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HOW FAMILIAL IS FAMILY SOCIAL CAPITAL?

ANALYZING BONDING SOCIAL CAPITAL IN FAMILY AND NONFAMILY FIRMS

Abstract

Family social capital (FSC) is acknowledged to be a unique asset that can provide firms with competitive advantages. Certain scholars, however, have questioned whether nonfamily firms can reproduce FSC and benefit from its advantages. If so, FSC may not be as unique as has been assumed. Our study analyzes three types of bonding social capital: capital held by nonfamily firms, and capital held by family and nonfamily members of family firms. We assess the effects that these types of bonding social capital exert on performance. Our empirical analysis of 400 firms suggests that FSC is unique and that nonfamily firms can only attempt to imitate it imperfectly.

Keywords

social capital, family social capital, family firms, familiness, single respondents, nonfamily members, multiple respondents

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Introduction

Social capital is defined as the set of resources inherent in family relationships and community social organization that is useful for cognitive and social development (Coleman, 1990). Granovetter (1973) classified the relationships between actors as strong or weak, depending on the degree of emotional attachment, the frequency of relations, and the nature of the relationship (between family, close friends, and so on). By translating these ideas into the context of a firm, firm social capital is defined as the advantages and resources provided by relationships between individuals and/or organizations and it can be classified into two broad categories (Putnam, 2000): bridging and bonding social capital. Bridging social capital derives from weak and less frequent ties, usually with an heterogeneous set of actors outside the firm who provide access to external resources (Salvato & Melin, 2008); Bonding capital stems from strong and frequent relations between homogeneous groups within the firm that facilitate trust, cohesion, and commitment to collective goals (Adler & Kwon, 2002; Portes, 1998). While bridging social capital has an outward focus, bonding social capital has an inward focus that reinforces exclusive identities and group homogeneity (Putnam, 2000).

Family firms have been assumed to possess a unique type of bonding social capital that has been termed *family social capital* (FSC) (Arregle, Hitt, Sirmon, & Very, 2007)¹. FSC is the sum of all actual and potential resources stemming from relationships between family members within family firms. Business researchers have recognized that family firms behave differently from nonfamily firms because of their FSC (Hoffman et al., 2006; Sorenson & Bierman, 2009). However, three recent articles (Chrisman, Chua, & Steier, 2011; Miller & Le Breton-Miller, 2014; Pearson, Carr, & Shaw, 2008) have also called for studies to evaluate the possibility of FSC (or an analogue of it) in nonfamily firms. If so, it is possible that the concept of FSC has been defined imprecisely, and it may not be as unique as has been assumed. Consequently, we attempt to answer the following question: can nonfamily firms reproduce FSC (Research Question 1)? Drawing on social capital (SC) theory, we argue that nonfamily firms *can* reproduce FSC; however, using the resource-based view (RBV) and family firm literature, we also argue that they

¹ In fact, both types of social capital can be found among family members. For example, distant relatives with relatively weak ties can provide information, advice, help and expertise to other family members. However, consistent with the original conceptual works forming the basis of FSC, we refer only to the bonding form in this study.

can only imitate it *imperfectly* and generally at a *lower level* than family firms. We reconcile these approaches and suggest that family firms achieve a higher level of bonding social capital because a family's long shared history and familial obligations encourage strong and enduring ties that cannot be replicated by nonfamily firms (Pearson et al., 2008).

Going further into the analysis of the bonding social capital of family firms, we noted that FSC researchers have mostly focused on the social capital developed *among family members* (Carr, Cole, Ring, & Blettner, 2011; Mitchell, Morse, & Sharma, 2003). However, relationships between nonfamily members can also develop social capital that can be appropriable, or usable for business purposes. This potential has been overlooked by researchers even though there are two groups of actors (family and nonfamily members) being analyzed together (Gedajlovic, Honig, Moore, Payne, & Wright, 2013; Payne, Moore, Griffis, & Autry, 2011). If nonfamily members of family firms can also develop bonding social capital that is appropriable, this fact should be considered with FSC when studying family firm heterogeneity. Furthermore, the number of nonfamily members tends to be larger than the number of family members and so, the level of commitment from nonfamily members can have a large impact on firm performance (Chrisman, Chua, & Litz, 2004). As a consequence, analyzing and enhancing social capital among nonfamily members should be a priority for family firms (Mitchell et al., 2003). Therefore, we also seek to answer the following questions: can nonfamily members in family firms reproduce FSC (Research Question 2)? And if so, is this social capital greater than the bonding social capital developed by members of nonfamily firms (Research Question 3)?

Finally, we also analyze the effects on firm performance of the bonding social capital developed by these three types of actors. The RBV and social capital theory support the idea that social capital brings competitive advantages and resources to a firm (Nahapiet & Ghoshal, 1998), but this idea has never been tested for nonfamily members of family firms. Furthermore, while scholars have generally assumed that FSC brings unique benefits to family firms, this assumption lacks empirical confirmation (Arregle et al., 2007; Carr et al., 2011). Consequently, we ask one final question: does the bonding social capital of all three types of actors (family and nonfamily members of family businesses and members of nonfamily businesses) contribute equally to a firm's performance (Research Question 4)?

In what follows, we use the terms *family social capital* (FSC) to refer to the bonding social capital derived from relationships between family members within family firms; *bonding social capital of nonfamily members in family firms* (NF-FF) to refer to the bonding social capital derived from relationships between nonfamily members within family firms; and *bonding social capital of nonfamily firms* (NFF) to refer to the bonding social capital derived from relationships between (nonfamily) members within nonfamily firms. All three terms refer to the social capital stemming from internal relationships among actors within the same firm.

This study makes three relevant contributions to the literature. First, we answer recent calls to investigate the possibility that nonfamily firms can reproduce FSC (Chrisman et al., 2011; Pearson et al., 2008) and contribute to the much-needed empirical examination of the uniqueness of FSC. Measuring different types of bonding social capital in family and nonfamily firms could help not only to distinguish family from nonfamily firms but also to explain family firm heterogeneity. Family firm classification should reflect the resources and behaviors that produce distinctiveness (Chua, Chrisman, & Chang, 2004; Klein, Astrachan, & Smyrnios, 2005). Since FSC appears promising in explaining firm behavior (Arregle et al., 2007; Pearson et al., 2008; Sorenson & Bierman, 2009), if it can be reproduced by certain nonfamily firms, albeit imperfectly, then it could be used as a continuum to rank not only family firms but also nonfamily firms. Second, we acknowledge the heterogeneity among family firms, not only in FSC but also in the social capital developed among nonfamily members. While nonfamily members can contribute extensively to family firms, the bonding social capital that they develop has rarely been acknowledged in the literature, and we contribute to filling this gap. Third, we contribute to explaining the differences in performance between family and nonfamily firms by showing the distinct effect on firm performance of each type of bonding social capital among the three sets of actors. Such a concept helps explain the often conflicting results in the literature on family firm behavior, and provide the explanation that has repeatedly been requested in recent studies (e.g., Chua, Chrisman, Steier, & Rau, 2012).

The Firm's Social Capital

Family Social Capital Versus Bonding Social Capital among Nonfamily Members in Both Family and Nonfamily Firms

According to the family firm literature, family firms possess three forms of “family capital”: social, human, and financial (Hoffman et al., 2006). Sorenson and Bierman

(2009) emphasized that financial capital can be obtained from sources outside the family, and human resources can be hired, but FSC cannot be hired or imported (Sorenson & Bierman, 2009) and is rare, valuable, costly or difficult to imitate, and without substitutes and so it provides a potential source of competitive advantage (Barney, 1991).

Bonding social capital is created when relationships between individuals are intense and characterized by commitment, trust, shared vision, and goals. This type of relationship is not limited to the family context, although certain aspects, such as family history, remain imperfectly imitable. Moreover, family firms have been acknowledged as being heterogeneous in that they can develop FSC to a greater or lesser degree. Analogously, nonfamily firms are not homogeneous either, and in a number of nonfamily firms, bonding social capital can be very strong, thereby providing rare and valuable resources to the firm that are difficult to imitate and substitute and that contribute benefits to the firm.

In what follows, drawing on the family firms, stewardship, and social capital literature, we analyze whether the three dimensions of FSC can be replicated by nonfamily members of family and nonfamily firms. However, we argue that these three dimensions are unique and tend to be stronger among family members due to the unique nature of family ties.

Similar to any other type of social capital, FSC has three dimensions: structural, relational, and cognitive. The *structural dimension* refers to the presence or absence of network ties between actors, the nature of these ties, and “*those resources that represent the social interactions and communication, including the patterns and strength of ties, among members of a family business*”, facilitating information exchange (Carr et al., 2011: p. 1211). The *relational dimension* refers to relational characteristics with three key facets: trust, norms and reciprocal obligations, and identity developed through relationships (Carr et al., 2011; Nahapiet & Ghoshal, 1998). Finally, the *cognitive dimension* consists of shared values, common vision, and strong cognitive cohesion among members (Tsai & Ghoshal, 1998).

While nonfamily members might interact with varying frequency, family members of family firms typically interact very often, and their relationships can develop either formally or informally, often over a family meal or event. The kinship nature of the relations between family members and their common family life render these relations structurally unique and stronger than those among nonfamily members (Pearson & Marler, 2010; Zellweger, Kellermanns, Eddleston, & Memili, 2012).

While the three key relational aspects of social capital—trust, commitment, and identity—are not unique to family members, in what follows, we argue that these three aspects are stronger between family members (Davis et al., 2010; Zellweger et al., 2010).

According to social capital theory, trust is a key resource that has been viewed as an antecedent of cooperation that can lead to competitive advantages (Tsai & Ghoshal, 1998). Trust is promoted by the kinship nature of family relations and the fact that family members have been part of the clan since birth (Pearson et al., 2008). Furthermore, trust must be built over time as relationships intensify; in the case of family members, this is favored by the long common history of the family network. Thus, trust is unique and stronger among family members than among nonfamily members (Davis et al., 2010). As a consequence, it is difficult for nonfamily members of nonfamily firms to match a family firm's level of social capital on this dimension (Arregle et al., 2007).

Stewardship theory proposes that individuals are motivated not only by self-interest but also by generosity and altruism (Le Breton-Miller & Miller, 2009). Drawing on this theory, Davis, Allen, and Hayes (2010) showed that not only trust but also value commitment might be present among nonfamily members in family firms, though at a lower level than among family members. These authors argued that organizations with good stewards and a stewardship orientation promote commitment values; in addition, good stewards are more common in family firms because family leaders are often driven by strong family norms and a desire to pass a healthier and stronger business to future generations (Davis et al., 2010). In family firms, altruism renders each family member a *de facto* owner of the firm or a *psychological owner* (Schulze, Lubatkin, & Dino, 2003). Altruism increases cooperation and communication and develops a supportive collective culture and norms of reciprocity and commitment that extend across an entire organization (Eddleston & Kellermanns, 2007; Madison & Kellermanns, 2013). Still, firms rich in FSC often possess ethical norms that invite social support and stewardship behaviors from nonfamily members as well as family members (Sorenson, Goodpaster, Hedberg, & Yu, 2009). As a consequence, one could expect altruism, commitment and reciprocity behaviors from nonfamily members, though they may not be reproduced perfectly and at the same level as among many family members.

Social capital theory maintains that identity, another aspect of the relational dimension of social capital, serves as a catalyst for communication and cooperation (Pearson et al., 2008) and can be found in any firm. However, family identity is unique and therefore impossible to completely copy (Zellweger et al., 2010), because family

members are more aware of their membership in family firms than nonfamily members are in either family or nonfamily firms. This awareness stems from the fact that the family firm plays an important role in the lives of family members from birth, representing an extension of their selves (Davis et al., 2010). Furthermore, the overlap between family and business values and belief systems is difficult to achieve in settings other than family firms. This overlap provides family members with a uniquely strong sense of belonging to the family firm (Davis et al., 2010), which can be enhanced by the varying degrees of family involvement and family relations (Zellweger et al., 2010). The FSC literature has also suggested that family firms often exhibit strong closure, which is understood as the degree to which the existence of dense and strong ties leads to precise boundaries in a group that distinguish members (“us”) from non-members (“them”) (Arregle et al., 2007). Closure is strong because the family institution itself serves as a boundary to the network, while nonfamily members cannot achieve the same level of closure (Arregle et al., 2007). The strong closure in family firms leads to the development of norms, trust, and a unique identity, all of which strengthen their FSC (Nahapiet & Ghoshal, 1998; Pearson et al., 2008). If bonding social capital has been defined as “*a kind of sociological superglue*” (Putnam, 2000: 21), FSC could be defined as a unique *supercement*.

Social capital theory maintains that it is only through strong ties that complex knowledge can be transferred (Hansen, 1999; Reagans & McEvily, 2003). Family members not only have strong ties (Hoffman et al., 2006), but they often share a particular common language due to the intense relationships that they have developed throughout family life since an early age. This language is intensified in the family business and allows for the development of firm-specific tacit knowledge (Chirico & Salvato, 2008). This process sets the stage for an underlying mechanism that facilitates knowledge recombination (Patel & Fiet, 2011; Chirico & Salvato, 2008) and ultimately provides a family firm with stronger cognitive cohesion. Furthermore, in trusted relationships, people feel safe expressing their opinion, which should enhance in-depth discussions and the formation of a joint vision for the family firm (Bird & Zellweger, forthcoming).

In summary, we argue that FSC is unique and can only be imperfectly imitated, and that this type of firm-specific, or even family-specific, asset is not tradeable on the open market (Dierickx & Cool, 1989). As a consequence, nonfamily firms cannot buy it. In contrast, family firms can accumulate FSC internally over time, leading to competitive advantages (Dierickx & Cool, 1989). Firms that do not possess these unique nontradeable assets can only attempt to (imperfectly) imitate or approximate them over time. However,

once again, family firms have an advantage in this respect because family members begin accumulating this stock at birth.

The above arguments lead us to the following hypotheses:

H1a: Nonfamily firms can imitate FSC by developing bonding social capital (NFF), although on average, this bonding social capital is less strong than the FSC developed between family members of family firms.

H1b: Nonfamily members of family firms can imitate FSC by developing bonding social capital (NF-FF), although on average, this bonding social capital is less strong than the FSC developed between family members of family firms.

Bonding Social Capital Among Nonfamily Members in Family Firms Versus Bonding Social Capital Among Nonfamily Members in Nonfamily Firms

In the previous section, we argued that while nonfamily members can develop bonding social capital, they can only with difficulty achieve something similar to FSC. However, can family members enhance the development of bonding social capital among nonfamily members, either by example or by the firm culture that they create? If so, then NF-FF should be stronger than NFF. Drawing on stewardship theory and the SC literature, in what follows, we argue that NF-FF is stronger than NFF.

Stewardship theory posits that good leaders serve the organizational good and its goals, rather than pursuing self-serving, opportunistic behavior (Davis et al., 2010). This theory is of particular relevance in family firms because family members often act as stewards due to specific motives, such as trust or strong feelings of family identity and commitment. Davis, Allen, and Hayes (2010) demonstrated that value commitment and trust lead family members to stewardship behaviors (Arregle et al., 2007). In the words of Kidwell, Kellermanns, and Eddleston (2012: 504), “members of the family often act in stewardship roles that help the family firm become and stay successful—and provide the firm with distinctive sources of social capital; these factors differentiate family firms from other types of organizations”. This altruism and goodwill are aimed not only at family members but also at nonfamily members (Dyer, 2006; Karra, Tracey, & Phillips, 2006). In return, nonfamily employees also exhibit altruistic behaviors and greater collaboration and communication (Pearson & Marler, 2010), thereby creating bonding social capital. Key to such behaviors is the initiating role of someone in the organization: in the case of family firms, the leading family members (Pearson & Marler, 2010). Members of nonfamily firms do not have family members providing exemplary

stewardship behavior as a starting point. Nonfamily firms tend to be more impersonal, so when their firm leaders show altruistic behaviors, nonfamily members are expected to reciprocate at a lower level (for different reasons, such as lower firm identity).

Family firms rich in social capital also develop greater trust with their nonfamily employees than do nonfamily firms because have the ability to nurture long-standing relationships, and firm employees may be more likely to develop personal attachments to a family that owns and operates a business, rather than to an impersonal firm (Dyer, 2006). Furthermore, in family firms rich in FSC, family members share the family goals and vision, making them more easily appreciated and echoed by nonfamily members than if the family members had different cognitive perspectives.

FSC and stewardship behaviors may have certain drawbacks and negative effects on nonfamily members, however. For example, firms rich in FSC often present strong closure that complicates the entry of outsiders. Moreover, they frequently possess non-economic goals that render their knowledge structures more complex (Patel & Fiet, 2011), and nonfamily members may find it difficult to understand this complex system of goals and meanings (Mitchell et al., 2003). However, overall, we expect the benefits of family firms' stewardship behavior, reciprocated trust and unity of cognitive perspectives to prevail. Consequently, we expect nonfamily members in nonfamily firms to develop less bonding social capital than nonfamily members of family firms.

The above discussion leads us to consider the following hypothesis:

H2: Nonfamily members in family firms develop more bonding social capital (NF-FF) than nonfamily members in nonfamily firms (NFF).

A Firm's Social Capital and Performance

Strategic management theories have attempted to explain why some firms perform better than others, and a vast number of scholars have investigated this question (Sirmon & Hitt, 2003). The most popular perspective, the RBV, maintains that unique resources serve as a source of competitive advantages for the firm (Barney, 1991; Habbershon & Williams, 1999). One key resource is family involvement in ownership, management, or control (Chrisman, Chua, & Sharma, 2005; Chua, Chrisman, & Sharma, 1999), which is believed to determine firm behavior and firm outcomes. Family involvement is believed to be valuable, rare, nonsubstitutable and difficult to imitate; therefore, according to Barney (1991), it confers competitive advantages. However, while the literature suggests that

family firms differ from nonfamily firms, it is not clear that they perform better (Cruz, Justo, & De Castro, 2012) and meta-analyses of the performance of family versus nonfamily firms have not offered conclusive results either (O'Boyle, Pollack, & Rutherford, 2012).

The reason for the conflicting results might again be related to the RBV; many studies defined family firms in terms of family involvement but family involvement may not be the key distinguishing feature of the stereotypical family firm. Firm performance is influenced not only by the uniqueness of a resource (family involvement) but also by how this resource is leveraged and managed (Barney & Arian, 2001; Salvato & Melin, 2008). This suggestion is in agreement with the essence approach (Chua et al., 1999), which maintains that family involvement is not sufficient to ensure different behavior; rather, it represents the family's *potential* to influence the firm (Deephouse and Jaskiewicz, 2013; Zellweger, Eddleston, & Kellermanns, 2010). In this regard, FSC represents a key way to enhance a resource (family involvement) and extract value from it, providing family firms with competitive advantages. However, not all family firms possess the same level of FSC, and only those rich in FSC can enhance family involvement and obtain competitive advantages. Thus, heterogeneity in FSC among family firms could explain the conflicting results regarding the performance of family firms. If researchers could arrange firms along a continuum based on characteristics of family essence, empirical results would likely be more consistent. We suggest that this could be a continuum of bonding social capital for three reasons: (1) FSC is a promising way to elucidate family firm performance because it encompasses the value of family involvement (Arregle et al., 2007; Sorenson and Bierman, 2009); (2) not all family firms have equal FSC (Chua et al., 2004); and (3) it could be present in nonfamily firms (Chua et al., 2004; Sorenson & Bierman, 2009).

According to social capital theorists, family firms do not need to develop social capital as extensively as other organizations to influence performance, because a strong social structure exists by nature within families, so an amount of FSC is immediately available (Hoffman et al., 2006). However, does the bonding social capital that nonfamily members of family or nonfamily firms develop also lead to performance improvements? The RBV and social capital literature have demonstrated that bonding social capital helps build strengths that ultimately lead to performance improvements (Tortoriello, Reagans, & McEvily, 2012). Possessing such capital implies high-value commitment and trust in the relationships among firm members, which promotes information sharing, high

identification, and common vision and goals, all of which represent unique resources that favor performance. Furthermore, a shared vision and common language enhance absorption and knowledge combination (Patel & Fiet, 2011). Frequent and trusting relationships among firm members lead to information exchanges that can be useful for the firm's functioning. In combination, commitment values, firm identity, and a common vision and goals generate feelings of being in the same boat, improving firm performance.

Accordingly, we hypothesize that the bonding social capital among nonfamily members of family and nonfamily firms also provides firms with distinctive resources and competitive capabilities, ultimately affecting firm performance:

H3a: The bonding social capital developed by family members of family firms (FSC) improves firm performance.

H3b: The bonding social capital developed by nonfamily members of family firms (NF-FF) improves firm performance.

H3c: The bonding social capital developed by members of nonfamily firms (NFF) improves firm performance.

Sample and Methods

Our empirical study involved firms in Spain's manufacturing sector. Data were obtained from both primary and secondary sources, as recommended to ensure robustness (Sekaran & Bougie, 2016), including specifically for family firm studies (Wright & Kellermanns, 2011). We used the Sistema de Análisis de Balances Ibéricos (SABI) database, which includes financial and other data at the firm level nationwide, enabling us to identify manufacturing firms using the NACE rev. 2 classification system. Those with missing contact information were eliminated, as were those with fewer than 10 employees to ensure that there were sufficient employee relationships to study. We contacted these firms by phone and asked them to reply to our questionnaire. Completed questionnaires were obtained for a sample of 400 firms, of which 230 (57.5%) were family firms and 170 (42.5%) were nonfamily firms.

The questionnaires were answered by managers and, in family firms, by family managers. The first question was whether the respondent considered the firm to be a family firm. Self-assessment has been widely used to define family firms (Astrachan, Klein, & Smyrniotis, 2002; Carr et al., 2011; Zellweger et al., 2010) because it seems to be highly related to firm values and objectives (Sorenson, 2013). Questionnaires included questions on firm characteristics, such as age, family involvement, generations involved,

and the number of employees. We also included questions on the key variable in our study, social capital. For these data, we used the FSC questionnaire of Carr and colleagues (2011) and adapted it to nonfamily members in family firms to measure NF-FF and to members of nonfamily firms to measure NFF. We accomplished this change simply by replacing the term “family firm” with “firm” and the term “*family members working in this firm*” (for the FSC scale) with either “*nonfamily members working in this firm*” (NF-FF) or “*firm members working in this firm*” (NFF).

Insert Table 1 approximately here

Our questionnaires were addressed to managers because they have a broader view of the entire organization (Klein et al., 2005). As we note above, FSC studies are most often based on single respondents (Chrisman, Chua, Pearson, & Barnett, 2012; Sharma, Chrisman, & Chua, 2003). Although focusing on owner-managers might not capture the attitudes of other family members, researchers have often chosen the perspective of a key decision-making agent (Carr et al., 2011; Klein et al., 2005). Once we received the responses to the questionnaires, we combined these data with some financial data from the primary dataset.

Before any further analyses, we examined the validity of our sample of single respondents. With this objective, we collected additional data by administering the same questionnaires to other members of the firm. We used a subsample of 178 firms, of which 102 were family firms and 76 were nonfamily firms. For nonfamily firms, responses were solicited from two members of the same firm; for family firms, responses were solicited from two family members and two nonfamily members.

Results

Exploratory and Confirmatory Factor Analyses

We started by checking intergroup agreement to test the reliability of aggregating data across different members of the same firm. The results (see the Appendix) showed that having a single respondent provided sufficient information about the variable being measured. The only exception was in asking nonfamily members about family issues, for which assessments from family members were more reliable.

Our next step was to validate the proposed scales. We ran an exploratory factor analysis (EFA). Three factors emerged, with the structural dimension corresponding to items A1–D1, the relational dimension corresponding to items A2–D2, and the cognitive dimension corresponding to items A3–D3 (Table 1). The items loaded well on each of the factors.

We performed independent CFA analyses for FSC, NF-FF, and NFF. The goodness of fit of the models showed acceptable levels for all three (Table 1). The standardized factor loadings indicated a good fit, with average values equal to 0.80 for FSC, 0.83 for NF-FF, and 0.83 for NFF (in all cases, p -values < 0.000). The three factors representing the three social capital dimensions (Table 1) also presented highly significant loadings on the second-order factor. Our results are consistent with those of Carr et al. (2011), whose data showed an average factor loading of 0.86. The root mean square error of approximation (RMSEA), the comparative fit index (CFI) and the Tucker-Lewis index (TLI) also showed a very good fit for the models.

We then tested whether the three social capital dimensions were sufficiently correlated to justify the construction of second-order factors measuring the three types of social capital under analysis (Law et al., 1998). Factors representing the three social capital dimensions presented average correlations with each other equal to 0.76, 0.77, and 0.69 for FSC, NF-FF, and NFFNFF, respectively. The average correlations with the second-order factor were 0.88, 0.88, and 0.84 for FSC, NF-FF, and NFF, respectively. All of these correlations showed appropriate levels.

Checking Second-Order Structure

To further check the appropriateness of the three dimensions of social capital and the second-order factor model, in the next step, we analyzed a set of alternative models to determine which factor structure best fit the observed data. In all three cases, we compared the base model that we want to test (the three underlying dimensions of social capital) against a set of alternative models. The first alternative model that we considered was a one-factor model that implicitly assumed that all items loaded on a single factor (Tables 2a, 2b, and 2c). The other alternative models assumed two factors.

 Insert Tables 2a, 2b, 2c approximately here

In all cases, the likelihood ratio test showed that the alternative models were worse than the hypothesized model ($p < 0.000$), consistent with the results of Carr et al. (2011). In our three cases, the lowest AIC value corresponded to the second-order factor model.

Convergent and Discriminant Validity

We found convergent and discriminant validity for all three of the second-order models, again consistent with the results of Carr et al. (2011). All of the standardized coefficients were greater than 0.6 and were highly significant (Table 1). The correlations among the latent factors were all significantly different from zero. The average variance extracted (AVE) by each of the latent factors was greater than 0.5, indicating that the proportion of variance explained by the factors was greater than the variance due to measurement error (Carr et al., 2011). The AVE values and composite reliability for the different types of social capital under analysis were, respectively, 0.773 and 0.919 (for FSC), 0.768 and 0.908 (for NF-FF), and 0.710 and 0.876 (for NFF). In addition, none of the confidence intervals (at the 95% level) of the correlations among the latent factors included 1, indicating that our scales had discriminant validity.

Measurement Equivalence and Mean Comparison

We next wanted to compare the means of the second-order factors for our three types of social capital to test H2 and the second parts of H1a and H1b. To do so, we first checked for invariance among the three models. Invariance implies that the three second-order factors—FSC, NF-FF, and NFF—measure equivalent concepts. Three types of invariance must be tested. First, *configurational invariance* indicates whether the model structure is invariant across groups. Second, *metric invariance* indicates that the strength of the relationship between each item and the underlying latent construct is similar across groups. Third, *scalar invariance* is present if firms with the same score on the latent construct obtain the same scores for the observed variables regardless of the group or sample to which they belong (Milfont & Fischer, 2010). If our models presented all three types of invariance, we could assume that the factors measure the same concept across the samples, and we could proceed to compare their means. We compared the three samples twice (once for the first-order factors only and again for the first- and second-order factors) in three different steps, for which we used multigroup analysis in the MPlus software. For the sake of simplicity, we only show the results of the analyses including both the first- and second-order factors.

In the first step, we tested for configural invariance. The unconstrained model showed an adequate fit based on the RMSEA criterion (RMSEA = 0.08). The chi-square test of model fit was nonsignificant, but this test has been widely acknowledged to underestimate goodness of fit because it has problems associated with nonnormality and sample size. As a rule of thumb, for a good model fit, the ratio of chi-square to the degrees of freedom should be between 2 and 3. In our case, this ratio was equal to 2.504 for the unconstrained model, indicating an acceptable fit. In all of our models, the CFI exceeded the threshold level (0.95).

In the second step, we tested for metric invariance (by restricting factor loadings to be the same across groups), which showed a CFI = 0.955 and a CFI difference less than 0.01, indicating that the change was not meaningful and demonstrating metric invariance. Similarly, the RMSEA indicated an adequate fit.

In the third step, we restricted factor loadings and intercepts to test for scalar invariance. As before, the RMSEA and the chi-square ratio were acceptable (RMSEA = 0.091, Chi-sq./df = 2.72), though the CFI index was slightly lower than the recommended level (CFI = 0.940). Because the remaining indices were acceptable, and we were comparing three groups, we considered this evidence of scalar invariance. However, we also tested for partial scalar invariance. When all three items were allowed to load freely, all goodness of fit measures were within acceptable levels (CFI = 0.955; RMSEA = 0.081, $\chi^2/df = 2.37$).

Concluding that there was measurement invariance allowed us to accept the first part of hypotheses H1a and H1b; that is, that nonfamily members of family and nonfamily firms can reproduce FSC to a certain extent. The presence of measurement invariance also allowed us to compare the means of the second-order factors across the three groups by assuming that the mean of one of the groups was zero (in our case, the sample associated with FSC) and checking for the significance of the second-order factor means of each of the other samples (Chen, Sousa, & West, 2005). We found that when we set the FSC mean equal to zero, the means for NF-FF and NFF were negative (-1.332 and -1.304, respectively) and highly significant, suggesting that the social capital accumulated among family members in family firms is greater than among nonfamily members in either family or nonfamily firms, providing support for H1a and H1b.

To compare the means of the second-order coefficients for NF-FF and NFF, we set the mean of the second-order factor for NF-FF equal to zero. The mean for NFF was not significantly different from zero, indicating that the type of social capital developed

among nonfamily firm members was similar across family firms and nonfamily firms, rejecting H2.

Social Capital and Firm Performance

Finally, we analyzed the relationship between each of the three types of social capital and performance to test our third set of hypotheses (H3a, H3b, H3c). We used two different performance measures that have been widely used in the literature (Basco, 2013): the *return on assets* (ROA; defined as earnings before interest and taxes over total assets); and *return on equity* (ROE; defined as earnings before taxes over shareholders' equity). As control variables, we used *firm size*, measured by the number of employees (EMPLOYEES), and a variable representing *investment intensity*, given by total assets (ASSETS). The descriptive statistics are listed in Tables 3a and 3b (for family firms and nonfamily firms, respectively).

For the family firm models, we also included *family involvement* and the *number of generations involved in the family business* as control variables. Because family ownership was 100% in most of the cases, we measured *family involvement* as the number of family members involved in management. None of these variables appeared significant in our models, however.

 Insert Tables 3a and 3b approximately here

The two key models are presented in Figures 1 and 2. Interestingly, the nonfamily social capital held by nonfamily members in family firms (NF-FF) appeared nonsignificant in all of the models considered (Figure 1). In contrast, the effect of FSC on ROE was positive and significantly different from zero (Figure 1). This result provides support for H3a but not for H3b, because only FSC seemed to positively affect firm performance. The opposite occurred for NFF: its effect was significant only on ROA (Figure 2), providing support for H3c.

 Insert Figures 1 and 2 approximately here

Discussion and Conclusions

Family Social Capital Versus Bonding Social Capital Among Nonfamily Members in Both Family and Nonfamily Firms

Following a number of calls in the literature for research on whether nonfamily firms can reproduce FSC, we measured bonding social capital among both family and nonfamily members in family firms and among firm members in nonfamily firms. Our validation of the scale and measurement invariance shows similar results for these three types of actors, suggesting that nonfamily actors can more or less perfectly reproduce bonding social capital in both family and nonfamily firms. However, our results also corroborate what we hypothesized a priori in H1a and H1b: that the social capital accumulated among family members in family firms is unique not only in nature but also in magnitude, being larger than either of the other two types. This conclusion supports Pearson and colleagues' (2008) proposal that firms with greater social capital resembled family firms, while those with lower social capital resembled a stereotypical nonfamily firms, and that firm outcomes depended on the type and amount of social capital. In line with the essence approach (Chrisman et al., 2005), our results show that family involvement is insufficient for a firm to be considered a family firm; family firms must create substantial FSC to contribute to the managerial ability needed to take advantage of family resources. This finding supports some recent arguments that family firms are highly heterogeneous (Chua et al., 2012), with widely ranging levels of FSC that might cause them to behave differently from one another.

We found a significant positive correlation between FSC and NF-FF (Table 3a), suggesting that FSC generally enhances the development of social capital among nonfamily members of the firm. While this study is the first to show this positive correlation, it is consistent with related evidence from previous research. For example, Davis and colleagues (2010) showed that family members' commitments and stewardship behaviors generated a collective culture, rather than a situational mechanism, promoting reciprocity and commitment among nonfamily members and enhancing the development of bonding social capital among them. When FSC is high, family members act as donors, being committed to the firm (Arregle et al., 2007). Our results are also consistent with Pearson and Marler's (2010) theoretical work on reciprocal trust, commitment, stewardship, and prosocial behavior among both family and nonfamily employees.

Bonding Social Capital among Nonfamily Members in Family Firms Versus Bonding Social Capital among Nonfamily Members in Nonfamily Firms

Our results also show that the level of NF-FF is similar to that of NFF, contradicting our hypothesis 2 that family members enhance the bonding social capital developed among nonfamily members within family firms. Additionally, while some family firm outcomes benefit greatly from FSC, family firm performance does not seem to benefit from the nonfamily social capital developed among nonfamily members, although the latter does seem to improve performance in nonfamily firms. These findings could indicate that, as many observers have remarked, in family firms, family members largely determine firm behavior and might be reluctant to accept ideas coming from others, particularly if FSC is high. Nevertheless, this result seems paradoxical; if nonfamily members can develop high bonding social capital, they should also possess resources that should positively affect firm performance, such as value commitment and trust. Thus, these nonfamily employees could also act as conduits between the family and the larger community, facilitating the availability of new knowledge. We attempted to explain this paradoxical finding by introducing a measure of family involvement in the business into the model, to test whether family influence could be offsetting this effect, but NF-FF remained nonsignificant.

One potential explanation for why NF-FF did not appear stronger than NFF is that family firms might set family-related goals that self-enhance in-group family members by establishing social belief structures to favor themselves over out-group nonfamily members (Vandekerckhof, Steijvers, Hendriks, & Voordeckers, 2014). According to Yu, Lumpkin, Sorenson, and Brigham (2012), approximately half of family firm goals are family-related goals that nonfamily members might not share (Mitchell et al., 2003), leading nonfamily members to feel like outsiders. While family members' behaviors diminish agency costs, and certain authors have considered these behaviors to be the "secret sauce" of family businesses (Davis et al., 2010), they can also enhance other types of problems (Chrisman, Chua, & Litz, 2004). For example, altruism can hinder a manager's ability to control employees because it biases the manager's perceptions (Schulze, Lubatkin, Dino, & Buchholtz, 2001; Sirmon & Hitt, 2003) and promotes informal ways of monitoring agents that do not always work (Schulze et al., 2003). There are other problems related to the non-economic goals that many family firms possess (Schulze et al., 2003). For example, if preserving family employment and/or maintaining

a certain standard of living for relatives constitutes a key goal of a family firm, then nepotism must not be considered an agency cost for family firms (Chrisman, Chua, & Litz, 2004) because it is aligned with the interests of family owners. This is true even though it might conflict with nonfamily members' goals or perceptions of justice in the firm, thereby creating resentment among nonfamily members (Zellweger et al., 2010). Consequently, although family managers might also behave altruistically towards nonfamily members, the interests of family members can be strongly prioritized over those of nonfamily members, which can exacerbate the problems that nonfamily members face in adjusting to the family firm culture (Mitchell et al., 2003).

A Firm's Social Capital and Performance

Our results showed that both FSC and the bonding social capital of nonfamily firms improve firm performance, supporting H3a and H3c. This result is consistent with various studies that have suggested that certain mechanisms, such as those of bonding social capital, if well managed, can favor tacit and complex knowledge transfers within each group and increase innovation, ultimately enhancing firm performance (Hansen, 1999; Tsai & Ghoshal, 1998). This relationship is particularly relevant in the case of the bonding social capital of family firms. According to the literature on social capital, tacit knowledge is more easily available and shared where there are family ties relative to nonfamily ties (Sirmon & Hitt, 2003) due to the shared vision, common language and strong, enduring relationships that family members often have (Hoffman et al., 2006). Furthermore, tacit knowledge is better transmitted through informal exchanges (Zahra et al., 2007), and family members' interactions are frequently informal, over family meals or meetings or simply through daily activities. Patel and Fiet (2011) emphasized that family firms' long-term orientation and common capacity to structure their knowledge allow them to develop and share complex cognitive frameworks. Consequently, family firms rich in FSC, where informal, strong, and frequent interactions occur, should be able to transfer knowledge easily (Sirmon & Hitt, 2003). This is encapsulated by the expression "*we know more than we can tell*" (Royer et al., 2008; Teece, 1998). However, possessing knowledge is insufficient (Chirico & Nordqvist, 2010). Family firms are said to be good at both possessing knowledge and at integrating it (Patel & Fiet, 2011; Chirico & Nordqvist, 2010). Managers of family firms are more successful at combining diverse information than managers of nonfamily firms because knowledge integration is

facilitated by close-knit groups with a strong identity (Chirico & Salvato, 2008). The strong and enduring ties developed over generations and the long history of interaction cannot be duplicated among nonfamily members. This history often leads to common family expressions and even body language that together evolve into a “family language” that allows family members to integrate firm-specific knowledge more effectively (Chirico & Salvato, 2008; Hoffman et al., 2006). This fact clarifies why FSC enhances firm performance. However, as explained before, there is a negative side to very intense family relationships and this strong system of meanings, which might explain why we found that NF-FF did not have an impact on performance. This idiosyncratic communication can disadvantage nonfamily members (Marett, Marett, & Litchfield, 2015).

The effect of potential conflict between family members and nonfamily members can also help elucidate the nonsignificant effect of social capital of nonfamily members on family firm performance. While the conflict in family relationships promotes negative reactions and hinders knowledge integration (Chirico & Salvato, 2008), it may not have the same effect on NF-FF. Strong family ties aggravate the negative consequences of conflict because dysfunctional family characteristics are transferred to the firm: for example, dysfunctional communication can lead family members to cloud communication channels within the firm (Arregle et al., 2007).

An interesting but somewhat unexpected result was that while FSC had a positive effect on ROE and a null effect on ROA, the opposite occurred for NFF. No previous analysis has empirically tested the relationship between FSC and objective measures of performance. Previous work on this relationship has used subjective measures, and the results were not clear. While Sorenson and colleagues (2009) demonstrated a positive relationship between FSC and subjective measures of performance, Carr and colleagues (2011) found no conclusive results. Although it has not been assessed relative to FSC, ROA is the performance measure most often used in family firm studies, and our results with regard to ROA are consistent with a recent meta-analysis (O’Boyle et al., 2012) that showed no relationship between ROA and family involvement. The key difference between the two indices is that ROE does not consider financial sources or their costs. One reason for our results could be that the equity of “very familial” firms, i.e., those rich in FSC, might be largely composed of family capital because family members wishing to preserve FSC are reluctant to share firm equity with outsiders, even if they must provide more capital themselves. Furthermore, family firms are said to be more risk-averse than

nonfamily firms. They carry less debt and hence exhibit a greater proportion of equity to debt than do nonfamily firms. In our sample, the ratio of liabilities to equity-plus-liabilities was lower for family firms (55%) than for nonfamily firms (62%). Because family firms carry less debt, they also tend to be smaller than nonfamily firms (see Tables 3a, 3b). Furthermore, family firms rich in FSC might be more focused on extracting value out of their equity, whereas nonfamily firms can extract more value out of total assets, being penalized when the interest from debts comes into play. While this finding is interesting and requires deeper study, it is beyond the scope of the present project. However, our results demonstrate that it is important to distinguish between different performance measures.

Interestingly, neither the number of generations involved in the family business nor family involvement appeared significantly related to family firm performance. This result is consistent with the essence approach, which maintains that family involvement represents only the family's *potential* to influence the firm (Zellweger et al., 2010). Our finding suggests that “family essence features” (such as bonding social capital) might be better criteria for classifying family and nonfamily firms along a continuum than pure family involvement.

Multiple Versus Single Respondents

Our empirical analysis addresses the problem of single versus multiple respondents. Family firm studies are frequently based on single informants (Carr et al., 2011). While this approach is often necessary, its validity still requires testing. We found agreement for all of the groups regarding the different concepts analyzed; the only exception was nonfamily members of family firms when assessing social capital within the family. We conclude that while family managers have a broad picture of the firm, family members' strong identity and closure allow nonfamily members only blurred views of intrafamily relationships. Consequently, if the focus of a study is a family essence variable such as FSC, trusting the opinion of nonfamily members could lead to erroneous conclusions. In most cases, however, data can be aggregated at the firm level, and having one single respondent provides sufficient information about the variable being measured. In our results, only the assessment of family issues by nonfamily members appeared to be blurred. This finding provides support for the many published empirical family firm studies based on single informants and to future studies relying on such informants.

Final Conclusions

In short, while bonding social capital can be found in any firm, we show that FSC is indeed unique and stronger than the bonding social capital that nonfamily members develop; consequently, it confers greater benefits and resources. From our results, we conclude that firms can be ranked according to their level of bonding social capital and that this heterogeneity appears promising for explaining their behavior and performance. Since FSC is an important factor in explaining firm performance, we also incorporated a measure of the social capital held among nonfamily members of nonfamily firms, but its effect appears to be negligible. However, the bonding social capital of nonfamily members in family and nonfamily firms must not be underestimated. In fact, our results demonstrate that the bonding social capital developed in nonfamily firms improves firm performance. Other results suggest interesting avenues for future research, such as our failure to find any performance effect of the bonding social capital of nonfamily members in family firms; also interesting would be to determine how to combine different types of social capital to assess the spectrum of bonding social capital in family firms.

Limitations and Future Research

Because this paper constitutes one of the first attempts to extrapolate typical family features to nonfamily firms, our empirical analysis focused on the manufacturing sector in a single country. Future research should validate these results in other contexts.

Our finding that NF-FF did not significantly determine performance, despite being very similar to NFF, suggests other questions for future research: is FSC much more appropriate than the social capital held by nonfamily members in family firms (NF-FF)? Does family influence prohibit NF-FF from playing a more relevant role in firm behavior? How is this relationship affected by different levels of family influence and control? Does very high FSC cause nonfamily employees to feel like an out-group and lead NF-FF to either not develop to the extent that it otherwise would or to be unavailable for firm use? It would be useful to test whether including the interaction between NFF-FF and some measure of family influence, family control or conflict shows an influence of NFF-FF on performance.

While nonfamily members might not share the same system of meaning and structure as family members, examining the evolution of their integration of family firm cognition over time would be interesting. Tenure and the trust placed in nonfamily members might facilitate their understanding of family thinking and their communication with family members. It is possible that nonfamily members working in family firms for many years who have developed enduring trust are admitted into the family circle, rendering their social capital appropriable. An analysis of this issue would help to explain the intriguing set of meanings and knowledge transfers in family firms. In general, future studies might focus on the contingencies that enable family firms to benefit from NF-FF.

While strong social capital provides benefits to firms in terms of norms, commitment, reciprocity, and obligations (Nahapiet & Ghoshal, 1998), family firms must manage their FSC to enhance its benefits. If a family fails to properly manage its resources, they may become a familial encumbrance, leading to what some authors have considered constrictive familiness (Habbershon & Williams, 1999). Thus, for example, strong social capital can result in an excess number of in-group members' claims (Portes, 1998) and reciprocity and strong family norms ceding to these claims, which would affect nonfamily members' perception of justice.

Furthermore, because this study represents a first attempt to analyze the role of family members in the development of social capital in family firms, we have not considered the social capital that could stem from relationships between family and nonfamily members nor how it could be affected by the internal relationships within each group or even vice versa. The role of social capital created among nonfamily members of family firms could be enhanced when interactions between family and nonfamily members generate substantial social capital because the relationships between family and nonfamily members could lead to better socialization of nonfamily members. This socialization would help align goals, and the social capital of nonfamily members could play a more dominant role in firm decisions. Future research could analyze the relationships among family members, among nonfamily members, and between family and nonfamily members and how managing the resulting types of social capital and their interactions might affect firm performance.

Our unexpected finding that FSC was positively related to ROE, whereas nonfamily social capital in nonfamily firms was related to ROA, suggests that family financial capital might strongly determine firm performance. However, further empirical

and theoretical research using different performance measures is needed to validate some of our assumptions.

Another interesting line of research for future studies would be to analyze different behaviors and outcomes—such as internationalization decisions or the importance attached to noneconomic goals—stemming from the different levels of bonding social capital in family and nonfamily firms to fully understand the differences between them. The present study serves as a starting point and opens an avenue for future research on the social capital of different actors within family firms, the linear or even nonlinear relationships between them, and their potential interactions relative to different firm outcomes.

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Table 1. Scales' items and Factor Loadings for the First- and Second-order Factors (adapted from Carr et al., 2011).

Item/Factor	Factor loadings		
	FSC	NF-FF	NFF
<i>Structural dimension (Cronbach alpha=)</i>	0.77	0.90	0.77
A1) Members (*) who work in this firm engage in honest communication with one another.	0.79	0.78	0.76
B1) Members (*) who work in this firm have no hidden agendas.	0.74	0.78	0.69
C1) Members (*) who work in this firm willingly share information with one another.	0.84	0.82	0.85
D1) Members (*) who work in this firm take advantage of their family relationships to share information.	0.63	0.76	0.82
<i>Relational dimension (Cronbach alpha=)</i>	0.97	0.87	0.95
A2) Members (*) who work in this firm have confidence in one another.	0.83	0.78	0.85
B2) Members (*) who work in this firm show a great deal of integrity with each other.	0.93	0.90	0.89
C2) Overall, members (*) who work in this firm trust each other.	0.86	0.92	0.90
D2) Members (*) who work in this firm are usually considerate of each other's feelings.	0.75	0.80	0.73
<i>Cognitive dimension (Cronbach alpha=)</i>	0.89	0.86	0.79
A3) Members (*) who work in this firm are committed to the goals of this firm.	0.81	0.88	0.99
B3) There is a common purpose shared among Members(*) who work in this firm.	0.84	0.88	0.84
C3) Members (*) who work in this firm view themselves as partners in charting the firm's direction.	0.85	0.86	0.85
D3) Members (*) who work in this firm share the same vision for the future of this firm.	0.81	0.85	0.84

In bold: loadings for the first-order latent factors on the second-order factor. All factor loadings are significant at the 1% level.

FSC: N=230; RMSEA= 0.080 (90% CI: [.062, .097]). CFI = .962; TLI =.950.

NF-FF: N=230; RMSEA= 0.089 (90% CI: [.07, .097]). CFI = .99; TLI =.950.

NFF: N=170; RMSEA= 0.059 (90% CI: [.03, .08]). CFI = .98; TLI =.97.

(*) By members in the different questionnaires we referred to:

- (1) Family members (scale for FSC)
- (2) Nonfamily members (scale for NF-FF)
- (3) Firm members (scale for NFF)

Table 2a. Family Social Capital (FSC): Tests for Second-order Model.

<i>Model</i>	<i>Chi-sq</i>	<i>DoF</i>	<i>Dif Chi-sq</i>
Model 1: 1-factor model (three dimensions combined)	346.46	54	221.04 ***
Model 2: 2-factor (structural + relational combined)	260.39	53	134.96 ***
Model 3: 2-factor (structural + cognitive combined)	283.29	53	157.86 ***
Model 4: 2-factor (relational + cognitive combined)	210.71	53	85.28 ***
Hypothesized model (second-order model)	125.43	51	

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table 2b. Bonding Social Capital of Nonfamily Members in Family Firms (NF-FF): Tests for Second-order Model.

<i>Model</i>	<i>Chi-sq</i>	<i>DoF</i>	<i>Dif Chi-sq</i>
Model 1: 1-factor model (three dimensions combined)	453.48	54	309.43 ***
Model 2: 2-factor (structural + relational combined)	267.46	53	123.41 ***
Model 3: 2-factor (structural + cognitive combined)	288.03	53	143.98 ***
Model 4: 2-factor (relational + cognitive combined)	366.10	53	222.05 ***
Hypothesized model (second-order model)	144.05	51	

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table 2c. Bonding Social Capital in Nonfamily Firms (NFF): Tests for Second-order Model.

<i>Model</i>	<i>Chi-sq</i>	<i>DoF</i>	<i>Dif Chi-sq</i>
Model 1: 1-factor model (three dimensions combined)	372.43	54	291.59 ***
Model 2: 2-factor (structural + relational combined)	196.71	53	115.87 ***
Model 3: 2-factor (structural + cognitive combined)	267.15	53	186.31 ***
Model 4: 2-factor (relational + cognitive combined)	252.34	53	171.49 ***
Hypothesized model (second-order model)	80.85	51	

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table 3a. Descriptive Statistics of Family Firms.

	Mean	St. Dev.	1	2	3	4	5	6	7	8
1 ROA	2.13	8.69	1							
2 ROE	6.99	52.39	.36**	1						
3 Assets	5822	19361	-.00	.06	1					
4 Employees	39.99	72.03	.05	.26**	.67**	1				
5 Fam. involvement	4.25	2.37	.03	.02	.11	.19**	1			
6 Generations inv.	1.48	.52	.03	-.02	.12	.12	.25**	1		
7 FSC	4.56	.59	.01	.13*	-.01	-.08	-.12	-.01	1	
8 NF-FF	3.70	.75	-.02	.04	.04	.03	-.07	-.06	.30**	1

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table 3b. Descriptive Statistics of Nonfamily Firms.

	Mean	St. Dev.	1	2	3	4	5
1 ROA	2.82	18.00	1				
2 ROE	8.92	113.03	.37**	1			
3 Assets	12262	37868	-.00	-.01	1		
4 Employees	59.41	153.13	.01	.01	.75**	1	
5 NFF	3.74	.74	.24**	.00	.02	-.07	1

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

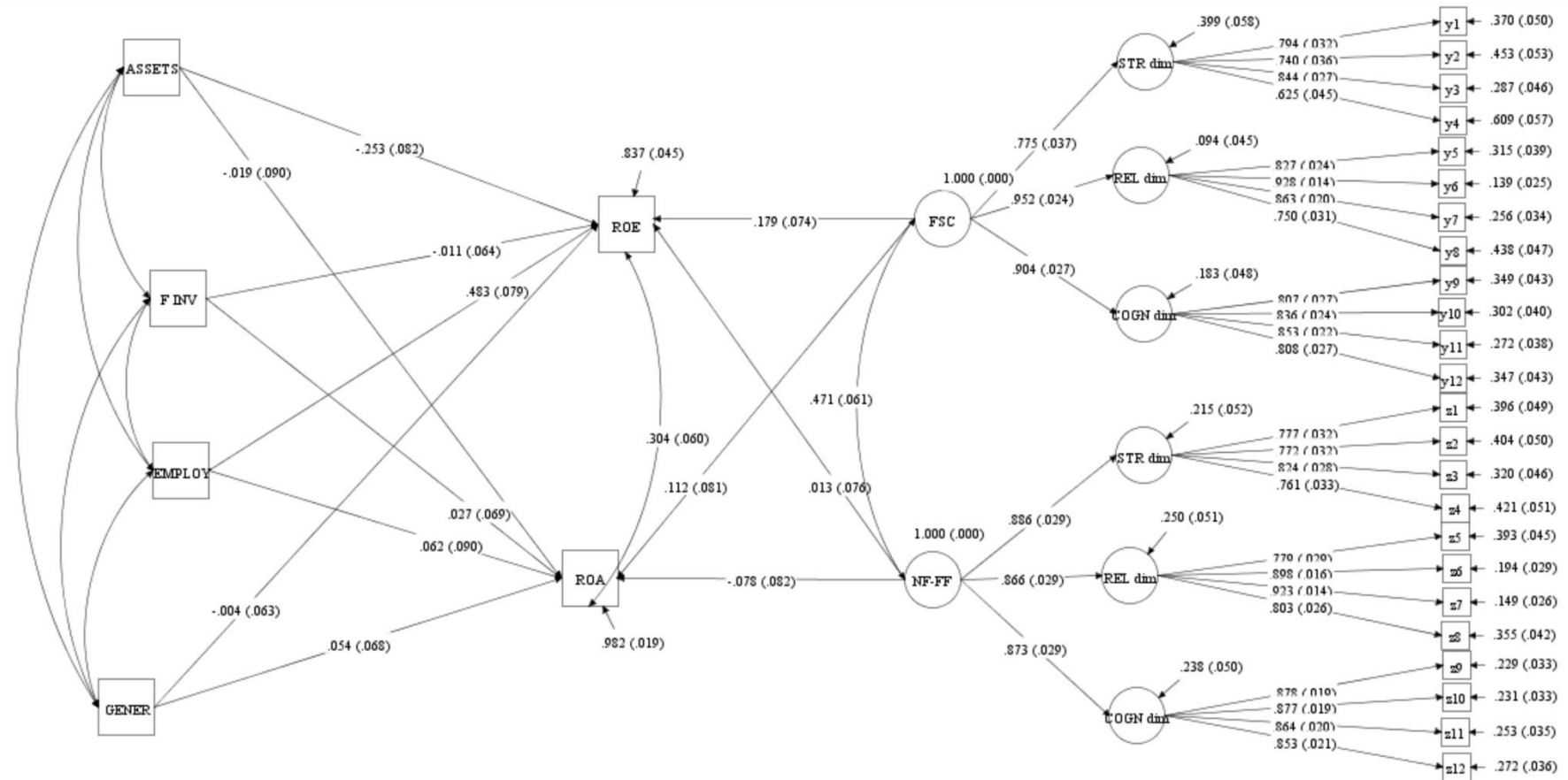


Figure 1. FSC and NF-FF SEM model on ROA and ROE.

Akaike Information Criterion (AIC): 12995.42; Bayesian Information Criterion(BIC): 13,325.47; Chi-sq= 633.606 (DoF=385); RMSEA (Random Mean Square Error of Approximation)=0.053; CFI=0.942; TLI= 0.936.

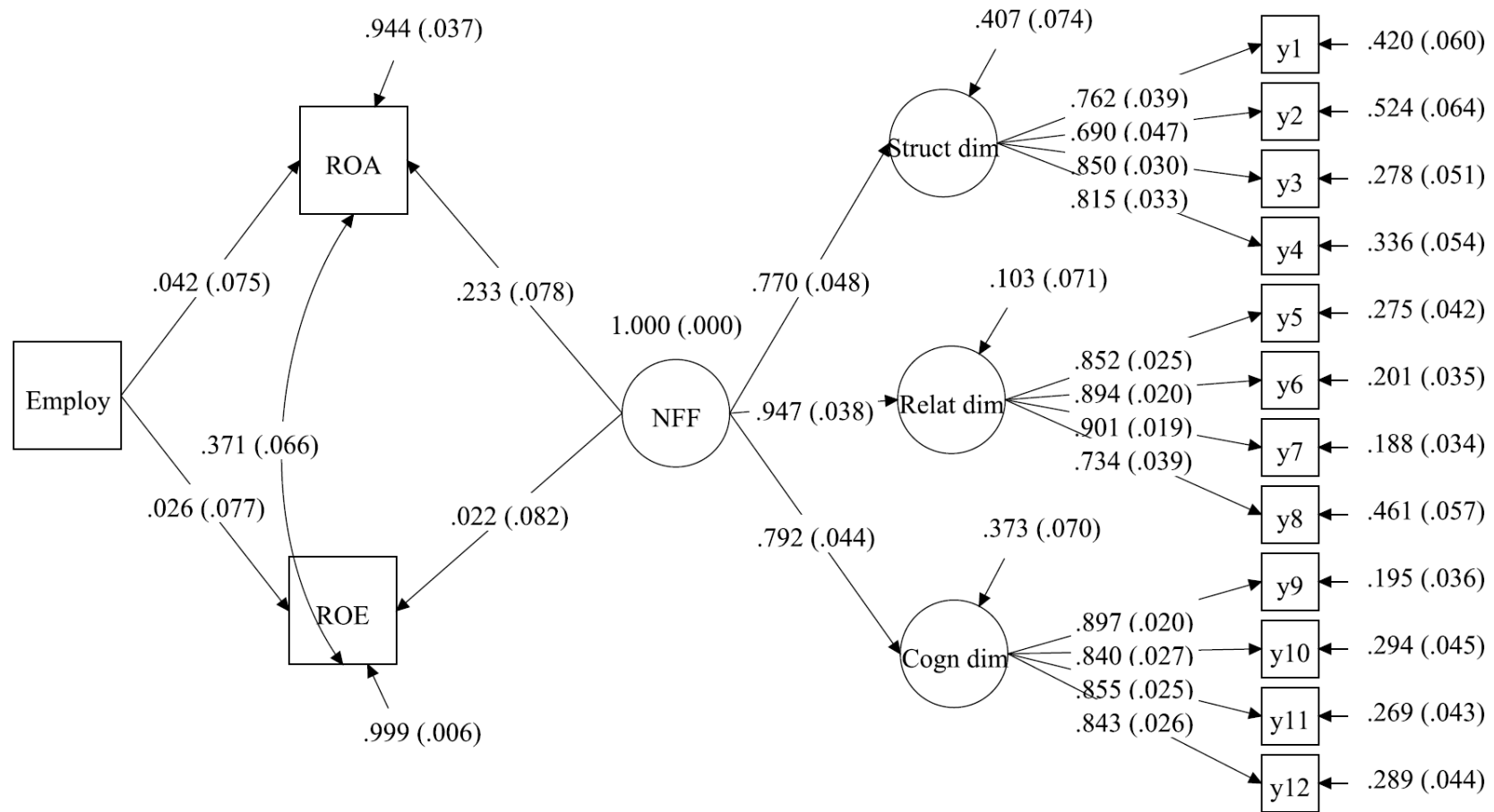


Figure 2. NFF SEM model on ROE and ROA.

Akaike Information Criterion (AIC): 7,022.78; Bayesian Information Criterion (BIC): 7,173.30; Chi-sq= 105.987 (DoF=85); RMSEA (Random Mean Square Error of Approximation)=0.04; CFI=0.986; TLI= 0.983.

APPENDIX. Interrater Agreement (Data Aggregation)

We calculated the interclass coefficients ICC(1) and ICC(2) and the interrater agreement coefficient (r_{wg}) (Bliese & Halverson, 1998) independently for family members' and nonfamily members' opinions of the levels of FSC and NF-FF (in the case of family firms), as well as for firm members' opinions of the level of NFF (in the case of nonfamily firms). If these values are sufficiently high, they suggest that the data can be aggregated; low scores would reflect low agreement among respondents, and hence the values of the variables would be less reliable.

The mean of the r_{wg} scores was very high in all cases; a priori, this fact suggests strong within-group agreement (Biemann, Cole, & Voelpel, 2012: 73) and indicates that, in general, data can be aggregated at the firm level. Average agreement among nonfamily members of family firms regarding their own social capital (NF-FF) was very high ($r_{wg} = 0.92$). The lowest agreement was that of nonfamily members regarding FSC ($r_{wg} = 0.82$). In contrast, family members presented very high interrater agreement regarding both the relationships among family members (0.93) and those among nonfamily members (0.94). For nonfamily firms, interrater agreement was also high ($r_{wg} = 0.88$).

Because we could expect the distribution to be at most slightly skewed, following Cole, Carter, and Zhang (2013), we considered the estimate provided by the slightly skewed distribution as the lower bound of the confidence interval and the estimate given by the uniform distribution as the upper bound (Biemann et al., 2012). The high agreement values, far exceeding the threshold of 0.7, suggest that single respondents are reliable.

As a test of robustness, we also calculated the ICC(1) and ICC(2) indices (following Biemann et al., 2012). ICC(1) is used to estimate the accuracy of a single respondent, with higher index values indicating higher reliability. The ICC(1) for nonfamily members rating FSC was -0.04, suggesting that individual nonfamily members' judgments of FSC are not reliable and do not represent the average value at the firm level. In contrast, the high values of the remaining four cases (all positive) suggest that the ratings provided by respondents are highly reliable and can be used interchangeably with the average firm score.

Group consistency is calculated using ICC(2) (Cole et al., 2013). The ICC(2) indices were 0.63 and 0.74 for NF-FF according to family members and nonfamily members, respectively; 0.35 and -0.08 for FSC among family members and nonfamily members, respectively; and 0.20 for NFF among members of nonfamily firms. Again, all but one of these coefficients satisfy the suggested criteria for data aggregation (Gilson, Mathieu, Shalley, & Ruddy, 2016; Schneider, Ehrhart, Mayer, Saltz, & Niles-Jolly, 2005) and justify the common practice of using single respondents. The exception is the following: if researchers aim to measure FSC, questionnaires should be answered by family members, as nonfamily members fail to agree on the quality of relationships among family members.