Innovativeness and family-firm performance: The moderating effect of family commitment

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Introduction

The ongoing globalization process highlights the importance of a firm’s ability to engage in the development and launching of product innovations (innovativeness; Greve, 2003) (Camps and Marques, 2014). However, more than just the ability to develop a product is needed to capture new business opportunities and translate innovativeness into improved firm performance (Rosenbusch et al., 2011; Tsai et al., 2013; Wiklund and Shepherd, 2003; Yu, 2013). This research focuses on the specific context of family firms, defined as businesses “governed and/or managed with the intention to shape and pursue the vision of the business held by a dominant coalition controlled by members of the same family or a small number of families in a manner that is potentially sustainable across generations of the family or families” (Chua et al., 1999, p. 25). Because family firms represent 80–95% of the stock of firms in most capitalist economies (Nordqvist and Melin, 2010), understanding how innovativeness in this specific organizational context turns into performance is relevant not only for the development of individual firms but for the economy as a whole. Prior research identifies a positive relationship between innovativeness and family-firm performance (Naldi et al., 2007), but there is a lack of understanding as to how the characteristics that distinguish family firms from non-family enterprises (Shanker and Astrachan, 1996; Sharma et al., 1996; Shepherd and Zacharakis, 2000) influence the innovativeness–performance relationship (De Massis et al., 2013).

Previous studies suggest that the owner family’s involvement in the firm, also described as familiness, is an important distinctive feature explaining the strategic behavior of family firms (Chrisman et al., 2005; Habbershon and Williams, 1999). As a prominent part of a family firm’s resource portfolio,
“familiness has the potential to affect a family firm’s efforts to innovate” (Carnes and Ireland, 2013, p. 1400) and is an important element in understanding a family firm’s performance (Kellermanns et al., 2012). However, there is no prior research on the relationship between familiness and the impact of innovativeness on performance (Weismeier-Sammer, 2011). The study most closely referring to this topic is that of Kellermanns et al. (2012) referenced above. The study examines how family dynamics is an important part of a family firm’s resource portfolio that can help or hinder a family firm’s ability to exploit its innovativeness. Nevertheless, Kellermanns and colleagues do not specify how factors that determine familiness (Carrasco-Hernandez and Jimenez-Jimenez, 2012, p. 32) – the power, experience, and culture of the owner family – contribute to the innovativeness-performance relationship. This is the additional step taken in the present study to break new ground.

More specifically, the current research addresses the owner family’s commitment to the firm as a manifestation of familiness – and by that as an intangible, unique resource of family firms – and examines how it moderates the innovativeness-performance relationship. Our hypothesis development draws upon the resource-based view (RBV) of the firm (Barney, 1991; Priem and Butter, 2001) and its previous applications in family firm research (Eddleston et al., 2008a; Nordqvist, 2005) that explain how the unique interplay between family-specific and firm-specific resources affects family-firm performance. Our empirical analysis is based on longitudinal data from 106 large and medium-sized family firms in Finland.

Our study contributes to the underdeveloped research on innovativeness in family firms (Hausman, 2005; Llach and Nordqvist, 2010; Memili et al., 2014) by showing how family commitment as a distinctive characteristic of family firms influences the relationship between innovativeness and firm performance. This knowledge adds to the RBV-based research on family firms by increasing our understanding of the performance impact of the unique interplay between resources derived from the firm and the family spheres (Arregle et al., 2007; Dyer and Handler, 1994; Sirmon and Hitt, 2003) in the course of engaging in the development and launching of new products. More generally, our findings contribute to a more contextualized understanding of the performance impact of innovativeness as called for, for example, by Rosenbusch et al. (2011). The results of the study extend our understanding of the performance effect of innovativeness in the distinct yet common organizational context of family firms. With regard to management practice, the findings call for the members of owner families to adopt a clear stance on their involvement in the firms’ management and to be consistent with this strategic decision in their everyday conduct.

2. Literature review and hypotheses

2.1. Innovativeness and family-firm performance

Previous studies argue that family firms, characterized by the overlap of the family and firm spheres (Habbershon et al., 2003), possess unique characteristics capable of providing competitive advantages over non-family firms (Memili et al., 2013; Sirmon and Hitt, 2003; Zahra et al., 2008). Assessing a family firm’s uniqueness and linking it to an advantage in the marketplace requires researchers to identify the firm’s specific strategies, resources, and skills (Habbershon and Williams, 1999). As the resources of family firms have been characterized as unusually complex, rich and dynamic, the RBV offers an appropriate theoretical lens on family firm behavior because it examines the links between a firm’s internal characteristics and its performance (Arregle et al., 2007; Habbershon and Williams, 1999; Sieger et al., 2011).

According to RBV theorists (e.g., Penrose, 1959; Wernerfelt, 1984), a unique bundle of complex, intangible and dynamic resources is the foundation of a firm’s competitive advantage. Therefore, in order to attain a competitive advantage and enjoy a sustainable level of performance, firms need to possess valuable and rare resources (Barney, 1991). Furthermore, these resources must also be inimitable and non-substitutable so that the firm can sustain its advantage in the longer term (Barney, 1991; Dierickx and Cool, 1989). In this regard, the RBV highlights the role of innovativeness as a critical resource in itself (Cho and Pucik, 2005) or as a way of generating resources essential for developing competitive advantage (Barney, 1991; Wernerfelt, 1984), as exemplified by dynamic capabilities (Teece et al., 1997) and the ability to learn (Jiménez-Jiménez and Sanz-Valle, 2011).

We start with a broad definition of innovativeness as “a firm’s tendency to engage in and support new ideas, novelty, experimentation, and creative processes” (Lumpkin and Dess, 1996) that may result in the launch of new products (product innovativeness; Camps and Marques, 2014; Gopalakrishnan and Damanpour, 1997; Salavou and Avlonitis, 2008), new business models (organizational or firm innovativeness; Lumpkin and Dess, 1996; Gopalakrishnan and Damanpour, 1997), and in process innovations (Garcia and Calantone, 2002; Frank et al., 2010).

While prior research indicates the presence of a generally positive link between innovativeness and subsequent firm performance (Bowen et al., 2010; Rosenbusch et al., 2011; Rubera and Kirca, 2012), findings on the effect of innovativeness on family-firm performance are equivocal (Chirico and Nordqvist, 2010; De Massis et al., 2013). In fact, the overlap of family and firm spheres in family firms (Flemons and Cole, 1992) implies specific bundles of resources and capabilities (Sirmon and Hitt, 2003), such as familiness (Chrisman et al., 2005), social capital (Arregle et al., 2007) and specific patterns of ownership, governance and succession (Chua et al., 1999; Hatak and Roessl, 2013; Steier, 2003) that constitute a unique organizational context (Westhead and Howorth, 2006). The current literature has prompted lively discussion on whether this unique organizational context of family firms fosters or hinders innovativeness and its translation into improved firm performance (Habbershon and Pistrui, 2002; Memili et al., 2014; Zahra, 2005).

Family firms are often criticized for adopting an approach unconducive to innovativeness when they pursue stability (Vago, 2004) and neglect risk-taking (Morris, 1998; Chen and Hsu, 2009). However, recent research provides a more multifaceted view of family firms that recognizes that engaging in the development and launching of new products constitutes a necessary condition for family-firm continuity (Carnes and Ireland, 2013; Kellermanns et al., 2012). Prior studies have argued that family firms may possess characteristics that foster innovativeness (Craig and Dibrell, 2006; Özsomer et al.,
1997). For example, family firms are more likely to have flexible structures and decision-making processes, and are less likely to resort to formal monitoring and control than non-family firms (Daily and Dollinger, 1992; Geeraerts, 1984; Zahra et al., 2008).

Furthermore, fostering innovativeness should also be in the strategic interests of family firms. Given family firms have a strategic horizon that can span generations (Sharma and Irving, 2005; Ward, 1988; Zellweger, 2007), they should be focused not only on current performance returns but also on long-term future returns. Therefore, they have an incentive to leverage innovativeness to create stronger firm performance in the long run (Craig and Dibrell, 2006); even if the returns cannot be realized in the short run.

The present study limits the analysis of innovativeness to the family firm’s ability to develop and launch product innovations. This is because Damanpour (1991) reports in a meta-analysis that product innovation is more directly linked to firm performance than other types of innovation. With regard to family firms, Naldi et al. (2007) have shown that innovativeness leading to the development and launch of new products translates into improved firm performance. Our first objective is therefore to seek further confirmation of this last finding by testing the following hypothesis:

**Hypothesis 1.** A family firm’s innovativeness positively influences the subsequent performance of the firm.

### 2.2. The moderating effect of family commitment

Innovativeness is seen as an important part of a family firm’s resource portfolio (Memili et al., 2014). However, to pursue and capture new opportunities via innovativeness that can help family firms gain competitive advantages and improve firm performance (Tsai et al., 2013; Wiklund and Shepherd, 2003; Yu, 2013), it is not sufficient to simply possess this firm-specific, technically-based (McGrath, 2001) resource. Instead, the resource must be appropriately managed by combining it with other critical resources in order to unlock its performance potential (Carnes and Ireland, 2013; Sirmon et al., 2009).

In this regard, Zahra et al. (2004, 2008) found that family commitment as a socially-based, family-specific resource (Eddleston et al., 2008a) can support enhanced organizational responsiveness, facilitating the initiation of entrepreneurial activities that spur innovations (Corbetta and Salvato, 2004; Miller and Le Breton-Miller, 2006) and improved firm performance (Eddleston et al., 2008b). However, against the background of recent work by Koenig et al. (2013), who suggest that family influence has negative effects on the rapid recognition, aggressive adoption, and flexible implementation of discontinuous innovations, it seems that family commitment can be a double-edged sword in the process of translating innovativeness into family-firm performance.

On the one hand, a family highly committed to the firm can create trust and a strong familial bond in the family firm, resulting in a reduction of formal controls (Zahra et al., 2008) and increased use of strategic behavioral controls (Hsu and Chang, 2011). In turn, relying on strategic behavioral controls is positively related to the use of long-term strategic criteria in the course of deciding how to allocate a family firm’s resources, with the use of long-term criteria leading to flexible decisions supporting innovation (Carnes and Ireland, 2013). In this regard, Zahra et al. (2008) have also shown that strong family commitment creates conditions conducive to strategic flexibility, which embodies the capacity to quickly adapt to changes, for example when engaging in the development and launching of new products. This ability results from the high levels of tacit knowledge embedded in highly committed family members (Sirmon and Hitt, 2003). This tacit knowledge from the constant and continual interaction of family and firm (Koenig et al., 2013) makes family firms “better able to extend capabilities and produce more novel innovations” (Carnes and Ireland, 2013, p. 1409).

In addition, family commitment as a socially complex resource is not only positively linked to the quality, intensity, and duration of family members’ efforts to discover novel and creative combinations of resources to stimulate innovation that boosts performance. It can also create a similar affective response among non-family employees. As Zahra et al. (2008, p. 1038) put it, “among the strongest influencers of employee affect are the organization’s leaders – i.e., in family firms, the founders, and owners.” Thus, a strong affective commitment to the firm on the part of the family makes it more likely that non-family employees will also develop commitment to the family firm (Barsade, 2002; Lansberg, 1999). More specifically, family commitment can foster not only a long-term orientation, but also a sense of independence and responsibility among non-family employees by promoting affective commitment (Zahra et al., 2008), thereby creating conditions under which non-family employees contribute to determining how the family firm’s current resources can be combined to extend critical abilities such as innovativeness (Carnes and Ireland, 2013). In summary, strong family commitment can foster commitment among non-family employees that can contribute to the process of developing new products and establishing them in the market: a key factor in achieving high performance levels.

On the other hand, given that family firms are often assumed to bring few product innovations to market (Chin et al., 2009; Czarnitzki and Kraft, 2009; Ellington and Deane, 1996) and make little investment in new technologies (Block, 2012; Chandler, 1990; Chen and Hsu, 2009; Chrisman and Patel, 2012; De Massis et al., 2013), there are reasons to believe that high levels of family commitment might lead to underperformance (Allio, 2004; Kellermanns et al., 2012). More specifically, highly committed family leaders might view their firms as personal fiefdoms (Hatak and Roessl, 2013). Such a perspective would tempt them to act – or to resist acting – without involving their staff and could therefore prompt decisions that could jeopardize the continuity of the firm or, in the case of lengthy tenures, to strategic stagnation (Finkelstein and Hambrick, 1996). In other words, highly committed family leaders unwilling to accept the risk of allocating resources outside of known patterns (Koenig et al., 2013), adopt novel thinking, and creatively combine resources risk inhibiting elements required for the development of innovations that support performance (Bradley et al., 2012).

Similarly, the increased emotional ties to existing assets and organizational structures resulting from high levels of family commitment (Koenig et al., 2013) can inhibit creativity among non-family employees, as such creativity is shaped by the organizational context and processes (Hardagon and Bechly, 2006). Inappropriate emotional ties can also undermine the
cohesiveness required to translate innovativeness into firm performance. Specifically, the highly committed family leaders’ desire “to allocate resources for the purpose of exploiting historical benefits that have been generated by emphasizing existing competitive advantages while implementing current strategies” (Carnes and Ireland, 2013, p. 1407) can induce non-family employees to expend less energy on risky long-term projects such as the development and launching of new products than they might if they felt such projects were more valued. Those non-family employees might instead concentrate on operational issues that enhance the efficiency of the current routine business (Koenig et al., 2013). Other non-family employees with a strong entrepreneurial mindset might leave if they felt their employer was unwilling to make the significant internal or external changes associated with innovativeness. Such changes might include like increasing the opportunities for non-family staff to participate in the innovation process (Black and Gregersen, 1997; Tsai et al., 2013). If the performance effect of innovation is to be realized, employees must be provided with opportunities to participate in the development and launching of product innovations (Camps and Marques, 2014; Zhou et al., 2013). Such cultivation of ownership and creator schemas among the employees empowers them to unleash their creativity, and thereby contribute to innovativeness that enhances performance (Sonenshein, 2014). According to this logic, a low level of family commitment might positively moderate the innovativeness–performance relationship, provided the family grants their non-family staff sufficient license to act entrepreneurially.

Based on the arguments and research evidence presented above, we can argue that a high level of family commitment is conducive to the translation of innovativeness into performance. However, it is also plausible to argue that a low level of family commitment facilitates a positive innovativeness–performance relationship. Therefore, we consider both alternative explanations in our empirical analysis and propose the following hypotheses:

**Hypothesis 2.** Family commitment moderates the relationship between innovativeness and firm performance such that the effect of innovativeness on firm performance will be stronger when the level of family commitment is high.

**Hypothesis 3.** Family commitment moderates the relationship between innovativeness and firm performance such that the effect of innovativeness on firm performance will be stronger when the level of family commitment is low.

Fig. 1 provides a graphical summary of the hypotheses.

### 3. Data and variables

#### 3.1. Data collection

The data consist of a sample of 106 large (more than 250 employees) and medium-sized (50–249 employees) family firms in Finland that were surveyed in 2008 and 2011. By omitting small firms with fewer than 50 employees, we reduce heterogeneity in the sample because firms below this threshold show specific size-related characteristics related to their organizational structure and affecting their managerial needs (Curran and Blackburn, 2001; Dandridge, 1979; Welsh and White, 1981). The initial sample was drawn from the Business Register maintained by Statistics Finland, a government agency that develops national official statistics. The Business Register includes all Finnish firms liable to pay value added tax (VAT) and/or employing one or more people.

The selection of firms for the survey comprised two steps. First, all firms that met the European Commission (2003) criteria for medium-sized (50–249 employees) and large firms (more than 250 employees) were chosen from the Business Register’s annual statistics. The initial selection process resulted in a population of 2,208 firms – 1,671 medium-sized and 537 large firms. Second, researchers telephoned CEOs, representatives of the owner family, or CFOs in the selected firms to establish which were family firms. The criteria used to identify family firms followed the Family Entrepreneurship Working Group’s recommendations to the Finnish Ministry of Trade and Industry (MTI, 2006, p. 37). The criteria specify in a family firm, the majority of the decision-making votes in the shareholder meeting (at least 25%) are controlled by the person who founded or acquired the capital stock of the firm, their families, or descendants. Further, for a firm to be classified as a family firm, at least one representative of the family has to be involved in the firm’s management or governance. The process identified 777 medium-sized and 159 large family firms.

This database of 936 family firms was used for a postal survey in 2008. The survey yielded 167 responses from CEOs and representatives of the owner family (response rate: 18%). In 2011, we phoned all 167 firms from the 2008 sample and managed to reach a CEO or a member of the owner family...
106, or 63%, of cases. Hence, the final sample represents 11% of the population of 936 firms. The telephone interviews in 2011 were brief and concerned only the firm's performance compared to its competitors in the three years following the initial survey (2008–2011).

3.2. Measures

All constructs included in the following analysis were measured using multiple 5-point Likert-style scales. The dependent variable (firm performance) was measured in both waves (2008 and 2011), while all the other variables were measured in the first wave in 2008. The Appendix A provides a full list of the scale items. After subjecting the scale items to a factor analysis (reported below), an index for each measurement scale was computed by averaging the individual items. The following provides a brief description of the content of the resulting indices, and also of the literature on which they are based.

3.2.1. Performance

The scale for capturing the firm's performance in comparison to its competitors comprises three items adapted from the performance measurement scale in Daily and Dollinger (1992). These items capture the firm's performance with respect to market share development, turnover development, and growth in the number of employees in the three preceding years. We repeated this measure in both waves of the survey and hence have performance measures pertaining to 2005–2008 (wave 1) and 2008–2011 (wave 2). We focus on growth as one of the three dimensions of organizational performance as recommended by Combs et al. (2005). This is because, first, the firms in our sample are not necessarily publicly held companies and therefore the stock market performance dimension is not applicable. The second reason is that the third recommended dimension of organizational performance – accounting returns – has been suggested to be negatively correlated with new product development (Greve, 2003). Therefore, it does not seem well suited as a dimension of performance for the present study. However, we capture different sub-dimensions of growth to account for its multi-dimensional nature (Carton and Hofer, 2006; Combs et al., 2005). Further, following the recommendation of Dess and Robinson (1984), we rely on an attitude scale (a subjective measure) as opposed to an objective measure. We do so for three reasons: First, accurate objective data (e.g., ROI, turnover) was not accessible for the sampled firms, since family firms are reluctant to provide such information in a survey questionnaire, and even if they provided such objective performance data, those data are likely to be biased owing to the variety of accounting procedures used in different firms. Second, our sample comprises family firms from diverse industries, and each industry has its own typical patterns and levels for objective performance indicators. As a result, a top performer in one industry could record the same value on a particular indicator as an underperformer in another industry (Cesinger et al., 2012). Third, the subjective measurement of firm performance matches the measurement approach of the independent variables. In addition, earlier studies (e.g., Dess and Robinson, 1984; Geringer and Hebert, 1991; Venkatraman and Ramanujam, 1986) demonstrate that subjective measures show high convergent validity with objective measures of performance.

3.2.2. Innovativeness

This seven-item scale is based on Eisenhardt and Martin's (2000) study of dynamic capabilities in product development. Innovativeness was measured in the first wave and the respondents evaluated the items relative to their competitors in the previous three years (2005–2008). A sample item is: “(Compared to our competitors) The ability of our company to perform product development research in order to launch new products and services (is much better/much worse).” Given the lack of consensus on recommended approaches for measuring innovativeness (Garcia and Calantone, 2002), we chose that closest to our theoretical understanding of the requirements for the development and launching of new products.

3.2.3. Family commitment

The family commitment scale was administered in the first wave and the items were formulated based on the study by Zahra et al. (2008). The scale comprises five items through which the respondents evaluated several dimensions of the owner family's commitment to the firm in the previous three years (2005–2008). A sample item is, “The family members feel that the business is like a part of the family.”

3.2.4. Control variables

Our model specifications include four control variables in order to avoid endogeneity due to omitted variable bias and as a control against potential confounding effects. All control variables were measured in the first wave of the survey. Prior studies have shown that the number of employees may have a systematic impact on a firm's ability to develop and launch new products and on firm performance (Bowen et al., 2010; Damanpour et al., 2009). Thus, we use a dummy indicating whether the firm is large (250 employees or more) or medium-sized (50–249 employees) in order to provide a control for the effects of firm size. Further, the tenure of family ownership has previously been shown to affect both product development capabilities and firm performance (Pittino and Visintin, 2009). Therefore, we integrated a dummy variable that was assigned a value of 1 if the firm was run by the founding family, and a value of 0 if the firm was run by the second, third, or fourth generation. We also included a measure of the dynamism of the market in which the firm operates, as this has been shown to be a relevant contextual factor for the effectiveness of innovation processes (Davis et al., 2009; Eisenhardt and Tabrizi, 1995; Pisano, 1994). The five items constituting this scale are presented in the Appendix A. Finally, the industry a firm operates in has been identified in earlier studies as a predictor of its ability to develop and launch new products and also of firm performance (Bowen et al., 2010; Damanpour et al., 2009). Accordingly, a categorical variable captures five main industry classifications for the sampled firms: manufacturing; construction; trade, hospitality, and tourism; transportation, warehousing and telecommunications; and services.

3.3. Factor analysis

The dependent variable, the two independent variables and one of the control variables are factors comprising multiple items. Before computing index scores and proceeding to regression analysis, we subjected the four measurement scales to a purification process. An exploratory principal components
analysis with direct oblimin rotation resulted in four factors with eigenvalues greater than one, and explaining 63% of the variance in the data. The rotated solution shows all items loading highly (.62–.88) on their intended factors and no item cross-loading on another factor with a loading higher than .22 (Appendix A).

Subsequent confirmatory factor analysis (CFA) shows that all indicators load significantly (.1% level) on their intended constructs and the conventional fit indices suggest a satisfactory fit between the model and the data: The comparative fit index (CFI) is .935 and close to the recommended value of .95; the root mean square error of approximation (RMSEA) is .058, and therefore below the recommended maximum of .06; and the standardized root mean square residual (SRMR) is .068, which is also below the recommended maximum of .08 (Hu and Bentler, 1999). Based on the CFA estimates, we computed the average variance extracted (AVE) scores and, for each construct, compared the square root of the AVE with the construct’s correlation with the other latent variables in the CFA model. The model shows good discriminant validity because the square roots of the AVE scores are consistently greater than the correlation coefficients (Fornell and Larcker, 1981). The Cronbach’s alpha coefficients for the four constructs vary from .76 to .89, indicating good internal consistency (Nunnally, 1978). The aforementioned results pertain to models run with the firm performance measure from the second wave. We also ran the whole series of analyses with the baseline level of performance. 

### 3.4. Descriptive statistics

Table 1 presents the means, standard deviations, Cronbach’s alpha values, and inter-correlations of the variables included in the following regression analysis. The inter-correlations between the explanatory variables are moderate, suggesting that multicollinearity is unlikely to be a serious problem in this analysis. Moreover, the Variance Inflation Factor (VIF) values for all variables are clearly below the conventional threshold of 10 (e.g., Baum, 2006), the highest value (in a model without interactions) being 1.27, which also indicates the absence of serious multicollinearity.

#### 4. Results

##### 4.1. Model specification

The principal ordinary-least-squares regression model that we estimate is given by:

\[
\text{PERF} = \alpha + \beta_1 \text{INNO} + \beta_2 \text{COM} + \beta_3 \text{COM}^2 + \beta_4 \text{INNO} \times \text{COM} + \beta_5 \text{INNO} \times \text{COM}^2 + \beta_6 \text{CONTROLS} + \epsilon.
\]

(1)

In Eq. (1), the dependent variable PERF stands for the family firm’s performance and the independent variable INNO denotes innovativeness. Since our hypotheses imply a curvilinear moderating effect for family commitment, this variable is included in a quadratic specification (COM and COM²) and interacted with INNO. The β are the regression coefficients, α is the intercept, ε is the error term, and CONTROLS is a vector of control variables. Since all continuous variables are based on rating scales and do not thus have a natural scale, they have been z-standardized (mean 0, standard deviation 1) for ease of interpretation. Therefore, all results are expressed in units of standard deviation.

##### 4.2. Unconditional effects and test of hypothesis 1

In order to enhance the robustness of our findings, we tested our hypotheses with models pertaining to three different dependent variables: 1) performance measured in the first wave (cross-sectional analysis), 2) performance measured in the second wave (all independent variables measured in the first wave, the dependent variable three years later measured in the second wave), and 3) the change in performance between the first and second waves. Following the logic of conditional change models, we also included performance measured in the first wave as a further covariate in the change-in-performance models. This accounts for the idea that the magnitude of change in performance is not independent of the baseline level of performance.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Alpha</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Firm performance (wave 2)</td>
<td>3.30</td>
<td>.58</td>
<td>.76</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. Firm performance (wave 1)</td>
<td>3.55</td>
<td>.62</td>
<td>.82</td>
<td>.33*</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>3. Innovativeness</td>
<td>3.59</td>
<td>.56</td>
<td>.88</td>
<td>.32*</td>
<td>.29*</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>4. Family commitment</td>
<td>3.87</td>
<td>.75</td>
<td>.89</td>
<td>.10</td>
<td>.19</td>
<td>.09</td>
<td>1</td>
<td></td>
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<tr>
<td>5. Market dynamism</td>
<td>2.91</td>
<td>.79</td>
<td>.78</td>
<td>-.12</td>
<td>-.02</td>
<td>.25*</td>
<td>.03</td>
<td>1</td>
<td></td>
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<tr>
<td>6. Large business</td>
<td>.28</td>
<td></td>
<td></td>
<td>.13</td>
<td>.07</td>
<td>-.05</td>
<td>-.06</td>
<td>-.01</td>
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<td>7. Founder family run</td>
<td>.30</td>
<td></td>
<td></td>
<td>.07</td>
<td>.11</td>
<td>.01</td>
<td>.12</td>
<td>.33*</td>
<td>-.09</td>
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Industry sectors
- Manufacturing | .58
- Construction | .12
- Trade, hospitality and tourism | .14
- Transportation, warehousing and telecommunication | .09
- Services | .07

Notes: n = 106. SD = standard deviation. * denotes correlation coefficients that are significant at least at the 5% level.
For each dependent variable, we estimated three model specifications: 1) controls only, 2) main effects added, and 3) interaction effects added. The coefficient and heteroskedasticity-robust standard error estimates for these nine model specifications are presented in Table 2. To test Hypothesis 1, the relevant quantity across the different model specifications is the coefficient of innovativeness. This coefficient is positive and statistically significant in all relevant model specifications, including the models incorporating the interaction terms. In the last case, the coefficient of innovativeness should be interpreted as the effect of that variable on performance when family commitment is at its mean (all continuous variables are z-standardized). Therefore, Hypothesis 1 is supported.

4.3. Interaction effects and tests of hypotheses 2 and 3

The interpretation of the interaction effect is not as straightforward as it is in the case of a linear moderator owing to the quadratic specification of the moderator. In order to explore the implications of a quadratic moderator, let us assume that family commitment was included in a linear specification. In this case, Eq. (1) would be simplified to \( \text{PERF} = \beta_1 \text{INNO} + \beta_2 \text{COM} \) (intercept, vector of controls and error term omitted for simplicity). The interpretation of the coefficients would be as follows: \( \beta_1 \) stands for the effect of INNO when COM is at its mean (because the variables have been standardized to mean 0, standard deviation 1); \( \beta_2 \) is the effect of COM when INNO is at its mean; and \( \beta_3 \) indicates the magnitude of change in the effect of \( \text{INNO} \) for a unit change in \( \text{COM} \), and similarly (because interactions are symmetric), the magnitude of change in the effect of \( \text{COM} \) for a unit change in \( \text{INNO} \). It is important to note that none of these quantities is by itself sufficient for testing conditional hypotheses such as Hypotheses 2 and 3 in this study (Brambor et al., 2006). The coefficient of the product term \( \beta_4 \) expresses the magnitude of change, but does not address the question of whether the effect of \( \text{INNO} \) is stronger when \( \text{COM} \) is high or low. For this reason, researchers usually compute the simple slope for the independent variable (Aiken and West, 1991). The simple slope is the partial derivative of the dependent variable with respect to the independent variable, which for the present linear example would be \( \frac{d\text{PERF}}{d\text{INNO}} = \beta_1 + \beta_2 \text{COM} \). The common approach to exploring the meaning of the simple slope would be to compute the effect of the independent variable on the dependent variable when the moderator is set at one level (two-tailed test). The reference category for the industry dummies is manufacturing. The dependent variable and all continuous independent variables (innovativeness, family commitment, and market dynamism) are z-standardized. All explanatory variables were measured in wave 1 of the survey.

Table 2
Ordinary-least-squares estimates pertaining to firm performance.

<table>
<thead>
<tr>
<th></th>
<th>Performance (wave 1)</th>
<th>Performance (wave 2)</th>
<th>Change in performance between waves 1 and 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Innovativeness (INNO)</td>
<td>.31** (,.08)</td>
<td>.26* (.11)</td>
<td>.38** (.09)</td>
</tr>
<tr>
<td></td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>Family commitment (COM)</td>
<td>.15 (.11)</td>
<td>.12 (.12)</td>
<td>.08 (.11)</td>
</tr>
<tr>
<td></td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
</tr>
<tr>
<td>Family commitment squared</td>
<td>−.00 (.07)</td>
<td>−.00 (.06)</td>
<td>.03 (.06)</td>
</tr>
<tr>
<td>(COM(^2))</td>
<td>(9)</td>
<td>(10)</td>
<td>(11)</td>
</tr>
<tr>
<td>Market dynamism</td>
<td>−.09 (.14)</td>
<td>−.17 (.14)</td>
<td>−.19* (.09)</td>
</tr>
<tr>
<td></td>
<td>(12)</td>
<td>(13)</td>
<td>−.30** (.09)</td>
</tr>
<tr>
<td></td>
<td>(14)</td>
<td>(15)</td>
<td>−.30** (.09)</td>
</tr>
<tr>
<td>Large business</td>
<td>.17 (.20)</td>
<td>.24 (.19)</td>
<td>.29 (.19)</td>
</tr>
<tr>
<td></td>
<td>(16)</td>
<td>(17)</td>
<td>.36* (.17)</td>
</tr>
<tr>
<td></td>
<td>(18)</td>
<td>(19)</td>
<td>.36* (.18)</td>
</tr>
<tr>
<td>Founder family run</td>
<td>.34 (.26)</td>
<td>.35 (.25)</td>
<td>.36 (.22)</td>
</tr>
<tr>
<td></td>
<td>(20)</td>
<td>(21)</td>
<td>.40 (.21)</td>
</tr>
<tr>
<td></td>
<td>(22)</td>
<td>(23)</td>
<td>.41 (.22)</td>
</tr>
<tr>
<td>Construction</td>
<td>−.22 (.29)</td>
<td>−.25 (.28)</td>
<td>−.13 (.29)</td>
</tr>
<tr>
<td></td>
<td>(24)</td>
<td>(25)</td>
<td>.09 (.29)</td>
</tr>
<tr>
<td></td>
<td>(26)</td>
<td>(27)</td>
<td>.09 (.27)</td>
</tr>
<tr>
<td></td>
<td>(28)</td>
<td>(29)</td>
<td>.26 (.15)</td>
</tr>
<tr>
<td>Trade, hospitality,</td>
<td>.11 (.32)</td>
<td>.03 (.34)</td>
<td>.36 (.26)</td>
</tr>
<tr>
<td>and tourism</td>
<td>(30)</td>
<td>(31)</td>
<td>.30 (.27)</td>
</tr>
<tr>
<td>Transportation,</td>
<td>−.04 (.32)</td>
<td>−.06 (.34)</td>
<td>−.14 (.26)</td>
</tr>
<tr>
<td>warehousing, and</td>
<td>(33)</td>
<td>(35)</td>
<td>.13 (.24)</td>
</tr>
<tr>
<td>telecommunication</td>
<td>(36)</td>
<td>(37)</td>
<td>.12 (.23)</td>
</tr>
<tr>
<td>Services</td>
<td>.34 (.74)</td>
<td>.28 (.70)</td>
<td>.33 (.68)</td>
</tr>
<tr>
<td></td>
<td>(38)</td>
<td>(39)</td>
<td>.21 (.71)</td>
</tr>
<tr>
<td></td>
<td>(40)</td>
<td>(41)</td>
<td>.19 (.72)</td>
</tr>
<tr>
<td>Firm performance (wave 1)</td>
<td>.23 (.72)</td>
<td>.16 (.70)</td>
<td>.23 (.70)</td>
</tr>
<tr>
<td>Interactions</td>
<td>.12 (.04)</td>
<td>.03 (.05)</td>
<td>.02 (.04)</td>
</tr>
<tr>
<td>INNO(^2)COM</td>
<td>(10)</td>
<td>(10)</td>
<td>.01 (.05)</td>
</tr>
<tr>
<td>INNO(^2)COM(^2)</td>
<td>.05 (.17)</td>
<td>.05 (.16)</td>
<td>.05 (.15)</td>
</tr>
<tr>
<td>Intercept</td>
<td>−.16 (.17)</td>
<td>−.16 (.16)</td>
<td>−.29 (.15)</td>
</tr>
<tr>
<td></td>
<td>(.15)</td>
<td>(.16)</td>
<td>−.00 (.11)</td>
</tr>
<tr>
<td>R-squared</td>
<td>.04 (.98)</td>
<td>.16 (.95)</td>
<td>.07 (.92)</td>
</tr>
<tr>
<td></td>
<td>(10)</td>
<td>(11)</td>
<td>.21 (.10)</td>
</tr>
<tr>
<td>F-test (degrees of freedom)</td>
<td>.69 (.78)</td>
<td>2.60** (.80)</td>
<td>1.95 (10.98)</td>
</tr>
<tr>
<td></td>
<td>(7, 98)</td>
<td>(10, 95)</td>
<td>5.33** (12, 93)</td>
</tr>
</tbody>
</table>
| Notes: n = 106, DV = dependent variable. Regression coefficients and (heteroskedasticity-robust standard errors) reported. * and ** denote 5% and 1% significance levels (two-tailed test). The reference category for the industry dummies is manufacturing. The dependent variable and all continuous independent variables (innovativeness, family commitment, and market dynamism) are z-standardized. All explanatory variables were measured in wave 1 of the survey.
The results are presented in Figs. 2, 3, and 4, which correspond to the models 3, 6, and 9 in Table 2, respectively. The graphing technique differs from the conventional presentation of two regression lines, one for +1 SD, and one for −1 SD. The single curve in each figure captures all 43 individual simple slopes that we computed. Hence, a point in the curve in any of these figures depicts the marginal effect (also known as the regression coefficient or the simple slope) of innovativeness on performance. The y axis denotes the magnitude of this effect, while the x axis shows the level of family commitment. For example, Fig. 2 shows that the effect of innovativeness on performance is at its lowest when family commitment is approximately −1.5 (in units of standard deviation), while it is at its highest when family commitment is either high or low. Similarly, in Fig. 4, when family commitment is set at −2 SD, the effect of innovativeness on performance is approximately 0.32. The note below each figure specifies the regions of statistical significance, as well as the proportion of the sample that falls into the significant range [Brambor et al., 2006].

All three figures depict a more or less U-shaped interaction effect. The main difference is that the effect of innovativeness increases to a lesser extent after the lowest point in the change-in-performance model (Fig. 4) compared to the other two models. Nevertheless, the general conclusion from all three models is that the impact of innovativeness on firm performance is stronger when family commitment is either low or high, compared to when family commitment is slightly below or close to its mean. Thus, we find support for our Hypotheses 2 and 3.

5. Discussion

Our results show that the ability to develop and launch product innovations (innovativeness) positively contributes
to family-firm performance. This finding is in line with other studies that have also noted this positive association (e.g., Covin and Miles, 1999; Jiménez-Jiménez and Sanz-Valle, 2011). In addition to finding support for prior research results, our analysis adds to our understanding of the relationship between innovativeness and performance by demonstrating how a specific feature of family firms, the commitment of the owner family to the firm, plays a crucial role in translating the impact of innovativeness into firm performance. This supports the conclusion of a meta-analysis by Rosenbusch et al. (2011) that the innovativeness-performance relationship is domain specific. The results show that the impact of innovativeness on performance is at its highest when family commitment is either high or low, while the innovativeness–performance relationship is at its weakest when family commitment is close to or slightly below its sample mean.

It follows that one option for the owner family looking to foster a positive performance effect from innovation is to commit fully to the firm. That way they can leverage the advantages typically ascribed to family-managed firms in generating new product innovations. These advantages comprise enhanced organizational responsiveness and facilitation of such entrepreneurial activities that lead to innovations (Corbetta and Salvato, 2004; Miller and Le Breton-Miller, 2006; Zahra et al., 2004, 2008). Alternatively, the owner family can seek to avoid the disadvantages of family-managed firms by reducing the family’s involvement in the management of the firm to a minimum. The negative effects of a strong family involvement in the firm include decisions that may jeopardize the continuity of the firm (Stavrou, 1999), strategic stagnation (Carnes and Ireland, 2013; Finkelstein and Hambrick, 1996) and fixation on known practices (Koenig et al., 2013).

High levels of family commitment can lead to non-family members being crowded out of the management of the firm, while low levels of family commitment mean that more responsibility is left to professional managers. Thus, in explaining the moderating role of family commitment on the performance impact of innovativeness, the advantages and disadvantages of professional management in family-owned firms must also be considered. Interestingly, for the relationship between innovativeness and performance in family firms, the effects of family management and professional management seem to be more antithetical than synergetic. At average levels of family commitment, neither the advantages of family-based management nor those of a professional management can flourish. In such settings, the advantages of one seem to be largely outweighed by the disadvantages of the other. Thus, in order to make the most of new product innovation, family firms should avoid becoming becalmed between high and low levels of family commitment. This finding runs contrary to the calls for diversity in innovation management (e.g., Gebert et al., 2006), as sharing the managerial responsibility between family members and non-family employees does not seem to be an attractive option when striving to turn the firm’s innovativeness into performance.

Prior research suggests that the growth of family firms tends to stagnate when they transition from founder-based management to professional management (Zahra and Filatotchev, 2004). One explanation for this stagnation is that during this phase of firm development, resources are no longer sufficient to support opportunities for further development (Daily and Dalton, 1992). Drawing on the RBV, the results of this study offer an alternative explanation. Family firms transitioning from owner-based management to professional management are likely to be characterized by a moderate level of family commitment, which is less conducive to the innovativeness-performance relationship than low or high levels of family commitment. Viewed through the lens of governance theory, these results provide an explanation for why many family firms are not able to transform resources into firm performance at this critical threshold (Gedajlovic et al., 2004). According to Gedajlovic et al. (2004), it is the specific governance characteristics typical of a family firm that bring about the characteristic capabilities, disabilities, and path dependencies that create a threshold for firm growth, leaving family firms becalmed between low and high family commitment.

6. Conclusion

Due to the ubiquity of family firms in capitalist economies, understanding the effects of this unique organizational context on the innovativeness-performance relationship bears relevance for economic development. Prior studies on innovative-ness and performance in family firms have usually applied a comparative approach, searching for differences in the levels of innovativeness (e.g., Craig and Dibrell, 2006; Özsomer et al., 1997) and performance (e.g., Anderson and Reeb, 2003) between family firms and non-family firms. The present study contributes to the literature on innovativeness in family firms by seeking to explain how the unique characteristics of family firms influence the performance effect of innovativeness. Specifically, our findings add to our understanding of the family firm from the RBV perspective by highlighting the relevance of the family members’ commitment to the firm as a unique moderator of the innovativeness-performance relationship. Future studies should examine the role of other unique family firm characteristics (such as the challenges posed by succession and inter-generational conflict) and how they influence the
role of innovativeness as a determinant of firm performance. In addition, qualitative research would be necessary to fully understand the effect of family commitment on the innovativeness-performance relationship revealed in this study. Such follow-up studies should take an interdisciplinary approach, supplementing concepts from innovation management and family business management with psychological theories. The focus of future research should be on understanding the interplay of family commitment and professional management in translating innovativeness into firm performance.

The results of this study have important implications for the management of family firms. The members of the owner family need to make a clear strategic decision regarding their involvement in the firm. If they decide to commit and make business matters family matters, they should stick to the decision and remain committed through thick and thin. In order to facilitate a positive performance effect of innovativeness, the alternative would be to maintain a low profile. If that option is taken, consistency is again important, and the family should resist interfering in some matters while maintaining a distance from others. In summary, the owner family should establish a clear role for itself within the firm.

For innovation policy, the findings highlight the role of the context in which product innovation is embedded. The results suggest policy makers should encourage the owners of family firms to pursue pronounced long-term strategies affecting the commitment of family members in the firm. A first step could be to make them aware of the facilitating role of family commitment in turning innovativeness into firm performance. Additionally, subsidies targeted at supporting firms in marketing their product innovations should require family-owned firms to provide a clear strategy detailing the involvement of the family in the management of the firm. An explicit strategy regarding family commitment should be considered alongside more established components of innovation strategies, such as strategies for the protection of intellectual property and strategies for introducing new product to the market.

Finally, it is worthwhile acknowledging the study’s limitations. While simultaneously a major strength, the principal limitation of the study is the sample. The size of the sample is relatively small and this limits the power of the statistical tests used in the study. Furthermore, the sample comprises relatively well-established large- and medium-sized firms. The advantage of this focus is that it supported the analysis of better-established firms that had reached a size where a division of labor in the management of the firm was unavoidable. However, the reliability of the results would have been enhanced if they had derived from a larger sample capable of accounting for the heterogeneity of family firms as well as the size of firm. Since our analysis addresses features of family firms closely related to the organizational culture, the generalizability of the results is limited by the focus on a single country whose national cultural values, norms, and codes of conduct inevitably influence organizational values and practices. Therefore, future research efforts should validate our findings by using larger and more heterogeneous samples. However, unlike many other entrepreneurship studies, we could build our analysis on longitudinal data, avoiding issues of endogeneity related to reverse causality.

### Appendix A. Scale item wordings and the results of the principal components analysis

<table>
<thead>
<tr>
<th>Scale items (translated from Finnish)</th>
<th>Loadings: principal components analysis with oblique oblimin rotation (loadings &lt; .4 excluded)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance¹</td>
<td>Turnover development .88 Market share development .85 Employee growth .64</td>
</tr>
<tr>
<td>Innovativeness²</td>
<td>The ability of our company to perform product development research in order to launch new products and services .72 The ability of our company to transform product development into new products and services .76 The ability of our company to make new products and improve services .78</td>
</tr>
<tr>
<td>Family commitment³</td>
<td>The family members, business matters are also family matters .81 The family members feel that the business is like a part of the family .85 The family business offers a great deal of personal content and purpose to the family members .81 The family members do not have a particularly emotional attitude toward the family business (R) .81 The family members do not have a particular attachment to the family business (R) .87</td>
</tr>
<tr>
<td>Market dynamism³</td>
<td>Our competitors change their tactics frequently .68 Our competitors invest heavily in their research and development activity .71 Customer needs in our market change quickly .62 Products in our market become obsolete quickly .74 Significant technological changes in our industry happen quickly .79</td>
</tr>
</tbody>
</table>

**Notes:** All items are measured on a 5-point Likert type scale anchored with fully agree and fully disagree, unless otherwise indicated. (R) stands for a reverse-coded item. ¹ Items refer to the question: “In the last three years (2008–2011), compared to its competitors, has your firm’s turnover development/market share development/employee growth been (much worse – much better)?”. ² The items are evaluated in comparison to the competitors on a scale (much worse – much better). ³ Refers to those family members involved in strategic decision making and/or product development.

### References


