and medium-sized enterprises in Japan, and a group of researchers, including an author of this paper, designed the survey questionnaire. The implementation of the survey was outsourced to the Teikoku Databank Ltd. (TDB), one of the largest corporate credit information providers in Japan. The TDB sent the questionnaire to firms' CEOs via hard mail in the first week of September 2014, and responses were received by the end of October.

The targets of the survey were 13,500 SMEs with 5–299 employees that had been selected from the database that the TDB owns for its own commercial purpose. The target firms are chosen to be representative of the universe of firms in Japan. Table 1 shows the employee-size distribution of the target firms in the 2012 Economic Census (Statistics Bureau of Japan), the most comprehensive data on firms in Japan, in column (1), and that of the target firms in column (2). The distribution of the target firms is somewhat skewed toward middle-sized firms, but not

very different from that of the Economic Census (after excluding micro and large businesses).⁹ For each employee-size category, firms in construction, manufacturing, wholesale, retail and restaurants, real estate, and services industries, are randomly chosen from the database of the TDB.¹⁰

Among the 13,500 target firms, 2617 firms respond to the survey (a response rate of 19.4%). After eliminating observations that cannot be used for the regression analysis, we obtain 1162 firms that we use for the regression analysis.¹¹ The employee-size distribution of the firms in this regression sample is shown in Column (3) of Table 1.¹² The distribution of the respondent firms is somewhat skewed toward middle-sized firms.

4. Empirical strategy

4.1. Empirical specification

The baseline specification of the regression analysis is the following Probit model:

$$\text{Prob}(\text{INNOV_MGMT} = 1 | \mathbf{x}) = \Phi(\alpha + \beta \times \text{FFIRM}_i + \gamma \times \text{CONTROLS}_i + \varepsilon_i), \quad (1)$$

⁹ In choosing these targets, the research group eliminate firms with 0–4 employees, because one of the aims of the survey is to capture information that is not relevant to such firms. In addition, firms with 300 or more employees are eliminated in advance, because their financing environment is very different from that of the other firms, and because the number of such firms would become too small in the sample. Among the target firms selected from the remaining 4 employee-size classes, almost 70% of the census firms have 5–19 employees (the far-left column of Column (1)). Taking into account the ordinarily low response rate of these firms, the research group determines the size distribution of the target firms as in Column (2).

¹⁰ Excluded industries are education, social security and welfare, academics, politics, economics, and cultural entities. The industry distribution in each employee-size class is not taken into account, under the assumption that the distribution in the TDB database is similar to that in the Economic Census. This assumption is reasonable because the TDB database covers almost one third of the entire universe of firms in Japan (see Ono et al., 2015).

¹¹ We eliminate 11 firms that have missing firm ID to link with the financial data. From the rest of 2606 firms, we select the sample for the regression analysis through the following procedure. First, we eliminate 373 firms for which the sum of the answers regarding the proportions of shareholding by holder is not 100%. Second, we eliminate 748 firms that are run by the founders of the firms or that do not experience business succession. This is because, as explained below, the measure of the innovativeness of CEOs is based on questions regarding the actions that the current CEOs take after they succeeded the previous CEOs. Of the remaining 1485 firms, we eliminate 323 firms for which both dependent variables are not available, and/or any of the independent variables is not available.

¹² The size classification for the respondent firms is slightly different from those in the other two columns due to the way the relevant question is asked.

⁸ Uchida et al. (2014) summarizes the details on the methods and the preliminary results of the survey.

where i is an index for firms ($= 1, \dots, N$), $\text{Prob}()$ is a probability function and $\Phi()$ indicates the cumulative standard normal distribution function. For robustness, we also estimate a linear probability version of this model with OLS, where $\Phi(z) = z$. The dependent variable INNOV_MGMT is an indicator variable that takes the value of 1 for firms that report to have introduced management innovation after experiencing CEO succession. The main independent variable is FFIRM_i , an indicator of family firm status, and CONTROLS is a vector of the control variables.

Eq. (1) is our starting point in a sense that it is to answer our fundamental (but unspecified) research question raised in Section 2.1, i. e., whether family-owned enterprises (that have experienced CEO succession) are more, less, or equally likely to introduce management innovation than non-family firms (that have also experienced succession). However, given the ambivalent role of family ownership for management innovation suggested by family firm theories, it is hard to a priori predict the sign of β coefficient.

As we discussed in Section 2.2, we thus focus on successors' origin as one of the primary moderators. To test which hypothesis holds, H1a or H1b, we augment model (1) by distinguishing between family-owned firms managed by a successor who is a member of the founder family and those managed by a professional successor outside the family:

$$\text{Prob}(\text{INNOV_MGMT}=1 \mid \mathbf{x}) = \Phi(\alpha + \beta \times \text{FFIRM}_i + \theta \times \text{FM_FFIRM}_i + \gamma \times \text{CONTROLS}_i + \varepsilon_i) \quad (2)$$

where FM_FFIRM_i is an indicator variable that takes the value of 1 for a family firm managed by family CEO successors. In this case, the sign and significance of the coefficient β indicate whether family firms that choose to pass the leadership baton to professional CEOs outside the family are more, less, or equally likely to introduce management innovation after the succession than non-family firms that similarly experienced CEO successions. The coefficient θ captures the differential effect on the probability of management innovation of choosing the CEO successor of family firms within the owner family, so $(\beta + \theta)$ indicates whether, on average, family firms run by family CEO successors are less (Hypothesis H1a), more (H1b), or equally innovative as non-family firms.¹³

We further augment Eq. (2) to include two additional moderators. First, as established as alternative hypotheses H2a and H2b in Section 2.3.1, whether family CEO successors are more or less able and willing to introduce management innovation might depend on the concentration of ownership in the hands of the family. To answer this question, we estimate the following model:

$$\text{Prob}(\text{INNOV_MGMT} = 1 \mid \mathbf{x}) = \Phi(\alpha + \beta_0 \times \text{FFIRM}_i + \beta_1 \times \text{FFIRM}_i \times \text{FOWN}_i + \theta_0 \times \text{FM_FFIRM}_i + \theta_1 \times \text{FM_FFIRM}_i \times \text{FOWN}_i + \gamma \times \text{Controls}_i + \varepsilon_i) \quad (3)$$

We interact FOWN_i , the family members' ownership share, with our two main independent variables and add them as another independent variable. Because the interaction terms are nonlinear, and probit estimation of nonlinear models produces an incorrect marginal effect (Ai and Norton, 2003), we estimate this model with OLS only.¹⁴

Second, hypotheses H3a, H3b, and H3c predict the difference in the likelihood of introducing management innovation by family and non-

family CEO successors depending on their past working experience in the firm. To test these hypotheses, we estimate the following model:

$$\text{Prob}(\text{INNOV_MGMT} = 1 \mid \mathbf{x}) = \Phi(\alpha + \beta_0 \times \text{FFIRM}_i + \beta_1 \times \text{FFIRM}_i \times \text{PastEmp}_i + \theta_0 \times \text{FM_FFIRM}_i + \theta_1 \times \text{FM_FFIRM}_i \times \text{PastEmp}_i + \delta \times \text{PastEmp}_i + \gamma \times \text{Controls}_i + \varepsilon_i) \quad (4)$$

PastEmp is an indicator for CEO successors who have previous work experience in the firm. The sign and significance of β_1 and θ_1 enable us to test the three hypotheses.

4.2. Variables

4.2.1. Management innovation

The dependent variable, INNOV_MGMT , is an indicator for management innovation. To define this variable, we exploit a survey question on "management policies that the current CEO undertook after he or she succeeded the previous CEO." The options to choose are that the new CEO (1) "fostered management innovation and expanded incumbent business activities and/or made an advance to new business fields," (2) "tried to maintain and stabilize the incumbent businesses succeeded from the predecessor," and (3) "consolidated the incumbent businesses and downsized their operations."¹⁵ Option (1) captures our notion of management innovation, defined as innovations in management style, practices and structures that accompany and facilitate the identification and exploitation of new business opportunities (Gebauer, 2011; Harris et al., 2013).¹⁶ The variable INNOV_MGMT takes the value of one if the response is (1), and zero otherwise. For the regression sample, about one-third (433/1162 firms) are innovative in terms of the management policy after succession.

4.2.2. Family firm and family management

Family firms and the family management are defined using survey questions on firms' ownership structure and management. We identify family firms, which we indicate by a dummy variable FFIRM , based on the firms' ownership by family members. The question on the ownership structure asks the respondent firms to break down the ownership stakes (%) as of the end of March 2014 by holders, and using this information, we create a variable FOWN to indicate the share of family ownership.¹⁷ The variable FFIRM is then defined to take the value of one if FOWN is equal to or greater than 30%, and zero otherwise. To check robustness, we also use the strict ownership majority ($\text{FOWN} \geq 50\%$) as an alternative cutoff. As for family management, we define FM , an indicator for firms managed by a member of the founder's family, using information on whether the current CEO is a founder or a member of the founder's family. The indicator for family-managed family firms, FM_FFIRM , is defined as the product of FM and FFIRM .

By investigating the signs of the coefficients for FFIRM and FM_FFIRM , we test H1a and H1b. For example, H1a (human capital perspective) predicts that family firms managed by professional CEO

¹⁵ Precisely, the choice of option (1) in original Japanese indicates that the firm either "fostered management innovation and expanded incumbent business activities", or "fostered management innovation and made advance to new business fields". Therefore, the "expansion" and/or the "advancement" of the business are something strictly related to management innovation.

¹⁶ More precisely, we operationalize management innovations for the development and achievement of firms' dynamic capabilities in management style, practices and structures that accompany and facilitate the identification and exploitation of new business opportunities (Gebauer, 2011; Harris et al., 2013).

¹⁷ Because this information is as of March 2014, it might not precede the decision to introduce innovation after succession that INNOV_MGMT captures as of the survey date (September to October 2014). However, the share of ownership by the founder's family members is not likely to increase after succession, and instead, is likely to decrease. Thus, the share calculated based on this information as of 2014 is likely to be a conservative proxy for the share when the decision to introduce innovation is made.

¹³ Instead of Eq. (2), we may limit the sample to family firms only, and examine the difference in the propensity of management innovation between those managed by family members and by professional outside CEOs. However, such an equation does not allow us to compare them with non-family firms. Also, it reduces the number of observations and decreases the power of the estimation. However, even if we estimate such a model using family firms only, the main results are qualitatively unchanged.

¹⁴ Descriptive statistics indicates that FOWN has a skewed distribution toward 100%. We thus conducted analysis using an indicator for the 100% ownership instead of FOWN . The findings (unreported but available upon request) are qualitatively unchanged.

Table 2
Theoretical predictions and expected coefficient signs.

	(i) Entrepreneurial human capital perspective	(ii) Agency theory	(iii) Resource-based view
Eq. (2)	$\beta = 0; \theta < 0$	$\beta \leq 0; \theta > 0$	$\beta \leq 0; \theta > 0$
Eq. (3)	$\beta_1 = 0; \theta_1 < 0$	$\beta_1 < 0; \theta_1 > 0$	$\beta_1 < 0; \theta_1 > 0$
Eq. (4)	$\beta_1 > 0; \theta_1 = 0$	$\beta_1 = 0; \theta_1 > 0$	$\beta_1 > 0; \theta_1 = 0$

This table summarizes the signs of the coefficients that (i) entrepreneurial human capital perspective, (ii) agency theory, and (iii) resource-based view predicts on the effect on management innovation. The equations are as follows. $\text{Prob}(\text{INNOV_MGMT} = 1 | \mathbf{x}) = \Phi(\alpha + \beta \times \text{FFIRM}_i + \beta \times \text{FM_FFIRM}_i + \gamma \times \text{CONTROLS}_i + \varepsilon_i)$, (2) $\text{Prob}(\text{INNOV_MGMT} = 1 | \mathbf{x}) = \Phi(\alpha + \beta_0 \times \text{FFIRM}_i + \beta_1 \times \text{FFIRM}_i \times \text{FOWN}_i + \theta_0 \times \text{FM_FFIRM}_i + \theta_1 \times \text{FM_FFIRM}_i \times \text{FOWN}_i + \gamma \times \text{Controls}_i + \varepsilon_i)$, (3) $\text{Prob}(\text{INNOV_MGMT} = 1 | \mathbf{x}) = \Phi(\alpha + \beta_0 \times \text{FFIRM}_i + \beta_1 \times \text{FFIRM}_i \times \text{PastEmp}_i + \theta_0 \times \text{FM_FFIRM}_i + \theta_1 \times \text{FM_FFIRM}_i \times \text{PastEmp}_i + \delta \times \text{PastEmp}_i + \gamma \times \text{Controls}_i + \varepsilon_i)$. (4) For more details on these theories, predictions and the equations, see Sections 2.2 and 2.3.

successors are more likely to introduce management innovation after successions than those managed by family CEO successors, so we expect that the coefficient of FM_FFIRM is negative. We summarize these prediction in Table 2.

Table 3 shows the descriptive statistics for our main variables. Focusing on the regression sample, the mean ownership share of family members is around 70%, and the median is 100%. More than half of the sample firms are pure family-owned firms. The mean for FFIRM indicates that 72% or 76% of the firms are family firms that are defined using the 50% or 30% ownership thresholds, respectively. For family management among the family firms, more than 70% of the sample firms are run by family members. However, some firms are managed by family members, but with small ownership share by the members.

Table 3
Definition and descriptive statistics of the family ownership and management variables.

Variables	Definition	(A) Original sample								(B) Regression sample							
		N	Mean	St. Dev.	Min	25 Pctl	Median	75 Pctl	Max	N	Mean	St. Dev.	Min	25 Pctl	Median	75 Pctl	Max
FOWN	Family ownership share (%)	1650	61.74	45.06	0	0	90	100	100	1162	70.57	40.83	0	40	100	100	100
FFIRM (50% threshold)	= 1 if family ownership share > 50%	1650	0.63	0.48	0	0	1	1	1	1162	0.72	0.45	0	0	1	1	1
FFIRM (30% threshold)	= 1 if family ownership share > 30%	1650	0.66	0.47	0	0	1	1	1	1162	0.76	0.43	0	1	1	1	1
FM_FIRM	Firms managed by family members	1650	0.68	0.47	0	0	1	1	1	1162	0.73	0.45	0	0	1	1	1
FM_FFIRM (50% threshold)	= 1 if family firms (ownership >50%) managed by family members	1650	0.59	0.49	0	0	1	1	1	1162	0.67	0.47	0	0	1	1	1
FM_FFIRM (30% threshold)	= 1 if family firms (ownership >30%) managed by family members	1650	0.60	0.49	0	0	1	1	1	1162	0.69	0.46	0	0	1	1	1

This table lists the variables for family firms and family management, together with their definitions and descriptive statistics. FOWN is the ownership share of the members of the founders' family. FFIRM is an indicator for family firms, which is defined by whether FOWN is larger than the threshold of 50% or 30%. FM_FIRM is an indicator for the current CEO being a family member. FM_FFIRM is an indicator for family-managed family firms (with 50% (30%) or more family ownership. Column (A) reports the statistics for the original sample, and column (B) reports for the regression sample.

4.2.3. Past work experience and control variables

To test H3a, H3b, and H3c, we use PastEmp, an indicator variable for CEO successors who have previous work experience in the firm. We construct this variable from a survey question on the relation that the current CEO had before joining the firm, and PastEmp takes the value of one if the CEO used to be an employee of the firm. Our tests on H3a, H3b, and H3c are based on our discussion in Section 2.3.2, and are summarized in Table 2.

As for control variables to get rid of possible confounding factors, we include (i) sales growth, to control for the firm performance and investment opportunities; (ii) firm age, to control for the firm maturity and possible life-cycle effects; (iii) years since succession, to control for the time allowed to introduce management innovation; (iv) generation of the current CEO, to control for the changing socioemotional priorities and possible Buddenbrooks effect (i.e., the decline of a bourgeois family); (v) dependence on the government as a customer, to control for political connections; (vi) belonging to a managers' association, to control for business connections and peer emulation and other network effects; (vii) ownership by minority shareholders, to control for agency effects; and (viii) industry dummies, to control for unobserved industry-specific effects. More detailed definitions and summary statistics for these variables are in Table 4.

5. Results

The regression results are reported in Tables 5 and 6. In Table 5, we use the specifications in Eq. (1) where we consider family ownership only, and in Table 6, we use Eq. (2) where we also take into account family involvement in management by distinguishing family firms managed by family CEO successors from those by a professional CEO outside the family. The threshold for defining family firms is family ownership of 50% in columns with odd numbers and 30% in columns with even numbers. Columns (1) and (2) in each table report the results from the OLS regressions, and columns (3) and (4) report the results for the estimation of the probit model.

Table 4
Definitions and descriptive statistics for control variables.

Variables	Definitions	N	Mean	St. Dev.	Min	25 Pctile	Med.	75 Pctile	Max
ln(SALES)	Natural logarithm of sales (sales growth).	1162	6.21	1.24	1.39	5.35	6.16	7.04	10.8
FIRM AGE: 5–10 YRS	(dummy) = 1 if the firm is 5 years old or older, and younger than 10 years old.	1162	0.01	0.11	0	0	0	0	1
FIRM AGE: 10–20 YRS	(dummy) = 1 if the firm is 10 years old or older, and younger than 20 years old.	1162	0.05	0.21	0	0	0	0	1
FIRM AGE: 20–50 YRS	(dummy) = 1 if the firm is 20 years old or older, and younger than 50 years old.	1162	0.09	0.28	0	0	0	0	1
FIRM AGE: 50+ YRS	(dummy) = 1 if the firm is 50 years old or older.	1162	0.85	0.36	0	1	1	1	1
YEARS SINCE SUCCESSION	Years past since the succession = difference between the current age of the CEO and his/her age at the time of the succession.	1162	12.8	11.4	-1	4	9	20	61
3RD GENERATION CEO	(dummy) = 1 if the current CEO is the 3rd CEO.	1162	0.25	0.43	0	0	0	1	1
4TH GENERATION CEO	(dummy) = 1 if the current CEO is the 4th CEO or more.	1162	0.20	0.40	0	0	0	0	1
SALES FOR GVMNT	Firms' share of sales to central/local governments or public firms.	1162	14.50	26.70	0	0	0	10	100
MANAGERS ASSOCIATION	(dummy) = 1 if the firm belongs to a managers association.	1162	0.84	0.37	0	1	1	1	1
% OWNED: PARENT COMPANY	Share of ownership: parent company.	1162	9.46	27.90	0	0	0	0	100
% OWNED: SUBSIDIARIES	Share of ownership: subsidiaries and affiliated companies.	1162	1.55	8.75	0	0	0	0	100
% OWNED: SUPPLIERS AND CUSTOMERS	Share of ownership: customers and suppliers.	1162	0.78	5.08	0	0	0	0	98
% OWNED: LARGE LENDER	Share of ownership: the largest lender.	1162	0.02	0.35	0	0	0	0	8
% OWNED: OTHER FIs	Share of ownership: other financial institutions.	1162	0.06	0.90	0	0	0	0	20
% OWNED: INVESTMENT FUNDS	Share of ownership: investment funds.	1162	0.30	3.13	0	0	0	0	50
% OWNED: OTHERS	Share of ownership: others.	1162	7.77	19.20	0	0	0	1	100
MANUFACTURING	(industry dummy) = 1 for manufacturing	1162	0.25	0.43	0	0	0	0	1
WHOLESALES RETAIL	(industry dummy) = 1 for wholesale, retail and restaurants	1162	0.25	0.43	0	0	0	0	1
REALESTATE	(industry dummy) = 1 for real estate	1162	0.01	0.10	0	0	0	0	1
TRANSPORTATION AND TELECOMM	(industry dummy) = 1 for transportation and telecommunications	1162	0.08	0.28	0	0	0	0	1
SERVICE	(industry dummy) = 1 for service industry	1162	0.17	0.38	0	0	0	0	1

This table lists the control variables with their definitions and descriptive statistics.

5.1. Results for H1a versus H1b

In [Table 5](#), we find that the coefficients for the variable for the family firm status (FFIRM) are negative in column (1) and almost 0 in column (3), but both are not statistically significant when using the 50% ownership threshold to define family firms. This lack of significance is also confirmed when the 30% threshold is used in columns (2) and (4). Therefore, family ownership, on average, does not have a significant impact on the propensity of CEO successors to innovate the management style and to enlarge incumbent business activities or make the advance into new business fields. Thus, the answer to our basic research question is that, on average, family firms are neither more nor less likely to introduce management innovation than non-family firms.

However, the results are more nuanced once we take into account the origin of CEO successors in family firms as a moderator ([Table 6](#)). In this test of the alternative hypotheses H1a versus H1b, the coefficient for FFIRM is negative in columns (1) through (4). Although the estimated coefficients are not statistically significant in columns (1) and (3), where we define family firms by the 50% threshold, they are statistically significant in columns (2) and (4) using the 30% threshold. In these columns, the coefficient for the added variable (FM_FFIRM) is positive, although they are statistically significant in columns (2) and (4) only.

These findings indicate that CEO succession in family firms has heterogeneous effects on post-succession management innovation, which depends on who is called at the helm of the company. When the CEO successor is a professional hired from outside the family, the family firms become more conservative than non-family firms (β in [Eq. \(2\)](#) is negative). By contrast, when the baton of the leadership is passed within the family, this conservatism mitigates ($\theta > 0$). These results are consistent with H1b.

The economic significance of the effects of the CEO successors' origin on management innovation in family firms is intriguing. The OLS (probit) result in column (2) (column (4)) indicates that the probability of conducting management innovation for family firms run by an outside

professional is lower than that for non-family firms by 14.6 (15.1) percentage points (pp). However, for family firms choosing family CEO successors, the probability is 10.3 (11.0) pp higher than that for family firms run by outside professionals. To assess whether FM_FFIRM cancels out or just mitigates the negative effect of FFIRM, we also test the joint significance of the coefficients for FFIRM and FM_FFIRM ($H_0: \beta + \theta = 0$). The result shown at the bottom of [Table 5](#) (column 2) indicates that the null hypothesis is not rejected, meaning that the involvement in management by family members completely eliminates the lack of post-succession innovativeness in family firms that hire professionals, and that family firms run by family members are as ready to introduce changes in management styles as non-family firms.

On balance, our findings lend support to H1b, and the effect of family control on management innovation is different between family firms that hire a professional CEO from outside the family and those that pass leadership of the company to a family member. The former type of family firm is more conservative than non-family firms, and does not (or is unwilling or unable to) change the management practices and structures inherited from the founder of the family firm. However, the involvement of a new family generation in the family firm leadership completely eliminates this managerial conservatism. This finding suggests that a family CEO successor is a factor of continuity and stability that reduces the turbulence linked to the passing of leadership and the agency problems with the ownership, and makes management innovation perceived in a non-traumatic way by the organization.

Turning to the control variables, the estimated coefficients generally have the expected signs consistently across the specifications. The coefficients are positive and statistically significant for YEARS SINCE SUCCESSION, MANAGERS ASSOCIATION, and % OWNED: LARGE LENDER, indicating that firms with long-tenured CEOs, belonging to a managers' association, and held by large lenders are more innovative. We also find negative and statistically significant effects for firms with later generation CEOs (3RD GENERATION CEO, 4TH GENERATION CEO) and subsidiaries (% OWNED: PARENT COMPANY) on

Table 5
Regression results: baseline specification.

Dependent variable:	INNOV_MGMT			
	OLS		Probit (Marginal effect)	
Method of Estimation:				
Ownership threshold for FFIRM:	> 50%	> 30%	> 50%	> 30%
Specification:	(1)	(2)	(3)	(4)
FFIRM	-0.00212 (0.0460)	-0.0606 (0.0481)	0.00000 (0.0464)	-0.0581 (0.0478)
ln(SALES)	0.0561*** (0.0126)	0.0583*** (0.0127)	0.0556*** (0.0125)	0.0577*** (0.0126)
FIRM AGE: 5–10 YRS	-0.167 (0.282)	-0.184 (0.280)	-0.140 (0.247)	-0.157 (0.246)
FIRM AGE: 10–20 YRS	-0.277 (0.259)	-0.287 (0.256)	-0.253 (0.226)	-0.263 (0.223)
FIRM AGE: 20–50 YRS	-0.133 (0.256)	-0.137 (0.253)	-0.113 (0.221)	-0.118 (0.219)
FIRM AGE: 50+ YRS	-0.309 (0.253)	-0.307 (0.250)	-0.284 (0.217)	-0.283 (0.215)
YEARS SINCE SUCCESSION	0.00732*** (0.00134)	0.00737*** (0.00134)	0.00698*** (0.00123)	0.00701*** (0.00123)
3RD GENERATION CEO	-0.0690** (0.0333)	-0.0713** (0.0333)	-0.0683** (0.0328)	-0.0706** (0.0329)
4TH GENERATION CEO	-0.0939** (0.0406)	-0.0985** (0.0406)	-0.0941** (0.0413)	-0.0985** (0.0414)
SALES FOR GVMNT	-0.000516 (0.000590)	-0.000527 (0.000589)	-0.000520 (0.000596)	-0.000533 (0.000596)
MANAGERS ASSOCIATION	0.0870** (0.0363)	0.0878** (0.0363)	0.0897** (0.0389)	0.0905** (0.0389)
% OWNED: PARENT COMPANY	-0.00150** (0.000659)	-0.00200*** (0.000672)	-0.00153** (0.000715)	-0.00203*** (0.000712)
% OWNED: SUBSIDIARIES	-0.00121 (0.00160)	-0.00167 (0.00157)	-0.00121 (0.00176)	-0.00167 (0.00172)
% OWNED: SUPPLIERS AND CUSTOMERS	1.28e-05 (0.00279)	-0.000581 (0.00272)	1.88e-05 (0.00278)	-0.000580 (0.00272)
% OWNED: LARGE LENDER	0.106*** (0.0270)	0.108*** (0.0269)	0.118** (0.0471)	0.120** (0.0473)
% OWNED: OTHER FIs	0.00260 (0.0117)	0.00167 (0.0117)	0.00321 (0.0161)	0.00234 (0.0161)
% OWNED: INVESTMENT FUNDS	-0.00371 (0.00362)	-0.00356 (0.00365)	-0.00445 (0.00457)	-0.00429 (0.00460)
% OWNED: OTHERS	-0.00170* (0.000913)	-0.00220** (0.000878)	-0.00163 (0.000994)	-0.00213** (0.000946)
Constant	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Observations	1162	1162	1162	1162
R-squared	0.091	0.092		

This table reports the results for our baseline regressions, where the dependent variable is INNOV_MGMT, indicating that the CEO successor introduced management innovation after succeeding the firm, and the main independent variable is FFIRM, an indicator for family firms. Family firms are defined based on ownership by family members, and the cutoff is 50% in columns (1) and (3), and 30% in columns (2), (4). Other independent variables are control variables listed in Table 4. Columns (1) and (2) report the results for OLS regressions, and columns (3) and (4) report the results for probit models. The estimated coefficients (OLS) or marginal effects (probit) are shown with robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

management innovation.

5.2. Ownership share and past work experience

Table 7 shows the regression results for our further tests. Columns (1) and (2) are for the tests of hypotheses H2a and H2b, where FOWN is added as a further interaction term with FFIRM and FM_FFIRM, while columns (3) and (4) are for the tests of hypotheses H3a, H3b, and H3c, where PastEmp as the further interaction term. As indicated above, we do not report the result for the probit model due to incorrect marginal effect (Ai and Norton, 2003).

In columns (1) and (2), the coefficient for FM_FFIRM*FOWN is positive and statistically significant, while that on FFIRM*FOWN is negative and significant when family firms are defined as those above the 50% ownership threshold. These results lend support to H2b, which draws on the agency or the resource-based theories.

To check the overall effects of FOWN, the sum of the coefficients for the two interaction terms is positive and statistically significant (see the test result at the bottom), indicating that the overall moderator effect of ownership concentration for family firms managed by family CEO successors is positive. Fig. 1 illustrates the overall effects of FOWN based on the results in column (1) of Table 6. It shows that 100% held family firms run by non-family CEO successors are less likely to introduce management innovation than non-family firms by 25.3% point (-0.253 = 0.684 + 100 × (-0.00937)), but those run by family members are 5.6% point more innovative (0.056 = 0.684 - 1.161 + 100 × (-0.00937) + 100 × 0.0147). On the contrary, when the family's ownership share decreases to 30.0%, family firms with professional CEO successors are 40.3% point more likely to innovate, while those with family CEO successors are more conservative than successors in non-family firms by 31.7% point (-0.317 = 0.684 - 1.161 + 30 × (-0.00937) + 30 × 0.0147).

Turning to the results in columns (3) and (4), we first find that PastEmp has a negative coefficient (although statistically insignificant in column (3)), indicating that firms with CEOs who previously worked at the firms are, on average, more conservative in terms of management innovation than those who were not. As for the conditioning effect of PastEmp that we are interested in, the interaction of FFIRM and PastEmp is insignificant in both columns (3) and (4), while that of FM_FFIRM and PastEmp is positive and significant. These results are consistent with H3b, suggesting that past work experience increases the relative advantage of family over professional CEO successors to introduce management innovations. In addition to these results, the test for joint significance at the bottom of the table shows that the sum of the coefficients of the two interaction terms is not significantly different from zero, indicating that the past work experience of the CEO successors neither increases nor decreases the management innovativeness of family firm managed by family successors as compared with non-family firms.

In summary, our econometric results support hypotheses H1b, H2b and H3b, and are consistent with the predictions based on resource-based view of family firms (Habbershon and Williams, 1999; Cabrera-Suárez et al., 2001). Our finding indicates that family CEO successors of family firms are more likely to initiate and implement management innovations than professional successors due to their having access to valuable family-based intangible resources that creates the right conditions for introducing shared changes in management practices and seize new business opportunities.

5.3. Robustness checks

5.3.1. Sample selection model

To check the robustness of our findings, we conduct some additional analyses. First, we estimate a two-stage Heckman sample selection model. One of the concerns in the previous analyses is sample selection bias. Although there were 2617 firms in the original sample, the number of observations for the regression analysis is reduced to less than 1200.

Table 6
Regression results: origin of CEO successors.

Dependent variable:	INNOV_MGMT			
	OLS		Probit (marginal effect)	
Method of Estimation:				
Ownership threshold for FFIRM:	> 50%	> 30%	> 50%	> 30%
Specification:	(1)	(2)	(3)	(4)
FFIRM	-0.0737 (0.0723)	-0.146** (0.0644)	-0.0722 (0.0757)	-0.151** (0.0694)
FM_FFIRM	0.0810 (0.0640)	0.103* (0.0538)	0.0813 (0.0676)	0.110* (0.0601)
ln(SALES)	0.0568*** (0.0127)	0.0593*** (0.0127)	0.0562*** (0.0125)	0.0585*** (0.0126)
FIRM AGE: 5–10 YRS	-0.170 (0.288)	-0.186 (0.289)	-0.141 (0.251)	-0.157 (0.252)
FIRM AGE: 10–20 YRS	-0.286 (0.266)	-0.294 (0.264)	-0.260 (0.229)	-0.269 (0.228)
FIRM AGE: 20–50 YRS	-0.142 (0.262)	-0.145 (0.261)	-0.121 (0.225)	-0.126 (0.224)
FIRM AGE: 50+ YRS	-0.323 (0.259)	-0.323 (0.258)	-0.297 (0.221)	-0.299 (0.221)
YEARS SINCE SUCCESSION	0.00718*** (0.00134)	0.00714*** (0.00135)	0.00684*** (0.00123)	0.00677*** (0.00124)
3RD GENERATION CEO	-0.0653* (0.0335)	-0.0670** (0.0334)	-0.0649** (0.0330)	-0.0665** (0.0329)
4TH GENERATION CEO	-0.0910** (0.0407)	-0.0934** (0.0408)	-0.0912** (0.0413)	-0.0937** (0.0415)
SALES FOR GVMNT	-0.000485 (0.000590)	-0.000495 (0.000589)	-0.000493 (0.000597)	-0.000502 (0.000596)
MANAGERS ASSOCIATION	0.0865** (0.0364)	0.0864** (0.0363)	0.0890** (0.0390)	0.0885** (0.0389)
% OWNED: PARENT COMPANY	-0.00150** (0.000659)	-0.00198*** (0.000673)	-0.00153** (0.000715)	-0.00202*** (0.000712)
% OWNED: SUBSIDIARIES	-0.00119 (0.00160)	-0.00167 (0.00157)	-0.00121 (0.00175)	-0.00169 (0.00172)
% OWNED: SUPPLIERS AND CUSTOMERS	3.67e-05 (0.00280)	-0.000468 (0.00273)	5.30e-05 (0.00278)	-0.000465 (0.00273)
% OWNED: LARGE LENDER	0.105*** (0.0271)	0.105*** (0.0271)	0.116** (0.0472)	0.117** (0.0474)
% OWNED: OTHER FIs	0.00237 (0.0117)	0.00127 (0.0118)	0.00291 (0.0160)	0.00186 (0.0161)
% OWNED: INVESTMENT FUNDS	-0.00381 (0.00363)	-0.00341 (0.00368)	-0.00455 (0.00459)	-0.00440 (0.00471)
% OWNED: OTHERS	-0.00164* (0.000915)	-0.00204** (0.000884)	-0.00157 (0.000994)	-0.00197** (0.000948)
Constant	Yes	Yes	No	No
Industry dummies	Yes	Yes	Yes	Yes
Observations	1162	1162	1162	1162
R-squared	0.092	0.094		
	Test for joint significance (p-value)			
FFIRM+FM_FFIRM=0	0.876	0.379		

This table reports the results for the regressions for management innovation of the CEO successors, when we add a variable to indicate family-managed family firms (FM_FFIRM). The other specifications are the same as those in Table 5. The estimated coefficients are shown with robust standard errors in parentheses. The results (p-value) for the test for joint statistical significance (FFIRM+FM_FFIRM=0) are also shown at the bottom. *** p < 0.01, ** p < 0.05, * p < 0.1.

The most important reason for this reduction is the exclusion of observations with the current CEO being the founder because we focus on the introduction of management innovation *after* the current CEO took over the business from the previous one.

To control for any bias due to this sample selection, we specify, as the first stage regression, a probit model of whether the firms are still led by founder CEOs (first-generation CEO) or not (second generation or later). The dependent variable is an indicator for non-founder CEOs. For the independent variables, we use some of the independent variables for the second stage, specifically ln(SALES), firm age dummies, and YEARS SINCE SUCCESSION. Unfortunately, we do not have a good instrumental variable to satisfy the exclusion criteria and these variables are the same as those used in the second-stage regression. We then use the inverse of the estimated Mill's ratio as an additional independent variable in the second-stage regression. The number of observations for the first-stage regression is 1873.

The results, which are unreported and available from the authors, show that the second-stage results of the sample selection model are qualitatively similar to those reported in Tables 5–7. We also find that

the coefficient for the inverse Mill's ratio ("lambda") is statistically insignificant. These results suggest that selection bias is not a severe concern in our sample.

5.3.2. Endogeneity

We also address concerns for bias in the results stemming from different types of endogeneity. First, firms' choice of successors might be endogenous, and our results might pick up a spurious relationship. Specifically, a family firm (or its CEO) might invite a new CEO from outside with an intention to innovate the firm. Because we have no information on the intention of CEO successions, we cannot directly address this concern. However, if an outside successor is appointed to innovate the firm, such a successor will do so soon after the succession. Thus, successions with such an intention will be less likely to be observed if we focus on firms that experienced the succession less recently. Therefore, we run the two-stage sample selection model by limiting the sample to firms with YEARS SINCE SUCCESSION being larger than 4 (years).

As another possibility for endogeneity, it might be the case that

Table 7
Regression results: interactions with ownership share and past experience.

Dependent variable	INNOV_MGMT			
	> 50% (1)	> 30% (2)	> 50% (3)	> 30% (4)
Ownership threshold for FFIRM: Specification:				
FFIRM	0.684*** (0.259)	0.0655 (0.155)	0.155 (0.162)	-0.0664 (0.129)
FM_FFIRM	-1.161*** (0.301)	-0.410** (0.187)	-0.209 (0.158)	-0.0774 (0.121)
FFIRM * FOWN	-0.00937*** (0.00305)	-0.00276 (0.00204)		
FM_FFIRM * FOWN	0.0147*** (0.00343)	0.00627*** (0.00230)		
PastEmp			-0.0814 (0.0549)	-0.124** (0.0591)
FFIRM * PastEmp			-0.280 (0.173)	-0.0974 (0.140)
FM_FFIRM * PastEmp			0.357** (0.170)	0.228* (0.134)
ln(SALES)	0.0600*** (0.0126)	0.0618*** (0.0126)	0.0570*** (0.0126)	0.0592*** (0.0127)
FIRM AGE: 5–10 YRS	-0.168 (0.286)	-0.173 (0.289)	-0.137 (0.260)	-0.147 (0.266)
FIRM AGE: 10–20 YRS	-0.264 (0.264)	-0.278 (0.265)	-0.218 (0.243)	-0.238 (0.242)
FIRM AGE: 20–50 YRS	-0.127 (0.261)	-0.136 (0.262)	-0.0654 (0.239)	-0.0799 (0.238)
FIRM AGE: 50- YRS	-0.304 (0.258)	-0.310 (0.259)	-0.239 (0.236)	-0.251 (0.236)
YEARS SINCE SUCCESSION	0.00707*** (0.00134)	0.00709*** (0.00134)	0.00709*** (0.00134)	0.00707*** (0.00135)
3RD GENERATION CEO	-0.0636* (0.0333)	-0.0635* (0.0334)	-0.0662** (0.0335)	-0.0672** (0.0334)
4TH GENERATION CEO	-0.108*** (0.0406)	-0.106*** (0.0408)	-0.0987** (0.0407)	-0.101** (0.0408)
SALES FOR GVMNT	-0.000521 (0.000584)	-0.000523 (0.000585)	-0.000460 (0.000587)	-0.000480 (0.000587)
MANAGERS ASSOCIATION	0.0863** (0.0366)	0.0881** (0.0364)	0.0820** (0.0363)	0.0841** (0.0363)
% OWNED: PARENT COMPANY	-0.00116* (0.000674)	-0.00158** (0.000697)	-0.00181*** (0.000695)	-0.00248*** (0.000713)
% OWNED: SUBSIDIARIES	-0.000718 (0.00163)	-0.000773 (0.00161)	-0.00148 (0.00169)	-0.00206 (0.00167)
% OWNED: SUPPLIERS AND CUSTOMERS	0.00111 (0.00277)	0.000545 (0.00275)	-8.38e-05 (0.00287)	-0.000612 (0.00284)
% OWNED: LARGE LENDER	0.106*** (0.0239)	0.104*** (0.0251)	0.0989*** (0.0267)	0.0959*** (0.0261)
% OWNED: OTHER FIs	0.000757 (0.0117)	-0.000428 (0.0117)	0.00282 (0.0116)	0.00202 (0.0115)
% OWNED: INVESTMENT FUNDS	-0.000109 (0.00366)	-0.000628 (0.00391)	-0.00390 (0.00367)	-0.00396 (0.00370)
% OWNED: OTHERS	-0.000989 (0.000976)	-0.00126 (0.000981)	-0.00169* (0.000900)	-0.00217** (0.000868)
Constant	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Observations	1162	1162	1162	1162
R-squared	0.104	0.100	0.097	0.100
	Test for joint significance (p-value)			
FFIRM+FM_FFIRM=0	0.003***	0.006***	0.245	0.963
FFIRM*FOWN+FM_FFIRM*FOWN=0 or FFIRM*PastEmp+FM_FFIRM*PastEmp=0	0.003***	0.011**	0.058	0.218

This table reports the results for the regressions for management innovation of the CEO successors, where we further add interaction terms of the two main variables (FFIRM and FM_FFIRM) and two alternative moderators: FOWN, the ownership share of the family, or PastEmp, an indicator for the CEO's past experience as an employee in the firm. The other specifications are the same as those in Table 5, but only the OLS results are reported to avoid incorrect marginal effects. The estimated coefficients are shown with robust standard errors in parentheses. The results (p-value) for the three tests for joint statistical significance are also shown at the bottom. *** p < 0.01, ** p < 0.05, * p < 0.1.

outside (or family) status of the prior CEO might increase the likelihood of appointing another outside (family) CEO as a successor, and at the same time affect the need for management innovation, thereby creating a spurious relationship between the origin of CEO successor and management innovation. Part of this concern, the intention for CEO successions, are addressed to some extent by the previous robustness check. However, to address any remaining concerns, we limit the sample to the case where the current CEOs are the second-generation successors. This

analysis makes sense because, in this analysis, the predecessors of the current CEOs are the founders, and are always family CEOs.

When we compare the results from these robustness checks (unreported and available from the authors) with those in Tables 5–7, the overall results are qualitatively unchanged, although statistical significance of some main variables decreases. However, the number of observations for these checks are smaller than those in Tables 5–7 due to the limitation of the sample, which might invite the lack of statistical

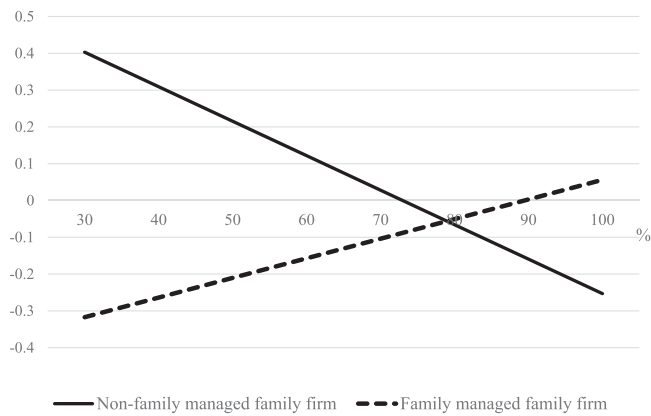


Fig. 1. Innovativeness and family ownership share. This figure compares the predicted change in the likelihood to introduce management innovation for family firms managed by a family CEO successor and by a non-family professional when the family's ownership share changes. The predictions are based on the estimates of the parameters in specification (1) in Table 7.

power. Also, at the least, we consistently find evidence for H2b. We thus conclude that our conclusion from the main analyses is, at least to some extent, supported.

6. Discussion and conclusion

This study empirically examined the management innovation of family-owned firms experiencing a CEO succession, by focusing on the origin of CEO successors, and by further considering the effect of ownership concentration in the family and past working experiences of CEO successors at the firm. Examining the likelihood of introducing management innovation using survey data of 1149 SMEs in Japan, we have provided evidence that is supportive of the benefit of family CEO successors in family firms due to richer family-based resources.

This study improves upon our understanding of the innovation ability of family and professional CEO successors, contributing to the literature on inherited control and the effects of promoting family or external CEO successors (Greiner and Bhambri, 1989; Miller, 1993; Zhang and Rajagopalan, 2004, 2010; Pérez-González, 2006; Bennedsen et al., 2007; Cucculelli and Micucci, 2008). Contrary to Lemos and Scur (2019), but in line with Hauck and Prügl (2015), we find that the decision to pass the baton of the leadership within the family facilitates the introduction of management innovations that accompany the decision to expand the inherited business activities. However, the innovativeness of family firms run by family successors is comparable to that of non-family firms. It is rather family firms run by professional CEO successors that are less likely to introduce management innovations after succession than family-managed family firms or non-family firms. Our results of family CEO successors doing better, especially when the family involvement in the ownership is high, and when the successors had the opportunity to have past work experiences at the firm, have important theoretical implications. They provide support to the resource-based view of the family firms (Habbershon and Williams, 1999; Cabrera-Suárez et al., 2001) and the importance of accessing tacit knowledge, relationships, business culture, reputation and other family-based resources to thrive and create value in the long run (Bennedsen and Fan, 2014).

Our study also provides very important practical implications for the management of family firms. Our findings indicate that whether to separate or integrate ownership and management matters in determining the innovativeness of family firms. Specifically, relay succession in family firms is not disadvantageous, at least in terms of management innovation after business succession, and inviting CEOs from outside the company might rather have a detrimental effect of making the family

firms too conservative. Thus, family firms that expect business succession in the near future should be aware of a disadvantage of potential non-family CEOs in terms of their limited access to the bundle of intangible, family-based resources, and due to this disadvantage, they should pay attention to the congruence of ownership and management.

While our findings are interesting and provide important implications, they also raise further research questions. First, although we focused on management innovation only, it is unclear how family ownership and management are associated with other types of innovation, for example, technological (product and process) innovation. Second, management innovation is only one aspect of the corporate behavior of family firms, and abundant studies have already clarified various pros and cons of family firms. Especially, it is important to examine whether differences in innovativeness between family and non-family firms affect their relative performance. To the extent that innovativeness and performance are positively correlated, our finding on the conservativeness of professional successor is in contrast to much of the existing literature that finds that professional successors enhance post-succession performance of family firms. However, we need to take into account other factors to affect performance, such as differences in ownership structure and firm characteristics. The findings in this paper call for additional research on these dimensions.

Data availability

The authors do not have permission to share data.

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