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Professionalizing the information security of family firms: A family essence perspective

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ABSTRACT

Family firm leaders are often faced with conflicting pressures and goals. One such situation occurs when deciding whether to pursue professionalized management of a business function as opposed to retaining family control. In this study we examine the decision to professionalize the information security function of the firm while also seeking to maintain the family essence of the business. The results show that traditional institutional pressures encourage professionalism, but the move may be inhibited by family essence.

KEYWORDS

Family business;
professionalization;
information security

Introduction

A family firm is a:

business 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, Chrisman, & Sharma, 1999, p. 25)

Although the precise number of family firms in the U.S. depends on how this definition is operationalized, most agree that they comprise a significant proportion of private-sector firms in the U.S. and around the world (Gomez-Mejia, Cruz, Berrone, & De Castro, 2011). Given their prevalence and the trust that consumers place in them, it seems logical that research attention should be paid to the information security function of family firms. Currently, there has been virtually no research in this area, despite the fact that family firms are just as susceptible to security breaches and disruptions as any other business. In fact, a 2014 survey of the world's largest family businesses indicated that only 35 percent receive regular updates on security threats from professionals, and 25 percent of their leaders admit to being completely unaware of how cyber threats can affect them (Englisch, Hall, & Astrachan, 2014). Family firm Small to Medium-sized Enterprises (SMEs) that lack the resources and expertise of those larger firms are likely even more vulnerable.

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The purpose of this study is to investigate the information security practices that occur within family-owned businesses. More specifically, this study is interested in institutional factors considered by firm leaders when deciding to professionalize their security by adopting best practices related to information security and developing formal security policies within the firm. The absence of formal information security processes and standards leaves organizations more vulnerable to existing and current threats, as well as signals to customers and business partners that their information is not perceived as valuable (Culnan & Williams, 2009). For that matter, employees are less likely to use proactive security behaviors without the requirements enforced by a formalized information security program (Chan, Woon, & Kankanhalli, 2005). Family businesses, many of which are notorious for informally developed policies (Gallo, 2004), can ill afford to risk the information that they have been entrusted with because of unprofessional practices.

Much of the research that informs this study revolves around the professionalization of certain core functions within the family business. Professionalism can involve the incorporation of nonfamily owners and managers in an effort to improve accountability, effectively diffusing the governance of the firm. It can also take the form of standardizing and formalizing business processes in an effort to improve external legitimacy (Stewart & Hitt, 2012). As others have noted, family firms are often reluctant to engage in such efforts even though doing so could improve the firm's image and possibly even its gross revenue (Astrachan, Botero, Astrachan, & Prügl, 2018). A resource-based view of the family firm suggests that the resources, skills, and experiences necessary for making professional security decisions are limited and are instead rerouted toward other goals, whereas an agency view of the firm holds that family leaders opt not to professionalize business functions to save on monitoring costs by maintaining firm family control (De Kok, Uhlander, & Thurik, 2006). We expect that both views provide a complementary explanation for the struggle firm leaders have when faced with professionalization. This, despite empirical evidence that incorporating professional business practices ultimately leads to better financial success for family firms (Astrachan & Kolenko, 1994).

Businesses within the category of family firms are very heterogeneous in terms of their professionalization efforts (Gomez-Mejia et al., 2011). In fact, family firms are often characterized as lacking professional governance mechanisms and business processes. This is seen as a struggle for many family firms seeking to legitimize themselves in the eyes of customers, business partners, regulatory agencies, and potential investors (Berrone, Cruz, Gomez-Mejia, & Larraza-Kintana, 2010). However, it would be mistaken to assume that family firms are homogeneous with regard to the extent to which professionalization occurs. Stewart and Hitt (2012) describe a continuum of professionalism ranging from firms that are minimally professionalized to firms that are entirely professionally managed to the extent that they may go public. The heterogeneity

among family firms is believed to be, to some extent, based on differences in capacity and will to professionalize. Simply put, successful professionalization often comes at the cost of decentralizing family control of that function of the firm. As a result, family firm leaders may be hesitant to engage in professionalization from the outset. One source of hesitation that represents the behavioral decision making made by firm leaders who wish to pass along control of core firm functions to other family members is known as family essence (Zellweger, Eddleston, & Kellermanns, 2010).

The purpose of this ongoing research effort is to investigate the factors that encourage family firms to professionalize their information security practices and to determine factors specific to family firms that inhibit professionalization. In doing so, we focus on institutional pressures that, theoretically, should encourage professionalization efforts in the family firm and on family essence priorities that may discourage those efforts. As factors influencing professionalism efforts seem to be more visible and outwardly apparent within smaller family firms (Upton, Teal, & Felan, 2001), we focused the study on firms with fewer than 500 employees.

Literature review

Professionalizing information security

To examine an area of the family business that often benefits from a professionalization effort, in this study we chose to inquire family firm leaders about their information security function. Given the ever-changing context of information security, we believe that firm leaders may be especially susceptible to outside pressures and influences to guide their decision making. Family firms may simply lack the skills and expertise to make adoption decisions about information security controls that are provided by professionalized management (Cruz & Nordqvist, 2012). In such instances, we expect that formalizing the information security function of family firms will be positively influenced by all three of the pressures conceptualized by Institutional Theory, which are mimetic, coercive, and normative pressures (DiMaggio & Powell, 1983). On the other hand, slack resources reserved by the firm may be used for purposes other than investing in information security unless guided by professional management (Wall, Lowry, & Barlow, 2015).

What efforts are involved when the leaders of a family firm decide to professionalize the security function of the business? As Dekker, Lybaert, Steijvers, and Depaire (2015) point out, professionalization is more than the presence of a nonfamily (aka professional) manager and should be more accurately measured on a continuum. For most businesses, activities related to professionalization often revolve around making efforts toward qualifying for accreditation and certifications. In term of security, this means earning external

affirmations that the firm has successfully achieved the required qualification criteria (Reece & Stahl, 2015). The transition to security professionalization often involves meeting recommendations and industry regulations, for example, attaining the minimum encryption standards necessary for electronic financial transactions or the exchange of healthcare information.

Perhaps more relevant to family firms, professionalization would mean bringing in security personnel with formal training and education as well as outside connections to networks of experts (Hu, Hart, & Cooke, 2007). Doing so might mean ceding control of the security function away from the family, which may not be a popular move for decision-making and governance reasons (Songini & Gnan, 2015; Stewart & Hitt, 2012). As others have pointed out, firm leaders considering professionalization can then find themselves facing a trade-off between maintaining family control and enhancing their outward image and reputation (Vardaman & Gondo, 2014), as in the case of firms deciding to bring in outsiders to help with sustainability initiatives, for example (Broccardo, Truant, & Zicari, 2019). A move to professionalize security also often means progressing from informally assigning responsibilities to a particular employee or group to establishing discrete roles for nonfamily specialists (García Pérez de Lema & Duréndez, 2007). As such, the next section reviews factors that are expected to play a role in the move to professionalize, starting with factors associated with institutional theory.

Theory review and hypotheses

Previous family business research has developed a number of theories that attempt to explain professionalization and identify relevant factors that influence the associated efforts. A review (Songini, 2006) provided an overview of theories that have explored various factors that encourage professionalization (such as agency theory and company growth theory) and factors that discourage the same (stewardship theory, organizational control, and the resource-based view of the firm). Although all of these theories have added to the overall body of understanding about professionalism in family firms, we opted for a separate theory, institutional theory, for this study. Because the focus of this study is on a functional area of the firm (information security) that is necessary in today's business environment but often misunderstood, we expected that firm leaders would feel pressure to turn to outsiders for advice and for a model with which to base future decisions. The aforementioned theories do not isolate the influences of external forces that we expect are prominent in professionalizing information security. These pressures are described by institutional theory and reviewed below.

Institutional pressures

When faced with uncertainty and a lack of skills and resources, firm leaders may turn to external sources for guidance on formalizing information security (Hu et al., 2007). This is the view put forth by institutional theory, which suggests that organizations tend toward formalized structures through the institutional pressures shaping the organization's competitive environment (DiMaggio & Powell, 1983). The three categories of pressures include mimetic isomorphism, which is the pressure exerted by competitors that the firm considers to be an exemplar; coercive isomorphism, which relates to the pressure exerted by organizations that make leveraged demands on the firm (like governmental agencies); and normative isomorphism, which involves copying the practices and incorporating the recommendations of allies, such as trade groups and industry experts (DiMaggio & Powell, 1983).

The first pressure relates to mimetic isomorphism, which is the tendency for firms to copy the decisions made by other firms, particularly competitors, when faced with an intolerable degree of ambiguity and uncertainty (DiMaggio & Powell, 1983). This portion of institutional theory has often been used to explain the level of conformity within an industry or within a localized region. Decisions made on information technology seem most prevalent for mimicry for a number of reasons, including the innovative environment in which new technology products are made available (leading to feelings of uncertainty), the benefits provided by mutual dependence when respected competitors make a decision, and concerns about making a costly inadequate choice (Tingling & Parent, 2002). All of these reasons seem pertinent to decisions concerning information security.

Family firms which use competitors as a barometer for comparing appropriate technology investments and practices, including that which is related to security, are expected to be prone to mimicking competitors' efforts to professionalize. Although other studies have shown limited influence of mimetic pressure on firms' investment decisions toward security technology and employing qualified security professionals (Cavusoglu, Cavusoglu, Son, & Benbasat, 2015), we believe that family firms may be differently influenced. The nonsignificant finding in the earlier Cavusoglu et al. (2015) study was explained as firms finding their security needs as being successfully met at present, reducing feelings of uncertainty. However, that result was produced after a survey of relatively-knowledgeable information-technology (IT) managers, not family firm leaders. Other research suggests that the likelihood of mimicking a competitor's technology decisions is stronger when firm leaders believe they lag behind relevant others' investments (Salge, Kohli, & Barrett, 2015).

Hypothesis 1: Higher mimetic pressure is positively associated with the adoption of professionalized information security practices.

Coercive isomorphism results in pressure exerted by external organizations and can manifest itself as formal regulations or informal invitations to collude with others. To a large extent, the source of the pressure is perceived as political in nature (DiMaggio & Powell, 1983). At times, the pressure generated by governments can be great enough to force families to relinquish control of their own firms (Martinez & Aldrich, 2014). Laws and regulations are not the only form of coercion, however; trade associations and consultants are also capable of strongly encouraging businesses to adopt current recommendations and standard business practices (Slack & Hinings, 1994).

Coercive pressures may sway family firm decisions made toward information security by factoring into a desire for transparency and external legitimacy. Forming associations with external organizations is often part of a strategy to improve perceptions of family firms (Othman, Darus, & Arshad, 2011), so even if the adoption of recommended security practices is not legally required for the firm, doing so can improve the firm's image as a reputable (and secure) business partner (Sageder, Mitter, & Feldbauer-Durstmüller, 2018).

Hypothesis 2: Higher coercive pressure is positively associated with the adoption of professionalized information security practices.

Finally, normative isomorphism produces pressure to make decisions to establish legitimacy to outside observers, and a firm's movements toward professionalism is strongly associated with legitimizing business practices and processes (DiMaggio & Powell, 1983). The field of information security, in particular, is rife with frameworks, standards, and certifications that provide external stakeholders a semblance of assurance that a firm has made efforts to stay current on matters of security (Hsu, 2009). Although the business community does not adhere to one clear certification scheme (Burley, Eisenberg, & Goodman, 2014; Furnell, 2004), the industry in which the firm resides may exert pressure for firms to conform with specialized standards through marketing and trade groups. Negative press resulting from a security breach also provides motivation to invest in industry-wide security standards. In all, we expect that pressure to conform with normalized business standards and the desire to exhibit that conformity to outside observers will encourage family firm leaders to make efforts to professionalize their information security practices:

Hypothesis 3: Higher normative pressure is positively associated with the adoption of professionalized information security practices.

Family essence

Where we predict that institutional pressures serve to encourage moves toward professionalizing a firm's information security function, there are other family-centric factors that may counterbalance desires to professionalize. One of the prevailing ways that family firms are said to differ from nonfamily firms is the extent to which firm leaders pursue economic goals relative to family-centered, noneconomic goals. For example, *family essence* is defined as the "controlling family's willingness to use its influence within the firm to pursue particularistic ends" (Chrisman, Chua, Pearson, & Barnett, 2012, p. 273). Indicators of family essence include transgenerational succession intentions and family commitment. A family business led by managers with high family essence tend to prioritize nonpecuniary goals, such as the sustainable family control of the firm, improved family reputation, and increased socioemotional wealth, among others. Resources typically reserved for improving firm performance may instead be co-opted for agency control mechanisms meant to exert influence on improving family essence (Chua, Chrisman, & Bergiel, 2009). Others have found that nepotism can grow out of attitudes tending toward family essence, often standing in the way of transforming the firm into a more professionalized entity (Firfiray, Cruz, Neacsu, & Gomez-Mejia, 2018).

Although the first three hypotheses presented in this paper involve the influence produced by external institutions on family firms to professionalize their information security functions, those influences could be limited by the vision for the future created by firm leaders, much of which could be noneconomic in nature (Chrisman, Chua, & Litz, 2003). As such, the pursuit of goals related to family essence are thought to inhibit efforts to professionalize business practices like formalized compensation policies and performance evaluations (Chua et al., 2009; Memili, Misra, Chang, & Chrisman, 2013). Dovetailing with that is evidence of family firm leaders who conclude that the adoption of new information technologies could disrupt the working environment they have taken time and effort to establish and cultivate, a paternalistic approach that has been described as "myopic" and "potentially ruinous" (Ogbonna & Harris, 2005). Taken together, we expect that the goal of family firm leaders to maintain a desirable level of family essence will similarly discourage the professionalization of the information security function.

Hypothesis 4: Family essence will negatively influence the adoption of professionalized information security practices.

Method

Sample

Data for this study was collected through the use of an online survey. To elicit participation in the survey, we contacted 26 chambers of commerce located across five states in the southern United States. Chamber directors sent out survey invitations to their local business members, and we received survey responses from 207 businesses. The surveys were completed by owners and/or managers of each business, and each respondent reported whether his or her firm is classified as a family business, the amount of family ownership (if any), the age of the firm, and other information about the business. After culling nonfamily businesses and incomplete responses from the sample, 139 responses remained for data analysis. A post hoc power analysis using G*Power estimated that this sample size generates a power of 0.98, which is considered to be sufficient for testing a structural model with four predictors (Faul, Erdfelder, Buchner, & Lang, 2009).

Measurement

The list of items used to measure the variables of interest to this study is displayed in Table 1. Items for the three institutional pressure variables are modified from sources in the IT adoption literature (e.g., Liang, Saraf, Hu, & Xue, 2007). Family essence and the extent of information security professionalization are measured using scales developed in the family business literature (Chrisman et al., 2012; Dekker et al., 2015). Our professionalization measure attempted to capture the employment of security professional and the institution of formal security policies concerning security operations (Dyer, 1989; Stewart & Hitt, 2012). Similar to research investigating the professionalism of human-resource (HR) practices (Madison, Daspit, Turner, & Kellermanns, 2018), our dependent variable was measured with an composite score including the extent to which the information security function of the business has been professionalized by using items assessing the formalization of policies and the commitment of staff to the information security function. The z-score of a dichotomous item assessing the presence of a dedicated security professional was also included in the composite score. As Madison and colleagues (2018) point out, a composite approach better captures the level of professionalization in situations in which dedicated professionals are used as “window dressing” for outsiders in the hopes of giving the appearance of professional business practices when nonformalized firm policies do not actually reflect that.

Control variables included the firm size (its number of employees), its age, the percentage of family ownership (Memili et al., 2013), and the generation currently in control of the firm (Westhead, Cowling, & Howorth, 2001), all of



Table 1. List of measures and their corresponding items.

Mimetic pressure ($\alpha = .87$) adopted from Teo, Wei, & Benbasat (2003)	<ol style="list-style-type: none"> 1) Our competitors currently follow an information security program to great benefit. 2) Our competitors are highly respected by their suppliers. 3) Our competitors are highly respected by their customers.
Coercive pressure ($\alpha = .67$) adopted from (Liang et al., 2007)	<ol style="list-style-type: none"> 1) Our information security program is influenced by governmental regulations 2) Our information security program has been influenced by security consulting companies. 3) Our information security program has been influenced by industry associations we belong to.
Normative pressure ($\alpha = .74$) adopted from (Liang et al., 2007)	<ol style="list-style-type: none"> 1) Our information security program is influenced by employees who have worked in other businesses. 2) Our information security program is influenced by employees who have training or have taken courses in it. 3) Our information security program is influenced by suppliers we deal with.^a 4) Our information security program is influenced by our customers.
Family essence ($\alpha = .91$) adopted from (Chrisman et al., 2012)	<ol style="list-style-type: none"> 1) Family members feel loyal to my business. 2) My family and I have similar values. 3) Family members publicly support my business. 4) Family members are proud to be a part of my business. 5) Family members agree with the goals, plans, and policies of my business. 6) Family members really care about the fate of my business. 7) Family members are willing to put in extra effort to help my business be successful. 8) I hope the future successor as leader of my business will be a family member.^a 9) I hope the future successor as leader of my business will be educated by a high-quality business school.^a 10) Family members are involved in the day-to-day management of my business.
Professionalization of security practices ($\alpha = .92$)	<p>To what extent does your business have formal rules and policies on the following?</p> <ul style="list-style-type: none"> ... documented security policies ... training employees on information security ... reporting information security violations ... risk assessment ... disaster recovery <p>Does your business have dedicated information security personnel? (absent/present)</p>

Note. Scales ranged from 1 (not at all) to 7 (to a great extent).

^a Item was ultimately omitted from data analysis.

which are common control variables in family business research but are all possible influences on the decision to explore and implement professional business practices (Daspit, Chrisman, Sharma, Pearson, & Mahto, 2018). The average age of firms represented in the sample was 37.4 years. The average family ownership was 91.3 percent with the vast majority being completely family owner, and the firms employed an average of 35.7 employees. More than one half the firms were managed by the first generation (51.5 percent), with 37.5 percent managed by the second generation, and 8 percent managed by the third generation. We also controlled for whether the firm had, to their knowledge, been victimized by a security breach in the past. Of the 139 valid responses received from firms, 32 of them (23 percent) claimed to have previously suffered a security breach. Table 2 presents other information about the representativeness of the sample, including a breakdown by industry.

Results

Data analysis was conducted via model specification using SPSS 25 and structural equation modeling through the use of MPLUS 5.0 statistical software (Muthén & Muthén, 2009). More specifically, we tested the research model using maximum likelihood (MLM) parameter estimates, a procedure which produces robust standard errors making the analysis more resistant to possible non-normality. Unlike other software packages used for structural equation modeling, MPLUS allows for observed categorical and ordinal

Table 2. All survey respondents by industry.

Industry Type	Percentage of Sample	Mean Extent of Security Formalization
Agriculture & forestry	1.6	4.33
Natural Resource & mining	0.0	N/A
Utilities	1.1	5.60
Construction	3.3	4.00
Manufacturing	9.8	4.85
Wholesale trade	1.6	2.00
Retail trade	9.8	4.04
Transportation & warehousing	1.1	5.20
Information services	2.2	4.93
Finance & insurance	11.5	6.14
Real estate	2.2	2.53
Professional, scientific, and technical services	10.4	3.68
Administrative and support services	0.5	2.20
Educational services	4.9	6.05
Health care and social assistance	7.1	5.65
Arts, entertainment, and recreation	1.6	4.80
Dining, accommodations, and food service	10.4	4.61
Other services	20.8	4.80

Note. Industry types adapted from the US Bureau of Labor Statistics.

variables to be analyzed, which made some of our data (including the incidence of past security breaches and the generation currently managing the firm) more suitable for structural equation modeling (SEM) analysis.

Analysis began with the specification of the measurement model. To assess the convergent and discriminant validity of the prevalidated measures being applied in the context of this study, we performed a confirmatory factor analysis on the items. Table 3 displays the results of the confirmatory factor analysis of the four exogenous constructs hypothesized in the model. Two items within the family essence measure and one item within the normative pressure suffered from crossloading onto other factors. After determining that the reliabilities of the remaining measures would be improved by dropping the four items, the items were removed from the data analysis. Although a few of the remaining items were found to have relatively low factor loadings, we retained those items because they loaded most highly on the appropriate factor and removing them did not improve the measure's reliability. Discriminant validity was then assessed by comparing the inter-construct correlations between the measures with the amount of variance extracted (AVE) by each. The correlation matrix, along with descriptive statistics for each of the constructs, are provided in Table 4.

The research model was then estimated in MPLUS, and the standardized path estimates are displayed in Figure 1 below. Of the potential control variables considered for the model, only the current family generation in control and the incidence of past security breaches were found to significantly correlate with the dependent variable, so those two variables were controlled during the evaluation of the model. The software produced multiple statistics assessing the goodness of fit of the model, including a significant Satorra-Bentler chi-squared ($\chi^2 = 8.15$), an root mean square error of approximation (RMSEA) of 0.08 right

Table 3. Factor loadings.

	Mimetic Pressure	Coercive Pressure	Normative Pressure	Family Essence
MP1	0.76 ^a	0.10	0.07	0.08
MP2	0.91 ^a	0.19	0.17	0.01
MP3	0.84 ^a	0.16	0.31	0.02
CP1	0.06	0.73 ^a	0.40	0.05
CP2	0.23	0.76 ^a	0.18	0.08
CP3	0.25	0.63 ^a	0.26	0.03
NP1	0.02	0.14	0.78 ^a	0.21
NP2	0.32	0.22	0.65 ^a	0.05
NP4	0.28	0.28	0.82 ^a	0.05
FE1	0.05	0.06	0.14	0.78 ^a
FE2	0.03	0.12	0.14	0.85 ^a
FE3	0.01	0.03	0.10	0.86 ^a
FE4	0.09	0.06	0.04	0.86 ^a
FE5	0.01	0.02	0.03	0.85 ^a
FE6	0.03	0.07	0.03	0.87 ^a
FE7	0.05	0.18	0.02	0.77 ^a
FE10	0.18	0.32	0.06	0.63 ^a

Note. ^a Indicate the loading for each item onto its appropriate factor.

Table 4. Descriptive statistics and interconstruct correlations.

	<i>M</i>	<i>SD</i>	MP	CP	NP	FE	PROF
Mimetic press	4.74	1.2	.84 ^a				
Coercive press	4.54	1.4	.53	.67 ^a			
Normative press	5.45	1.0	.38	.55	.72 ^a		
Family essence	5.92	0.9	-.25	-.36	-.36	.84 ^a	
Extent of security Professionalization	4.73	1.3	.39	.63	.62	.17	N/A ^a

Note. ^a Indicates the square root of the average variance extracted.

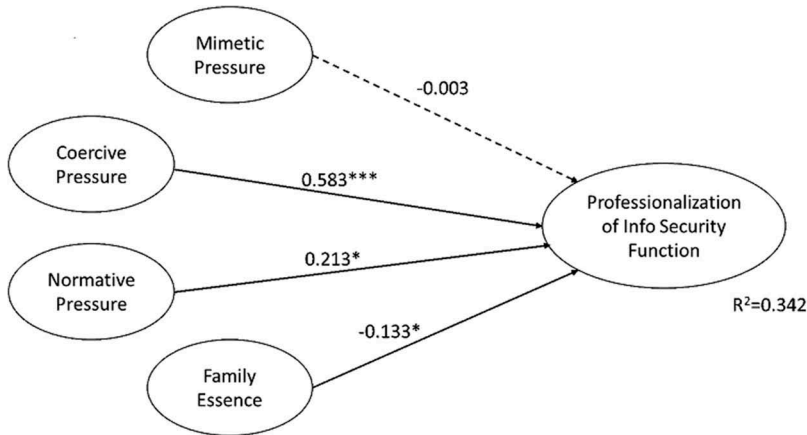


Figure 1. Research model with standardized path estimates.

at the cutoff indicating a good parsimonious fit, and an standardized root mean residual (SRMR) of 0.05, below the same 0.08 benchmark for good fit (Hu & Bentler, 1998). The Comparative Fit Index (CFI) fit statistic was 0.88 and the Tucker-Lewis Index (TLI) fit statistic was 0.87, both short of the 0.90 standard for favorable fit compared to a baseline model, but caution should be taken when estimating the fit of a model containing categorical and ordinal variables and applying fixed cutoff values (Garrido, Abad, & Ponsoda, 2016).

Of the four hypothesized factors predicted to influence the professionalization of information security practices, only Hypothesis 1 (mimetic pressure) failed to be supported by the data. Coercive (H2; *t* = 5.38) and normative (H3; *t* = 2.28) pressures had a statistically significant positive influence whereas, as predicted, the family essence factor (H4; *t* = -2.20) was a significant negative influence on professionalization. The research model was found to explain 34.2 percent of the variance in professionalized information security practices.

Discussion

This study sought to investigate influences on a family firm’s decision to professionalize one of its vital responsibilities toward its employees, customers, and business partners, that being the information security function of its business.

We used institutional theory as a foundation to determine the source of possible external pressures that are commonly thought to influence a firm's decision to change its practices, but given the nonpecuniary goals often found within family firms, we also included the presence of family essence as a possible limiting factor. The expectation that family essence would reduce the extent of professionalization was built on the logic that assigning responsibilities that once were the purview of a family member to a nonfamily professional would reduce the amount of control family members have over the function and would, in many cases, be an unpopular move. As the results bear out, family essence did have a negative influence on the extent of professionalization. Although coercive and normative pressures were found to motivate professionalization, the results suggest that leaders' desires to see kin perform and manage firm activities on a regular basis could be counterproductive where adopting recommended security practices are concerned.

The results of this study make a contribution to our understanding of how underlying goals that are unique to family businesses can affect core business processes and strategic decisions. Here, the inhibiting role of family essence is shown to impede a move toward the professionalization of the information security function of firms. Others have noted the lack of empirical research that has investigated how nonpecuniary goals like family involvement and family succession coincide with the process of professionalization (Kotlar, 2012), and this study adds to that much-needed area of family business research. In particular, this adds to the growing body of research that investigating whether involvement-related goals like family essence may be counterproductive while making decisions on strategic changes to the firm (Jaskiewicz, Uhlenbruck, Balkin, & Reay, 2013). Our findings also help shed light on an expanding area of family business research, the encouragement of innovative products and services developed within the firm. Exploratory research has examined how placing a high priority on family essence coincides with innovation efforts which may require bringing in outsider expertise. Firm leaders have been observed following integrative approaches to innovation that allow them to protect the essence of the firm while making moves to maintain a competitive footing that will endure for the next generation of leaders (Erdogan, Rondi, & De Massis, 2019). Under such circumstances, existing processes and technologies are repurposed in ways that move the firm forward though not abandoning family values and beliefs. The question remains whether professionalization of business functions can occur with the degree of caution exhibited by firms attempting to innovate while maintaining a high level of family essence (Daspit et al., 2018). Based on the inhibiting influence of family essence on professionalization found in this study, we surmise that innovative efforts that rely on outsider consulting may encounter some resistance in family firms placing a high priority on essence.

Our results extend to other areas of research on professionalization processes. Much of the existing literature on professionalization focuses on the relative performance between firms who have transitioned to nonfamily management and firms who have not done so. In this study, we make no claims that professionalizing the information security function will naturally be more effective at safeguarding business assets than having those responsibilities handled by a family member. It would be mistaken to assume that outside attackers would know enough about the internal staffing of a family firm to deliberately target only those with nonprofessional management. However, professional management of certain functions could reduce the likelihood of a breach, all other things being equal. First, experts recommend that businesses should make efforts to diversify the corpus of knowledge, skills, and abilities of security personnel, as well as emphasize the need to employ dedicated security staff (Suby & Dickson, 2018), a general strategy which has been referred to in the family business literature as increasing the firm's cognitive capabilities (Leaptrott, 2005; Lim, Busenitz, & Chidambaram, 2013).

Second, the professionalization of the human resource management function could be every bit as important for security. Where outside attacks receive much of the attention in the popular press, insider threats can be even more destructive when the attacker is a trusted employee with access to valuable information assets. Thus, effective employee recruitment and selection processes become vital to the security of the firm (Ross, Meyer, Chen, & Keaton, 2009) and, through expanded networks, HR professionals often expand the firm's ability to recruit from wider, more diverse population of applicants (Debicki, Matherne III, Kellermanns, & Chrisman, 2009). Altogether, the professionalization of the family firm has more than just a contribution to the financial performance of the business, and our results suggest that family essence should not be the only factor that plays a role. Efforts to examine other firms' best practices and to stay current on regulations should be a priority for family business leaders, professionalized or not.

In terms of institutional pressures, attention should be given to the lone result that lacked statistical significance, that being the predicted influence of mimetic pressure on professionalization. As discussed earlier, the prevailing logic found within the family firm literature is that, much like other businesses, leaders have a tendency to mimic other successful firms' best practices when faced with conditions of uncertainty. Where information security is concerned, uncertainty is common to even highly sophisticated organizations. Turning to other businesses for advice would seem natural for family firm leaders. However, the number of successful models within a family firm's geographical and competitive network may be lacking in many cases (Marett & Barnett, 2019). Likewise, many family firms may not belong to voluntary associations that provide guidance and promote change, making mimicry a difficult proposition (Parada, Nordqvist, & Gimeno, 2010). These are environmental conditions

that should be investigated more in the future, and family business research should attend to issues concerning the sources of recommendations and guidance that firm leaders put their trust in.

On the other hand, the other two isomorphic pressures, coercive and normative, were found to significantly influence professionalization. Taken together with the lack of support for mimetic pressure, one might subscribe to the conclusion that family firms may be more prone to adopting professionalized security practices when forced by regulations or when the firm's legitimacy comes into question, as opposed to actively searching for successful firms to serve as a role model. Is the decision to professionalize simply a reactive or defensive strategy for family firms, something that occurs through external pressure and not a strategy that springs forth from the firm being proactive? In their early work on organizational strategies, Ashforth and Lee (1990) put forth the notion that activities like specialization and formalization could often lead managers to take a defensive posture by only complying "with the letter of the law and not the spirit." Their discussion of resistance to formalize includes rationale that seems especially relevant to information security, including the desire to diffuse accountability when an undesirable event occurs. It would not be surprising to discover that firm leaders instead opt for the classic (but suboptimal) strategy of "security through obscurity" (i.e., flying under the radar) rather than voluntarily assign responsibilities to a dedicated professional. Future research re-examining this issue could attempt to survey more than one employee (preferably one being a nonfamily member) to find if these security philosophies are shared by others in the firm (Kellermanns & Eddleston, 2004).

Conclusion

To summarize, this study examined factors that were expected to affect family firms' efforts to professionalize a core business function, information security. The findings indicate that two of the institutional pressures, coercive and normative, were positively associated with the extent of professionalization. One factor that is unique to family businesses, family essence, was found to be a negative influence. The results of this study add to our understanding of how firms respond to pressures faced by all businesses while balancing goals that are particular to family businesses. This study will hopefully spur on additional research on some of the competing demands that family firm leaders have to contend with.

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