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The impact of perceived CSR on corporate reputation and purchase intention

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Abstract

Purpose – The purpose of this paper is to examine the influence of consumers' perceived corporate social responsibility (CSR). The aim is to provide insight into the effect of perceived CSR on purchase intention (short-term effect) and corporate reputation (long-term effect), whilst considering the role of brand image, satisfaction (affective and cognitive) and brand loyalty.

Design/methodology/approach – The sample comprised 429 consumers selected using non-probabilistic sampling with age and gender quotas. Confirmatory factor analysis was used to validate the measurement model. Structural equation modelling was used to validate the research hypotheses.

Findings – All direct and mediated influences in the model were significant, except for the effects of perceived CSR on affective satisfaction. Thus, the proposed causal chain is valuable to understand how perceptions of CSR influence purchase intention and perceived reputation.

Research limitations/implications – Perception is considered a dual phenomenon (cognitive and affective). It would be advisable to consider both dimensions in the future. The same is true of affective satisfaction.

Originality/value – Direct and mediated relationships that have previously been studied separately are considered together in a single model. This approach provides a better understanding of how perceived CSR influences purchase intention and reputation.

Keywords Corporate social responsibility, Brand image, Affective and cognitive satisfaction, Loyalty, Reputation, Purchase intention

Paper type Research paper

1. Introduction

Corporate social responsibility (CSR) is crucial under the approach of sustainable economics because it encourages firms to actively improve their social, economic and environmental context, thereby creating value for consumers (Green and Peloza, 2011). CSR can be considered both a strategy and a management system for developing competitive advantages (Motilewa and Worlu, 2015), making social and environmental issues a core rather than peripheral part of the business (Porter and Kramer, 2011).

The literature provides evidence of the positive influence of consumers' perceived CSR on purchase intentions (Aksak *et al.*, 2016; Bigné *et al.*, 2005) and perceived corporate

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reputation (Hur *et al.*, 2014; Park *et al.*, 2014). However, scholars have tended to develop simple models to study the influence of perceived CSR on important yet highly specific aspects such as brand image (Alvarado and Schlesinger, 2008), affective and cognitive satisfaction (Bigné *et al.*, 2011) and loyalty (de los Salmones *et al.*, 2007). These models have the advantage of rigorously exploring the internal issues associated with the target phenomena, but they ignore the interrelations between these phenomena. Thus, they fail to provide a broad overview that aids our understanding of how perceived CSR influences purchase intention (short-term influence) and perceived reputation (long-term influence).

To mitigate this shortcoming, our aim is to bring together in a single model the aforementioned phenomena as classical relational variables (Alvarado-Herrera *et al.*, 2015). The goal is to improve our understanding of the causal chain via which perceived CSR influences purchase intention and perceived reputation. To achieve this goal, we have divided the remainder of this paper into four sections. The next section presents a literature review of the full range of theoretical constructs that support the proposed conceptual model describing CSR. The following section describes the method, sample and variables used in this study. The penultimate section presents the quantitative findings, reporting the model's fit and the results of the hypothesis testing. The final section provides the academic and managerial implications of this research.

2. Literature review

2.1 CSR and consumer response variables

According to stakeholder theory, firms must accept certain social responsibilities that transcend purely economic considerations (Bigné *et al.*, 2005), with an emphasis on handling ethical concerns. Almost in parallel with the emergence of this theory, the “sustainability paradigm” echoes this idea, stressing the goal of meeting today's needs without compromising the development of future generations. CSR refers to the voluntary initiatives that the firm undertakes to champion social and environmental causes and communicates to stakeholders to garner their support (Taghian *et al.*, 2015) through transparent, ethical processes.

These initiatives can contribute to forging relationships with different stakeholders (Lai *et al.*, 2010), including the consumer, a key stakeholder who acts as both recipient and judge of these initiatives when making purchase decisions (Mohr *et al.*, 2001; Aksak *et al.*, 2016). In fact, consumers tend to identify more with firms that undertake CSR initiatives because doing so boosts self-esteem and increases satisfaction (Chung *et al.*, 2015).

Corporate management seeks not only to pursue short-term survival or improvement but also to develop strategies that create enduring competitive advantages. In the case of the former, marketing managers have traditionally used purchase intention as a proxy for future sales (Morwitz *et al.*, 2007) and satisfaction and loyalty as predictors of future business development (Eskildsen and Kristensen, 2008). In the case of long-term competitive advantages, reputation is another indicator that measures accumulated prestige, enabling firms to create customer loyalty whilst reducing stakeholder-related risks (Siano *et al.*, 2010).

Intention, satisfaction, loyalty and reputation all reflect the consumer's predisposition towards the brand and the company, be it positive or negative. All largely depend on the consumer's perceptions. Ellen *et al.* (2006) found that CSR affects purchase intention as a function of the motives that the consumer ascribes to these initiatives. According to the aforementioned study, purchase intention is enhanced by motives that are values driven or strategic and is undermined by selfish motives (i.e. for the benefit of the firm), whilst there is no significant effect if the motive is stakeholder driven.

Perceived reputation refers to an assessment of the general image that consumers have of the firm (Fombrun and van Riel, 2004). It is a representation of the firm's record and perceptions of the firm's future. It is a cumulative and collective judgement that combines the appeal or scorn ascribed by the market for either best practices adopted

by the firm (e.g. Lego and Google) or harm that consumers feel the firm has inflicted (e.g. Goldman Sachs and Monsanto). Under this approach, reputation is vulnerable to risk derived from specific crises and the social and environmental impact of the firm's activities.

2.2 Consumers' perceived CSR

The way in which consumers perceive CSR can affect purchase intentions and corporate reputation. Mohr *et al.* (2001) showed that the evaluation of products, companies and purchase intentions depends on the amount and nature of the CSR information that is shared. Lee and Shin (2010) found a positive relationship between perceived CSR and purchase intention. Gatti *et al.* (2012) reported that CSR, together with perceived quality, can provide a competitive advantage by influencing purchase intentions. These authors reported a positive effect of CSR on purchase intention via mediators such as attitude towards corporate experience and values. Likewise, Lee and Lee (2015) suggested that beliefs about CSR positively affect purchase intention through consumer ethics. In other words, perceived CSR can affect purchase intention.

Perceived CSR and perceived reputation are two sides of the same coin. A minimum degree of credibility is necessary to undertake CSR initiatives because consumers can be sceptical towards this type of initiative when undertaken by companies with corporate image issues (Liebl, 2011). Therefore, reputation is an intangible asset that is scarce and difficult to imitate (Rodríguez, 2002) and that is effective at promoting consumer purchase intentions (Pirsch *et al.*, 2007; Aksak *et al.*, 2016) and corporate reputation (Park *et al.*, 2014)[1].

2.3 Perceived CSR as an antecedent to brand image

Brand image is a subjective, perceptual phenomenon that is formed through rational and emotional interpretation (Alwi and Kitchen, 2014). Brand image transcends the technical, functional or physical properties of the product because it is linked to the personality of the subject and is developed through the interactions between the brand and its stakeholders (Bigné and Currás, 2008).

The literature indicates that perceived CSR affects brand image cognitively and affectively (He and Li, 2011) because it provides information on the values of the company (Martínez *et al.*, 2014), although the valence of this influence may vary by stakeholder (Popoli, 2011). Wu and Wang (2014) also affirmed that this relationship exists, although they noted that different dimensions of perceived CSR exert different degrees of influence. Nevertheless, there is a consensus that brand image is strengthened by CSR if the firm knows how to elicit trust, build credibility and develop a solid reputation in the eyes of others (Maldonado *et al.*, 2017).

From a strategic perspective, Werther and Chandler (2005) argued that the perception of CSR initiatives may offer a form of insurance for the firm by aiding its positioning. However, Aldás *et al.* (2013) argued that positioning occurs whenever CSR is an intrinsic component of the global strategy of the business. The impact of perceived CSR on brand image also varies depending on the consumer's evaluation processes, and it has positive valence (Martínez *et al.*, 2014; Sen and Bhattacharya, 2001). Based on these arguments, we propose the following hypothesis:

H1. Perceived CSR has a direct positive effect on brand image.

2.4 Perceived CSR as an antecedent to satisfaction

Customer satisfaction is a key concept in marketing. It can be interpreted as an overall evaluation of a product, service or firm based on an emotional or cognitive response and

associated with a specific event that occurs at some specific time (Espejel *et al.*, 2008). Customer satisfaction has been examined extensively in the literature, principally from the perspective of Oliver's (2014) model of expectation disconfirmation theory. Satisfaction can be understood as the gap between what consumers perceive they have received and their expectations prior to consumption. Under this approach, disconfirmation mediates the relationship between the perceived outcome and satisfaction, although there is also a direct relationship between the actual outcome and satisfaction, which is one of the standard metrics used by marketing managers (Farris *et al.*, 2010).

Satisfaction has a certain duality. It can be conceived as a cognitive–affective state resulting from rational evaluations (e.g. assessment of functionality and compliance with attributes and behaviours) and feelings (Matilla and Wirtz, 2000), which separately or jointly create a state of consumer activation and encourage subsequent behaviour.

Customer satisfaction has been cited as a consequence of CSR (Luo and Bhattacharya, 2006). Numerous authors have reported that perceived CSR directly influences satisfaction (Rivera *et al.*, 2016; Saeidi *et al.*, 2015). Bigné *et al.* (2011) also showed that CSR influences satisfaction, but conceptualised satisfaction as a two-dimensional construct consisting of affective and cognitive dimensions. We therefore propose the following hypotheses:

H2a. Perceived CSR has a direct positive effect on cognitive satisfaction.

H2b. Perceived CSR has a direct positive effect on affective satisfaction.

2.5 The relationship between brand image and satisfaction

A direct positive relationship between brand image and satisfaction has been well established, having been studied for a wide range of sectors. The relationship has also been studied in the context of CSR, and scholars have reported a relationship between CSR and customer satisfaction (Martínez and Rodríguez, 2013). Bigné and Andreu (2004) illustrated the cognitive–affective nature of satisfaction, combining the idea of disconfirmation with affective elements from environmental psychology.

However, we have found few studies in the area of CSR that have examined the relationship between brand image and customer satisfaction. Rivera *et al.* (2016) recently addressed the role of attitude instead of brand image, reporting the direct influence of CSR on customer satisfaction. Only Wu and Wang (2014) have studied the relationship between the dimensions of CSR (customer, employee, environment, economy and community) and customer satisfaction, considering brand image (functional, symbolic and experiential) and brand attitude as mediating variables. They observed significant relationships between perceived CSR and brand image and between image and satisfaction mediated by brand attitude. We therefore propose the following hypotheses:

H3a. Brand image has a direct positive effect on cognitive satisfaction.

H3b. Brand image has a direct positive effect on affective satisfaction.

2.6 Satisfaction as an antecedent to loyalty

Loyalty can be understood as trust in or a desire to preserve a relationship with a brand or firm (Delgado-Ballester and Munuera-Alemán, 2001). It entails rewards for both the firm (by enabling better marketing management and easier strategic planning) and the customer (by offering service and price benefits and reducing risks associated with switching brands) (Magatef and Tomalieh, 2015). The influence of satisfaction on loyalty has been confirmed for a range of sectors. Indeed, satisfaction is considered a necessary element to develop loyalty, although it has also been suggested that satisfaction alone is not sufficient to explain loyalty (Bielen and Demoulin, 2007).

Matute-Vallejo *et al.* (2011) and Chung *et al.* (2015) have reported a direct link between perceived CSR and satisfaction and an indirect link (via satisfaction) between CSR and loyalty. Martínez and Rodríguez (2013) studied the relationship between CSR and loyalty in the hotel sector, where loyalty is indirectly influenced by CSR through the mediating roles of trust, consumer identification and satisfaction. The aforementioned authors observed that despite theoretical (Sen and Bhattacharya, 2001) and empirical (Marin *et al.*, 2009) evidence of the relationship between loyalty and CSR, our understanding of the ways in which this relationship arises is limited. However, Martínez *et al.* (2014) found a direct positive relationship between perceived CSR and loyalty.

Pérez and Rodríguez (2015) reported an indirect effect of perceived CSR on loyalty mediated by identification, emotions and satisfaction. They identified two paths through which CSR creates loyalty and satisfaction. The first is through the beliefs and emotions elicited by the firm at the institutional level, whereas the second is through the emotions, feelings and attitudes generated by the product. We therefore propose the following hypotheses:

H4a. Cognitive satisfaction has a direct positive effect on brand loyalty.

H4b. Affective satisfaction has a direct positive effect on brand loyalty.

2.7 Loyalty as an antecedent to purchase intention and corporate reputation

Purchase intention is a key indicator for firms. It helps them to predict the likelihood that a consumer makes a purchase within a given period and acts as a proxy for actual behaviour (Farris *et al.*, 2010). The literature defines purchase intention from two angles: as a preference to re-purchase a given product and as the probability that the consumer chooses a particular product. The first case refers to the post-purchase behaviour of existing customers, whereas the second case refers to an indicator of general consumer preferences (whether or not the consumer is an existing customer) in relation to whether the consumer perceives that the product or brand meets her or his expectations, needs and desires.

This preference may be modulated by a wide range of factors such as experience, cognitions, emotions and so forth. One of these factors is the actual behaviour of the firm. The literature provides solid evidence that CSR behaviour is an important factor behind consumers' purchase decision processes (Creyer and Ross, 1997). Scholars have also reported that perceived CSR strengthens consumer loyalty, which increases the likelihood of choosing the firm's products (Chen *et al.*, 2015).

The literature shows that loyalty plays an important role in purchase intention (Hong and Cho, 2011). We therefore propose the following hypothesis:

H5a. Brand loyalty has a direct positive effect on purchase intention.

It is widely accepted that corporate reputation is an antecedent to brand loyalty (Walsh *et al.*, 2009), playing an important role in the management of the firm's reputation. Thus, a good reputation potentially boosts loyalty. However, CSR is not an instrument to handle crises or an insurance policy against crises. It is a relational strategic approach that the firm adopts with respect to society and its environment. Because reputation can be perceived as a cumulative and collective judgement, it can also be based on individual's loyalty, which may or may not strengthen the firm's reputation. We can therefore establish the following hypothesis, which posits the influence of loyalty on the consumer's opinion or idea of the firm:

H5b. Brand loyalty has a direct positive effect on corporate reputation.

3. Method

3.1 Participants

All individuals contacted for this study were at least 18 years old. They were selected using non-probabilistic sampling based on gender and age quotas. The sample comprised 456 individuals. The elimination of outliers reduced the sample to 429 valid cases. In terms of gender, 56.6 per cent of the individuals in the sample were women. Regarding age, 25.7 per cent were aged under 30 years, 31.3 per cent were aged 31–45 years, 24.3 per cent were aged 46–65 years and 18.7 per cent were aged over 65 years. Finally, we established four groups by level of education: incomplete secondary studies (7.7 per cent), complete secondary studies (13.3 per cent), incomplete university studies (36.6 per cent) and complete university studies (42.4 per cent).

The sample had a slightly higher proportion of women than men (the population of Argentina consists of 51 per cent women). There was a high presence of individuals aged 31–45 years (the mean age in Argentina is 34.4 years). There was a bias towards people with higher education, so the sample did not reflect the mean for Argentina (9 per cent according to the National Institute of Statistics and Censuses, Instituto Nacional de Estadística y Censos, 2018). We accepted this bias because the questionnaire contained certain complex items that required a minimum level of education to respond.

3.2 Measures

Perceived CSR. We considered the five basic dimensions of CSR: economic, social, philanthropic, environmental and ethical/legal (Dahlsrud, 2008). We selected items related to each of these dimensions. We focused particularly on the social dimension because it is considered the most difficult dimension to measure (Beske-Janssen *et al.*, 2015).

Brand image. Because of the sheer range of constructs covered by brand image, the literature presents both unidimensional and multidimensional scales. We used Villarejo-Ramos's (2002) scale because it is unidimensional and does not refer to any specific product.

Satisfaction (cognitive and affective). We adopted Oliver's (2014) definition, distinguishing between cognitive and affective satisfaction. We borrowed the measure from Bigné *et al.* (2011). This measure has three cognitive items and five affective items. We removed the item "I enjoy staying in [...]" because it was unrelated to our study. The aforementioned authors reported high reliability (0.82–0.93).

Brand loyalty. We used the scaled developed by Wong (2004) because of its high reliability (0.90–0.92). This scale was designed to measure loyalty towards a shop. However, we adapted it for use in relation to the respondent's selected brand using four items related to saying positive things about the brand, recommending the brand, encouraging others to buy the brand's products and considering the brand as a first choice.

Purchase intention. We conceptualised purchase intention as an initial preference that leads to a future desire to purchase a given product. We used Putrevu and Lord's (1994) three-item scale. These items relate to intentions regarding the next purchase, purchasing in the long term and the surety of making a purchase. This scale has been used by Bigné and Currás (2008) and Chen *et al.* (2015) with high reliability (0.81–0.91).

Perceived reputation (REP). We adopted the definition used by Fombrun and van Riel (2004). Our three-item measure was based on research by Ahearne *et al.* (2005) (for the item "company X is well respected") and Schwaiger (2004) (for the items "[...] is one of the best in the sector" and "[...] is well established"). These last two items were used by Riley *et al.* (2014) for the reputation dimension of the brand image construct. There are no available data on the reliability of this scale.

All items were based on seven-point Likert-type scales (1 = completely disagree; 7 = completely agree). Table I lists the scales, their dimensions, the items and the sources.

Items	Dimension	Research
<i>Perceived CSR: the brand/company...</i>		
pCSR1: ...treats employees very well ^a	Economic	Bigné <i>et al.</i> (2005),
pCSR2: ...is socially responsible	Social	Bigné and Currás (2008),
pCSR3: ...helps civil society organisations in the community	Philanthropic	Dean
pCSR4: ...is committed to ecological issues	Environmental	Lichtenstein <i>et al.</i> (2004),
pCSR5: ...returns some of what it has received to society	Social	Maignan and Ferrell (2001),
pCSR6: ...act thinking about society	Social	Menon and Kahn (2003),
pCSR7: ...integrates philanthropic contributions in their business activities	Philanthropic	Van Herpen <i>et al.</i> (2003)
pCSR8: ...behaves honestly with their customers	Ethics	
pCSR9: ...respect the legal regulations ^a	Legal	
<i>Brand image: the brand/company X...</i>		
IMA1: ...has a strong personality ^a		Villarejo-Ramos (2002)
IMA2: ...has a powerful image		
IMA3: ...is very good		
IMA4: ...is a very nice brand/company		
IMA5: ...is a very attractive brand/company		
IMA6: ...is a hugely sympathetic brand/company ^a		
<i>Satisfaction</i>		
CS1: buying the brand/company was an intelligent decision for me	Cognitive	Bigné <i>et al.</i> (2011)
CS2: I think I did the right thing by buying this brand/company		
CS3: the brand offers exactly what I needed/expected from it		
AS1: the brand/company has made a positive impression on me	Affective	
AS2: I like to buy that brand/products of that company		
AS3: buy that (brand/ use the products) of that company I find it great.		
<i>Loyalty</i>		
Leal1: I say positive things about brand/company to other people		Wong (2004)
Leal2: I recommend to others this brand/company		
Leal3: I encourage friends and relatives to buy that brand/company		
Leal4: I consider that brand/company my first choice ^a		
<i>Purchase intention</i>		
INT1: I will purchase brand/company the next time I need a product		Putrevu and Lord (1994),
INT2: it is very likely that I will buy that brand/company		Bigné and Currás (2008),
INT3: definitely, I will buy some product of that brand/company		Chen <i>et al.</i> (2015)
<i>Perceived reputation: the brand/company...</i>		
REP1: ...is one of the best in the sector		Ahearne <i>et al.</i> (2005),
REP2: ...is well established		Schwaiger (2004),
REP3: ...is well respected		Riley <i>et al.</i> (2014)
Note: ^a Items eliminated in the pre-test phase		

Table I.
Measurement scales

3.3 Study design

To test the model, we conducted a quantitative study. The first phase consisted of an exploratory study of the most prominent consumer categories in Argentina with firms that were recognisable for consumers. The categories were food and drink, electrical appliances, cosmetics, clothing, school items, children's toys, tourism and technology. The second phase consisted of developing the scales to measure the variables in the model. During this phase, a structured pilot questionnaire was developed and administered through a personal survey at respondents' homes.

Because some variables were constructed using items from different sources and because we had some concerns over respondents' comprehension, the third phase consisted of a pre-test. The pre-test was carried out with undergraduate university students, whose collaboration helped to create the items and ensure comprehension (Hinkin, 1995). The aim of the pre-test was to check the structural features of the questionnaire, formulation of the items, understanding of questionnaire content and ease of response. We also confirmed that the questionnaire could be adapted to the eight product categories mentioned earlier. Following the pre-test, we eliminated two items for perceived CSR (pCSR1 and pCSR9). Respondents indicated that they were unable to respond to these items because they felt that these items depended more on knowledge than on perceptions. We changed the way certain items were phrased to enhance respondents' understanding. We also removed two brand image items (IMA1 and IMA6) because they could not be understood and one loyalty item (LEAL4) because "priority" could be interpreted in several ways. Finally, we decided that the respondents should focus their responses on the brand of the last purchase they made after identifying what they recognised as the most socially responsible brand in the chosen product category.

The last phase consisted of designing the procedure for the pen-and-paper and electronic data collection. Data were collected in September and October 2015 in Córdoba (Argentina). Córdoba, Buenos Aires and Rosario are home to 70 per cent of the population of Argentina. This status makes Córdoba representative of Argentina.

4. Results

We performed the analyses in two stages. First, we conducted confirmatory factor analysis to validate the measurement model (reliability and validity). Next, we used structural equation modelling to test our hypotheses.

4.1 Validation of the measurement model

We performed confirmatory factor analysis of covariance structures using the robust maximum likelihood method because multivariate normality did not hold (Mardia test = 231.11). Using all items (except those eliminated following the pre-test) yielded good values for the fit indicators (BBNFI = 0.90; IFI = 0.94, CFI = 0.94), with an RMSEA value of 0.05. The value for the robust fit statistic $\chi^2_{\text{Satorra-Bentler}}$ of 573.82 ($df = 278, p = 0.00$) was significant because of the effect of the large sample size. After we eliminated this effect, the value for χ^2 -normed of 2.06 fell within the acceptable range recommended in the literature (Schreiber *et al.*, 2006).

However, we observed problems with perceived CSR because the factor loadings for pCSR6 and pCSR8 were low and their respective R^2 values were less than 0.4. Given the reflective nature of these items, we deleted both from the perceived CSR scale and recalculated the goodness of fit for the measurement model. The new configuration had a better fit (BBNFI = 0.91, IFI = 0.96, CFI = 0.96), with an RMSEA value of 0.05. The value for the robust fit statistic $\chi^2_{\text{Satorra-Bentler}}$ of 445.50 ($df = 231, p = 0.00$) was still significant, and the value for the χ^2 -normed of 1.92 was lower than the previous value and was acceptable.

We measured reliability using Cronbach's α and the composite reliability (CR). Values for these measures were greater than 0.8 for all variables, thereby meeting the requirement of $\min(\alpha, CR) = 0.7$. We assessed convergent validity using two criteria: factor loadings of all items should be greater than 0.5 and significant, and the average variance extracted (AVE) should be greater than 0.5. In both cases, the minimum requirements for reliability and convergent validity were met (see Table II).

Discriminant validity was also checked using two criteria: confidence intervals and the test of AVE. The confidence intervals for the correlations between variables should not

Construct	Item	M(SD)	Li	R ²	α	CR	AVE
Perceived CSR (pCSR)	pCSR2	4.96 (1.26)	0.65	0.42	0.84	0.85	0.53
	pCSR3	4.12 (1.24)	0.74	0.55			
	pCSR4	4.39 (1.50)	0.80	0.65			
	pCSR5	4.13 (1.39)	0.76	0.58			
	pCSR7	4.06 (1.26)	0.65	0.43			
Brand image (IMA)	IMA2	5.91 (1.24)	0.74	0.54	0.87	0.87	0.63
	IMA3	6.12 (1.06)	0.89	0.78			
	IMA4	5.92 (1.13)	0.77	0.59			
	IMA5	5.86 (1.23)	0.78	0.60			
Cognitive satisfaction (CS)	CS1	5.81 (1.11)	0.78	0.61	0.83	0.87	0.65
	CS2	5.93 (1.02)	0.89	0.80			
	CS3	5.92 (1.06)	0.74	0.54			
Affective satisfaction (AS)	AS1	6.02 (1.03)	0.86	0.74	0.89	0.89	0.73
	AS2	5.98 (1.07)	0.87	0.76			
	AS3	5.61 (1.21)	0.83	0.69			
Loyalty (LEAL)	LEAL1	5.69 (1.20)	0.83	0.69	0.87	0.88	0.71
	LEAL2	5.59 (1.26)	0.88	0.78			
	LEAL3	5.22 (1.49)	0.81	0.66			
Purchase intention (INT)	INT1	5.49 (1.32)	0.90	0.81	0.91	0.91	0.76
	INT2	5.72 (1.24)	0.89	0.80			
	INT3	5.47 (1.43)	0.83	0.69			
Perceived reputation (REP)	REP1	5.48 (1.34)	0.80	0.68	0.87	0.88	0.71
	REP2	5.83 (1.18)	0.88	0.77			
	REP3	5.60 (1.24)	0.85	0.72			

Table II.
Reliability and
convergent validity

Notes: M, mean; Li, factor loading; α , Cronbach's α ; CR, composite reliability; AVE, average variance extracted

contain the value 1. No confidence interval for each pair of variables contained a correlation equal to 1. For the second criterion, we compared the AVE for each factor with the squared correlation between each pair of factors. Discriminant validity holds if the AVE values for two factors are both greater than the squared value of the correlation between those factors. This condition held for all values of AVE and all correlations.

4.2 Structural model results

We performed regression analysis of the structural model. Thus, we accept *H1* because perceived CSR influenced brand image ($\beta = 0.31$; $p < 0.01$). Perceived CSR also influenced satisfaction, but only for the cognitive dimension (*H2a*: $\beta = 0.11$; $p < 0.05$) and not for the affective dimension (*H2b*: $\beta = 0.06$; $p > 0.05$). We accept *H3a* and *H3b* because the influence of brand image on satisfaction (cognitive and affective) was significant, although the influence on the affective component ($\beta = 0.70$; $p < 0.01$) was greater than the influence on the cognitive component ($\beta = 0.53$; $p < 0.01$).

The two dimensions of satisfaction exerted a direct positive influence on brand loyalty. The influence of cognitive satisfaction (*H4a*: $\beta = 0.39$; $p < 0.01$) was weaker than the influence of affective satisfaction (*H4b*: $\beta = 0.53$; $p < 0.01$). It was therefore possible to deduce that the effect of brand image on loyalty was strong ($\beta_{\text{Total effect}} = 0.60$, $p < 0.01$), indicating that brand image is closely linked to loyalty through cognitive and affective satisfaction. The indirect effect of brand image on loyalty through cognitive satisfaction was 0.23 (brand image–cognitive satisfaction = $0.59 \times$ cognitive satisfaction–loyalty = 0.39) and the effect through affective satisfaction was 0.37 (brand image–affective satisfaction = $0.70 \times$ affective satisfaction–loyalty = 0.53). Thus, the mediating effect of affective satisfaction was greater than the mediating effect of cognitive satisfaction on the relationship between brand image and loyalty. Finally, the influence of loyalty on purchase

intention (*H5a*: $\beta = 0.71$; $p < 0.01$) and the influence of loyalty on reputation (*H5b*: $\beta = 0.62$; $p < 0.01$) were confirmed. Table III provides a summary of these results.

Because the model showed the mediation of the endogenous variables, it was advisable to check whether the effects of mediation were significant. Table IV shows that all were highly significant (all t -values > 4.00 , $p < 0.001$). Notably, all indirect effects of perceived CSR on the other dependent variables in the model were significant. The same occurred with the other endogenous mediating variables.

5. Conclusions

We observed that the proposed relationships were consistent with those described in the literature in terms of both direct relationships and indirect effects. We also observed high coefficients of determination, which implies that the model is capable of explaining purchase intention and corporate reputation in the context of perceived CSR. This conclusion supports the idea that the proposed causal chain captures important relationships and indicates that perceived CSR has a significant indirect effect on purchase intention and perceived reputation.

However, we did not observe the expected results regarding the influence of perceived CSR on the affective component of satisfaction. Our findings differed in this regard from those reported by Bigné *et al.* (2011). More specifically, we did not observe a direct effect,

Efectos	β	Hypothesis	R^2
<i>H1</i> : pCSR → IMA	0.309**	<i>H1</i> (accepted)	0.095
<i>H2a</i> : pCSR → CS	0.105*	<i>H2a</i> (accepted)	0.400
<i>H3a</i> : IMA → CS	0.594**	<i>H3a</i> (accepted)	
<i>H2b</i> : pCSR → AS	0.034ns	<i>H2b</i> (not accepted)	0.521
<i>H3b</i> : IMA → AS	0.711**	<i>H3b</i> (accepted)	
<i>H4a</i> : CS → LEAL	0.396**	<i>H4a</i> (accepted)	0.622
<i>H4b</i> : AS → LEAL	0.522**	<i>H4b</i> (accepted)	
<i>H5a</i> : LEAL → INT	0.708**	<i>H5a</i> (accepted)	0.500
<i>H5b</i> : LEAL → REP	0.622**	<i>H5b</i> (accepted)	0.390

Notes: Standardized estimates. * $p < 0.05$; ** $p < 0.01$

Table III.
Structural equation model results

Indirect effect	β (t -value)
<i>Through brand image</i>	
pCSR → Cognitive satisfaction (CS)	0.17 (4.40)
pCSR → Satisfaction affective (AS)	0.20 (4.41)
<i>Through satisfaction (CS and AS)</i>	
pCSR → Loyalty	0.25 (5.10)
Brand image → Loyalty	0.68 (6.79)
<i>Through loyalty</i>	
CS → Purchase intention	0.36 (7.53)
CS → Perceived reputation	0.29 (7.53)
AS → Purchase intention	0.50 (9.23)
AS → Perceived reputation	0.40 (7.79)
<i>pCSR to dependent construct</i>	
pCSR → Purchase intention	0.21 (4.44)
pCSR → Perceived reputation	0.17 (4.77)

Note: All t -value > 4.00 ($p < 0.001$)

Table IV.
Analysis of effects of mediation (standardized solution)

although we did observe an indirect effect when brand image mediated the relationship. This finding has two possible explanations. First, the measure that we used to capture consumers' perceptions focused on the rational aspects of CSR. A review of the content of the items showed that no item was related to affect, feelings or emotions. Thus, not accepting *H2b* is reasonable. For example, it is possible for two different consumers (one in favour of social causes and another against them) to give the same scores to the item "brand X helps social organisations in the community" because the firm objectively helps in this way. However, if this item had been worded to capture emotional aspects (e.g. "I feel that brand X helps as companies should through CSR"), the scores given by each respondent might have differed. The second explanation is that the perception of cognitive aspects of CSR contributes to satisfaction through brand image because brand image is based on what consumers think and feel about the company and brand (Keller, 1993).

Despite being measured in terms of rational considerations, perceived CSR had a significant indirect effect on reputation, which is built over time, and purchase intention, which is a short-term response. This finding reflects the importance that firms ensure that consumers are aware of CSR initiatives. This finding is consistent with those reported by Andreu *et al.* (2015), who showed that rational messages help raise consumers' awareness of CSR.

Our findings have three direct implications for firms. First, if consumers do not perceive CSR initiatives, firms will struggle to view CSR as a strategic investment, as already affirmed by Andreu *et al.* (2015). Second, considering that consumers have little awareness of CSR initiatives, companies should develop communication strategies that promote these initiatives as being positive for society and the environment as well as for the firm. Finally, perceived CSR is an important antecedent to promote brand image and customer satisfaction and loyalty. CSR has the ability to have a short-term impact, by encouraging purchase intentions, and a long-term effect, by helping to develop the firm's reputational capital, which can provide a competitive advantage.

Like all research works, this study has limitations related to the sample. More specifically, the study used a non-random sample of consumers from one city in Argentina. The study also has contextual limitations. The study was performed in a moment of political turmoil in a politically and economically polarised country. It was therefore difficult to elicit consumer sentiment regarding consumers' perceptions of firms' social, economic and environmental responsibility given the social and economic situation facing these consumers. Furthermore, the essentially cognitive measure of perceived CSR meant that the influence on affect was not captured. The fact that perception can be considered a dual construct (cognitive and affective) reflects the interest in studying both dimensions. Because this study focused on the measurement of the cognitive dimension, we advocate considering the affective component when measuring perceived CSR.

Note

1. A summary of contributions from 2004 to 2016 is available from the corresponding author upon request.

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Brand authenticity leads to perceived value and brand trust

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Abstract

Purpose – This paper investigates consumer perceptions of brand authenticity (BA), perceived value (PV) and brand trust (BT) into the context of craft beer market. The purpose of this paper is to examine the statistical associations between these constructs as well as the three antecedents of BA: individuality, consistency and continuity.

Design/methodology/approach – The survey, delivered in an online format, was completed by 749 respondents from the USA. These respondents were gained through a basic simple random sampling technique. After conducting data analysis techniques such as reliability, correlation and regression, all five research hypotheses were accepted.

Findings – All three antecedents of BA were found to have significant influence on the first-order construct. Also, BA was shown to have a substantial effect on both PV and BT. The relationship between brand individuality and BA was the most significant of the five, while the association between BA and PV was found to be the least significant.

Originality/value – Prior research on BA, the majority of which has involved a qualitative approach, has been severely limited. The authors' work deepens the study of the effects of BA, or its various antecedents, on PV and BT, enhancing the research with an empirical, quantitative analysis. In addition to the shortage of investigation related to these factors, there has been a nearly complete absence of the application of these variables to the craft beer market.

Keywords Perceived value, Brand trust, Brand authenticity, Craft beer market, Individuality, Consistency, Continuity

Paper type Research paper

1. Introduction

Nowadays, consumers are faced with increasing commercialization of products and a globalization market (Morhart *et al.*, 2015). Consumers look for brands that are relevant and genuine. They increasingly search for authenticity in brands because of authenticity has overtaken quality as the prevailing purchasing criterion (Gilmore and Pine, 2007). Authenticity begins to capture interest amongst marketers, keen to analyze on consumer preference for authentic offerings (Taheri *et al.*, 2018), which enhances consumer experience (both in terms of the consumer's subjectivity and in relation to their experience with others). Therefore, delivering authentic experiences to consumers is necessary (Kim and Bonn, 2016).

While the more-general concepts of branding, brand equity and brand loyalty have been studied in great detail by a variety of authors (Šeinauskienė *et al.*, 2015; Abril and Rodriguez-Cánovas, 2016; Yeh *et al.*, 2016), little examination of the brand authenticity (BA) construct has been conducted (Morhart *et al.*, 2015), presenting a significant research gap. This sentiment is



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clearly shared by Schallehn *et al.* (2014), when they say “brand authenticity theory is in its infancy” (p. 195). In addition, Napoli *et al.* (2014) said, “it provides a tool by which firms can evaluate the effectiveness of strategic decisions designed to deliver an authentic brand offering to consumers” (p. 1090). Thus, both academics and practitioners therefore agree on the importance of authenticity for consumer behavior and branding (Morhart *et al.*, 2015).

Furthermore, there is a substantial lack of research regarding the effects of BA, or its various antecedents, on perceived value (PV) and brand trust (BT). In addition, there has been a nearly complete absence of the application of these variables to the craft beer context (Gundlach and Neville, 2012). In the craft beer market, many opportunities are present for the creation and renewal of authenticity as well as its numerous advantages (Fritz *et al.*, 2017). Giving credence to this belief is the statement that beverages are highly symbolic and richly connotative product classes coupled with the view that BA involves symbolism and genuine meaning. Therefore, this type of product has an innate foundation and prospect for generating authenticity in the minds of consumers.

In this research, we propose a conceptual framework to analyze how BA leads to PV and BT on the context of craft beer market. Following Withers (2017), craft beer is conceptualized as a beer that is brewed, bottled, and sold by a privately owned brewery; is small in production; and contains only traditional ingredients. Moreover, our findings can serve as a guideline for managers and executives to generate higher consumer perceptions of brand individuality (BI), brand consistency (BCons) and brand continuity (BCont).

By providing empirically validated results demonstrating the proposed relationships, marketers and managers will be able to more precisely explain and justify marketing budgets aimed at increasing these perceptions.

In order to achieve the research objective, this research has been divided into four sections: literature review, research methodology, results, and overall discussion and conclusions.

2. Literature review

2.1 The BA construct

The concept of BA, while a recent focus of modern researchers, has grown and evolved rapidly both in definition and conceptualization. The result of this rapid development is a plethora of definitions created by an array of authors. It can be said that authenticity is a much more complex phenomenon than the simple fact of being genuine or original, although this view is evident in many early definitions (Alexander, 2009). Social-scientific sources hardly ever attempt to pinpoint the meaning of authenticity with any degree of precision, due to it being so notoriously difficult to define. They typically opt for a more or less comprehensive enumeration of meanings and connotations (O'Neill *et al.*, 2014).

The concept of authenticity has its roots in Greek philosophy (“To thine own self be true”). Later studies approach authenticity from a diverse approach as “a general preoccupation of modern Western culture” (Liu, Yannopoulou, Bian and Elliott, 2015) immerse in a competition in lifestyle display multicultural (Potter, 2010), as manifestations and antecedents in marketing communications (Ibarra, 2015), and as authenticity in the leadership tending to latch on to authenticity as an excuse for sticking with what is comfortable for ourselves (Liu, Cutcher and Grant, 2015). Or, as marketing literature (Gilmore and Pine, 2007) puts it, stands as “authenticity is what consumers want” (O'Neill *et al.*, 2014). In sum, authenticity is often used to denote a product or other object that is the real, genuine article and not an imitation (Chhabra and Kim, 2018). In this sense, consumers tend to seek traditional or historical products in their pursuit of authentic encounters.

This is particularly noteworthy in the craft beer market, as many companies advertise traditional methods of production, while opting out of including the current, industrial aspects that are truly at the heart of modern manufacturing. Until recently, much of the authenticity research has focused on a single dimension: how real or genuine a product is

another example of this can be found in the work of Fine (2003) as the author describes self-taught artistic endeavors as consisting of sincerity, innocence and originality. Contrary to this belief, many studies have shown that authenticity can, in fact, reveal itself in a multitude of ways for different products or categories (Lu *et al.*, 2015).

According to Interbrand (2014, p. 68), “The brand is soundly based on an internal truth and capability. It has a defined heritage and a well-grounded value set. It can deliver against the (high) expectations that customers have of it”. While Beverland’s *et al.* (2008) research primarily focused on exploratory, qualitative findings in specific industries such as luxury wines, many additional and important insights were gleaned about the components of BA: links to past, handcrafted methods, respect for traditions and cultural links.

Overall, the message of authenticity has advanced greatly over the years, from a simple reassurance of genuine merchandise or service (Beverland *et al.*, 2008) to a more powerful and cohesive message of non-commercial differentiation and deeply rooted firm values (Kim and Bonn, 2016). In a recent dissertation, Coary (2013) defined BA in a simplistic manner: “genuineness in its product and its principles” (p. 7). This belief of authenticity as having strong values and principles is evidently shared by Schallehn *et al.* (2014) after reviewing the measurement scale for BA used in their research.

Regarding the understanding of BA and its antecedents, Beverland *et al.* (2008) has been a powerful influence. According to this author, authenticity possesses six dimensions or attributes: heritage and pedigree, stylistic consistency, quality commitments, relationship to place, method of production and downplaying commercial interests. As is the case in other frameworks that will be discussed later, this model includes consistency as an antecedent of authenticity. While these attributes cannot be generalized to many industries, the application of them to the craft beer market is undeniable.

Bruhn *et al.* (2012) developed a scale for measuring consumers’ perceptions of BA. In this research, authenticity is examined in the context of containing four dimensions. Through literature review and qualitative studies, the antecedents are identified as continuity, originality, reliability and naturalness. These four dimensions differ greatly from those derived in the work of Napoli *et al.* (2014). According to these authors, BA is represented by only three factors: quality commitment, sincerity and heritage. These dimensions are the result of a factor analysis consisting of 14 items, and the ensuing findings possess convergent, discriminate and predictive validity (Napoli *et al.*, 2014).

According to Eggers *et al.* (2013), BA consists of BCons, brand customer orientation and brand congruency. This conception shares a distinct similarity with the model developed the next year by Schallehn *et al.* (2014), one that is referenced frequently in the current research. In both models, BCons is noted as an antecedent of BA, giving additional credence to the theory. Additionally, both sets of authors investigated the connection between BA and BT.

In a comprehensive dissertation regarding BA, Coary (2013) noted a pervasive theme regarding the meaning of authenticity, one that included both temporal and spatial aspects; he observed this nearly universal agreement after reviewing a wide array of literature. According to this author, three key dimensions materialize: being a pioneer, maintaining product originality and adhering to principles (Coary, 2013).

In order to remedy the lack of empirical assessment of BA’s effects and antecedents, Moulard *et al.* (2016) developed a conceptual framework of BA based on the self-determination theory, attribution theory and existing brand research. This model asserts that BA possesses four antecedents – two related to rare brand behaviors (uniqueness and scarcity) and two related to stable brand behaviors (longevity and longitudinal consistency). In addition, the framework proposes two effects or outcomes of BA – expected quality and trust (Moulard *et al.*, 2016). This model appears to share distinct similarities with the research structure composed by Schallehn *et al.* (2014). According to these authors, and within the scope of their study, individuality is “defined

as the unique way in which the brand fulfills its promise” (Schallehn *et al.*, 2014, p. 194). To draw comparison, it seems their concept of individuality can theoretically be categorized in rare brand behaviors proposed by Moulard *et al.* (2016). The concepts of consistency and continuity can then be classified as stable brand behaviors. Also, the outcome of trust is found in both conceptual models. As seen below, Table I displays a summary of the development of the BA literature.

2.1.1 BA concept interfaces with experiences. Current consumers increasingly use products and experiences to reconnect to places, history, culture and one another (Napoli *et al.*, 2014; Eades *et al.*, 2017). This is true across of range of products including tourism. Products and places became increasingly standardized. Travelers are actively seeking authentic experiences. Therefore, the interface between BA and experiences is evident. As Slocum (2015) stated, not only companies but also government support this relationship (e.g. Virginia County helped to organize tours of the three local breweries to encourage visitors at local resorts to experience the local community).

The issue of whether consumers perceive their experiences to be authentic when visiting tourism destinations or consuming a beer is no trivial matter. Authenticity and its importance among consumers perceptions have been discussed and debated for many decades and continue to be highly controversial topics not only in the tourism and marketing research literature (Hede *et al.*, 2014) but also in practical studies.

In wine tourism, activity of visiting wineries showed that authenticity perceived by consumers is a determinant for customer loyalty (Kolar and Zabkar, 2010), behavioral intention (Robinson and Clifford, 2012) and satisfaction (Tsai and Sakulsinlapakorn, 2016). In addition, in heritage tourism, studies attribute the decisive significance of authenticity to the fact that authenticity connects tourists to destination experiences attractions (Lindberg *et al.*, 2014).

As Eades *et al.* (2017) affirmed, with the rise in craft beer popularity in the USA, craft beer destinations that feature breweries, brewpubs and craft-beer-focused bars have increasingly become appealing to tourist and consumers. Tourists seeking “authentic and unique” experiences can use craft beverages to explore others cultures and lifestyles (Lu *et al.*, 2015). In this sense, Murray and Kline (2015) investigated the factors that influence customer’s brand loyalty within two rural destinations. Through surveying customers of two North Carolina craft breweries, Murray and Kline found that the brewery’s connection with the community, the respondent’s desire for unique consumer products and the respondent’s satisfaction with the product were the key influences as to establish. Thus, craft beer often leverages distinct place-based qualities of the communities in which it is produced to join authenticity and experiences (Newman and Dhar, 2014; Eades *et al.*, 2017).

Dimensions	Author(s)
Cultural/historic integrity, workmanship, craftsman and materials, esthetics, function and use, shopping experience, genuineness, uniqueness, originality	Littrell <i>et al.</i> (1993)
Heritage/pedigree, stylistics consistency, quality commitments, relationship to place, method of production, downplaying commercial interests	Beverland <i>et al.</i> (2008)
Continuity, originality, reliability, naturalness	Bruhn <i>et al.</i> (2012)
Brand consistency, brand customer orientation, brand congruency	Eggers <i>et al.</i> (2013)
Being a pioneer, maintaining product originality, adhering to principles	Coary (2013)
Quality commitment, sincerity, heritage	Napoli <i>et al.</i> (2014)
Brand individuality, brand consistency, brand continuity	Schallehn <i>et al.</i> (2014)
Uniqueness, scarcity, longevity, longitudinal consistency	Moulard <i>et al.</i> (2016)

Source: Adapted by the author after the references of the paper

Table I.
Antecedents of brand authenticity

2.2 Relationship of BI, BCons BCont and BA

Taken from the conceptual framework developed and tested by Bruhn *et al.* (2012), Eggers *et al.* (2013) and Schallehn *et al.* (2014), BA is shown to consist of three antecedents: BI, BCons and BCont. Additionally, the significant influence of these three antecedents on the BA construct is empirically validated in their research (BCont was found to have the largest influence on BA ($R^2 = 0.37$), followed closely by BCons ($R^2 = 0.36$). BI was shown to be the least significant contributor ($R^2 = 0.15$). In the case of craft beer, however, BCons was found to have the highest explanation of variance in BA. In fact, while describing the empirical results of their investigation, the authors upheld the assumption that “fulfilling the brand promise at every touch-point is essential for the authenticity perception of beer brands” (Schallehn *et al.*, 2014, p. 196). With the current study placing context in the craft beer market, these findings and assertions present significant and relevant evidence to support the relationship.

The most recent research cited in this paper also found nearly identical similarities in these proposed connections. In this work, Moulard *et al.* (2016) examined the antecedents and outcomes of BA. Of particular emphasis are the four antecedents, two of which share distinct similarities with the model of Schallehn *et al.* (2014). Uniqueness and longitudinal consistency were found to have a positive and significant impact on the BA construct. Again, the choice of wording for the antecedents differs between authors, but the semantics seem to be quite comparable. Therefore, the same connections will likely hold true, resulting in the development of H1–H3:

- H1. Higher perceptions of BI result in higher perceptions of BA.
- H2. Higher perceptions of BCons result in higher perceptions BA.
- H3. Higher perceptions of BCont result in higher perceptions of BA.

2.3 The PV construct

The concept of value has been widely researched in both exploratory and empirical studies, resulting in an array of definitions, scales of measurement, and consumer responses regarding the meaning of value (Zeithaml, 1988; Ulaga and Chacour, 2001; Rajh, 2012).

Zeithaml (1988) captured the meaning of value in a single, overall definition: “perceived value is the consumer’s overall assessment of the utility of a product based on perceptions of what is received and what is given” (p. 14). This definition and conceptualization of value as a trade-off, or an evaluation of what is given and what is received, has laid a strong foundation for value literature and is evident in a majority of future research (e.g. Ulaga and Chacour, 2001; Rajh, 2012).

Regarding the dimensions of value, Petrick (2002) concluded that value consisted of five dimensions including quality, emotional response, monetary price, behavioral price and reputation. Also, Petrick (2002) extended the work of Sweeney and Soutar (2001) extending the previous PERVAL measurement scale into a new one, known as SERV-PERVAL.

As seems to be a natural progression, Sanchez *et al.* (2006) enhanced both of these previous studies by again redefining the PV dimensions, expanding the scope from five to six, as well as creating a new measurement scale, known as GLOVAL. Currently, the work of Rajh (2012) presents a measurement scale for PV which appears to draw inspiration from the extensive, prior findings of other authors. From this, it seems that the author has embraced the perspective of a value as a trade-off or cost-benefit analysis, a view that has come to be widely accepted by both academics and practitioners.

2.4 Relationship of BA and PV

There has been severely limited examination of the direct relationship between BA and PV. However, Wuestefeld *et al.* (2012) investigated the impact of brand heritage on customer PV.

In this research, brand heritage plays an even more important role. Whereas prior perspectives have linked heritage to only past behavior and traditions, these authors (Wuestefeld *et al.*, 2012) believe heritage is relevant in both the present and future. To exemplify its significance, they proclaimed: “a brand that is infused with a heritage stands for authenticity, credibility, and trust and can provide leverage for that brand, especially in global markets” (Wuestefeld *et al.*, 2012, p. 2).

This statement provides further evidence that brand heritage and BA are highly interrelated. By developing a conceptual model, the authors hypothesized that brand heritage has a positive effect on four dimensions of PV: economic, functional, affective and social. Again, these dimensions have been used and verified by previous authors, adding to the credibility of this modern research. Other distinct similarities can be noted such as two of the measurement items in the scale for brand heritage: BCont and brand differentiation. In the framework used in the current investigation, derived from the work of Schallehn *et al.* (2014), BCont and BI are included as antecedents of BA. These comparisons serve to further validate and legitimize the framework and proposed relationships. Findings of the research published by Wuestefeld *et al.* (2012) found positive and significant relationships between brand heritage and all four dimensions of PV: economic, functional, affective and social. Therefore, it can be said that higher perceptions of brand heritage result in higher perceptions of PV in the eyes of consumers (Wuestefeld *et al.*, 2012).

The following year, Kovacs *et al.* (2013) presented two studies which sought to determine whether organizations regarded as authentic were also perceived as having more value. They hypothesized that “organizations referred to as authentic by consumers will generate higher consumer value ratings” (Kovacs *et al.*, 2013, p. 9). Findings of the first study show that consumers perceive higher levels of value in restaurants regarded as authentic, even after controlling for several other factors. The second study further reinforces these results by presenting respondents with photos and descriptions of fictitious restaurants and having them evaluate the expected levels of authenticity, quality, and value. Overall, these two studies reveal the significant relationship between authenticity and PV (Kovacs *et al.*, 2013).

Additional research published by Lee *et al.* (2014) investigated the effect of employee authenticity and manipulative intent on customer PV and satisfaction. While their research clearly focuses on the authenticity of individuals employed by a business, rather than that of brands, it should not be disregarded. Findings of the study show that employee authenticity significantly enriches customer perceptions of economic value, an important factor in contributing to overall PV (Lee *et al.*, 2014). These results suggest that authentic relationships between employees and customers, or at least the perception of, aid in the enhancement of customer value perceptions. Based on this assumption, the relationship between customers and brands, particularly the experience of BA, may also be a critical determinant in generating PV.

In this sense, we can propose the following hypothesis:

H4. Higher perceptions of BA result in higher perceptions of PV.

2.5 The BT construct

The notion of trust, in general, has been studied in detail since the 1960s, if not earlier. The topic has received immense attention in a variety of disciplines such as psychology, sociology, economics, management and marketing.

The research of the twenty-first century has heavily focused on the connection between consumers and brands (Chaudhuri and Holbrook, 2001, 2002). According to Delgado and Fernandez (2016), major contributors to the BT literature, defined the construct as a “feeling of security held by the consumer in his/her interaction with the brand, that it is based on the perceptions that the brand is reliable and responsible for the interests and welfare of the

consumer” (p. 11). This description is congruent with many aspects of previous research involving trust. First, BT involves the willingness to put oneself at risk, typically through the reliance of one party on the promise of another. Second, confidence and security are deeply entangled in the development of trust. Third, related to reliance, BT involves an expectancy as it cannot exist without the possibility of error, failure or disappointment (Delgado-Ballester *et al.*, 2003). According to the authors, their definition also includes important facets of trust such as reliability and intentionality.

Among the literature, there is a general consensus that behavioral involvement and authenticity are highly entangled in the trust-building process. While no single factor of the BA construct directly relates to or addresses perceived risk, the aim of this paper is to examine the effect of BA on PV and BT, both of which have been shown to reduce perceived risk (Snoj *et al.*, 2004). Therefore, by reducing functional and emotional brand-choice risk through increased perceptions of BA, BT can likely be significantly and positively influenced.

2.6 Relationship of BA and BT

Eggers *et al.* (2013) examined the associations between BA, BT, and small- and medium-size enterprise (SME) growth. In their study, BA was operationalized as having three dimensions: BCons, brand customer orientation and brand congruency. Using data from 285 German SMEs and structural equation modeling, results found that both BCons and congruency generate BT. With two of three dimensions showing significant influence on the dependent variable, it can be said that overall BA fosters BT.

Coary (2013) also investigated the relationship between BA and BT as part of the conceptual framework. In this work, the author hypothesized that “brand trust mediates the effects of authenticity on attitudinal measures” (Coary, 2013, p. 22). Results of this study found that respondents with high perceptions of authenticity reported significantly higher perceptions of BT than those with lower perceptions of authenticity. This revelation was even more significant in the case of experiential products, such as craft beer (Coary, 2013).

As with the connections discussed previously, the relationship between the BA construct and BT was hypothesized and empirically tested by Schallehn *et al.* (2014). In terms of the relationship between authenticity and BT, BA is examined and empirically tested, even in this research. In this work, BA was found to have an extremely significant and strong correlation with BT. These findings suggest that consumer perceptions of a brand’s authenticity are highly associated with their trust in the brand.

Sung and Kim (2010) investigated the relationship between five brand personality dimensions (sincerity, ruggedness, excitement, sophistication and competence), BT and brand affect. Results of their study suggest that the brand personality dimensions of sincerity and ruggedness more significantly influence the level of BT than brand affect.

In this sense, we can propose the following hypothesis:

H5. Higher perceptions of BA result in higher perceptions of BT.

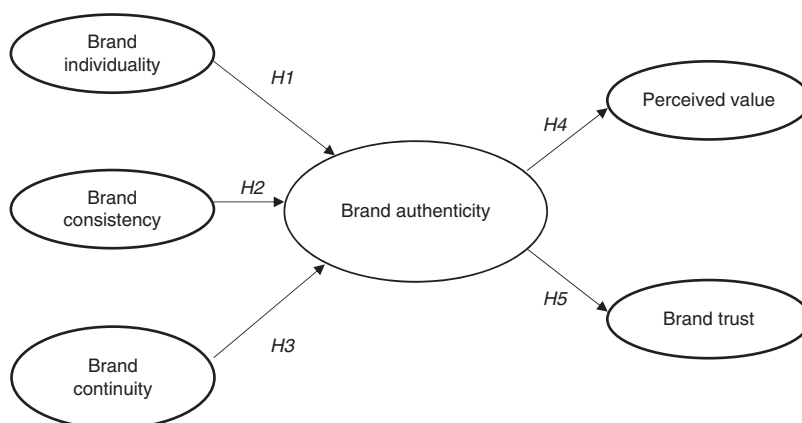
In Figure 1, the conceptual framework for the research is displayed which is applied to the craft beer market.

3. Research methodology

3.1 Research methods

This research has been focused in the context of craft beer in the USA due to the relevance of this market in the last years and regarding all the opportunities present for the creation and renewal of authenticity as well as its numerous advantages.

Indeed, as of the end of 2015, craft beer production volume, amounting to slightly over 24 million barrels, accounts for 12.2 percent of the total beer production volume in the USA. This volume corresponds to a \$22.3bn retail sales value, or approximately one-fifth of the



Sources: Rajh (2012), Schallehn *et al.* (2014)

Figure 1.
Conceptual framework
for the research

overall US beer market (Brewer Associations, 2016). To continue, the craft beer market experienced 16 percent \$ sales growth from the previous year, a significant leap in an otherwise mature industry. While the craft beer market realized a 12.8 percent year-over-year growth in production volume, the overall beer market saw a 0.2 percent decline in product volume (Brewer Associations, 2016). To broaden the perspective, US craft beer production has increased by an astonishing 290 percent over the past decade.

Thus, this investigation has placed emphasis on the more-specialized and premium craft beer market, particularly that of the USA. While the questionnaire used in the research contained foreign craft beer brands, such as the popular Belgian brand Duvel, the primary focus of the examination is related to consumer perceptions in the American craft beer market. In total, 48 craft beer brands were used in the quantitative study, providing respondents with a high degree of freedom when completing the survey. Of the craft beer brands, 45, or 94 percent, are American brands and include the following: Yuengling, Samuel Adams, Sierra Nevada, New Belgium, Lagunitas, Goose Island, Founders, Cigar City, Tree House, Stone, Ballast Point, Brooklyn, Firestone Walker, Oskar Blues, Dogfish Head, SweetWater, Harpoon, Abita, Anchor, Long Trail, Shipyard, Full Sail, Odell, Rogue Ales, 21st Amendment, Flying Dog, Left Hand, Uinta, Allagash, Lost Coast, Troegs, Karl Strauss, North Coast, Minhas, Alaskan, Summit, Ninkasi, Bear Republic, Bell's, Deschutes, Victory, Southern Tier, Green Flash, Four Peaks and Revolution. Three of the craft beer brands, or 6 percent, are foreign brands and include the following: Gambrinus (Czech Republic), Duvel (Belgium) and August Schell (Germany).

In order to achieve the research objective, a survey was delivered through an online format (Google Forms) and was completed by a sample of 749 consumers. The survey included an extensive list of popular craft beer brands from which respondents could select a single brand in order to complete the questionnaire. By employing this technique, familiarity with and actual consumption of the chosen brand were more likely guaranteed. For the ensuing analysis, respondents who provided the same answer for every question, including reverse-coded questions, were eliminated from the sample. The sample was "cleaned" and narrowed to 738 respondents. This group was acquired through a basic simple random sampling technique for sake of convenience.

All questions were developed using seven-point Likert scales, with "1" representing "Strongly disagree" and "7" representing "Strongly agree." All scale measurement items were derived from previous research. All three antecedents of BA (BI, BCons and BCont) were measured using three-item scales taken directly from the work of Schallehn *et al.* (2014). However, these items

were adapted from previously developed scales (Netemeyer *et al.*, 2004). The construct of BA was measured with a six-item scale which was originally developed by Schallehn *et al.* (2014) through a two-faceted qualitative investigation. In terms of the dependent variables, PV was assessed using a five-item scale taken from the research of Rajh (2012). Finally, BT was evaluated using a three-item scale, again taken directly from the research of Schallehn *et al.* (2014). The items for this measurement scale were slightly adapted from the previously established and empirically measured trust scale developed by Chaudhuri and Holbrook (2001).

Table II shows the measurement scales used in this current investigation along with their respective set of scale items.

After eliminating certain respondents from the final sample, as mentioned above, descriptive analysis was conducted to provide detail regarding the demographic distribution of the sample in terms of age, gender, ethnicity, education, employment and location. While this information was not specifically relevant to the research hypotheses, it offered insight into how successfully the sample represented the target population of the study. The typology of the desired target population of this research, in terms of demographics, are Americans consumers who are 21–55 years of age, employed for wages, and have completed at least a bachelor’s degree. Table III provides an overview of the demographic profile of the sample respondents.

Measurement scale	Items	Adopted from
Brand individuality	<ol style="list-style-type: none"> 1. The way how [X]^a fulfills its brand promise is very different from competing brands 2. The way how [X] fulfills its brand promise is unique 3. [X] fulfills its brand promise in a distinct way 	Netemeyer <i>et al.</i> (2004), Schallehn <i>et al.</i> (2014)
Brand consistency	<ol style="list-style-type: none"> 1. Brand [X]^a fulfills its promise consistently 2. The current brand behavior of [X] fits to its brand promise 3. The brand promise of [X] and its present actions are in line with each other 	
Brand continuity	<ol style="list-style-type: none"> 1. In the past, brand [X]^a has already fulfilled its brand promise 2. The previous behavior of [X] fits to its current brand promise 3. The brand promise of [X] and its past actions are in line with each other 	
Brand authenticity	<ol style="list-style-type: none"> 1. Brand [X]^a possesses a clear philosophy which guides the brand promise 2. Brand [X] knows exactly what it stands for and does not promise anything which contradicts its essence and character 3. Considering its brand promise, the brand [X] does not pretend to be someone else 4. Considering its brand promise, brand [X] does not curry favor with its target group; moreover, it shows self-esteem 5. Brand [X] distorts itself, to match contemporary trends^b 6. The saying “you trim your sails to every wind that blows” describes brand [X] adequately 	Schallehn <i>et al.</i> (2014)
Perceived value	<ol style="list-style-type: none"> 1. This brand is very good value for money 2. Given its price, this brand is economical 3. This brand can be considered a favorable purchase 4. The price of this brand is acceptable with regard to its quality 5. The price of this brand corresponds to its value 	Rajh (2012)
Brand trust	<ol style="list-style-type: none"> 1. I trust the brand [X]^a 2. I rely on brand [X] to fulfill its brand promise 3. I feel safe when I rely on brand [X] 	Chaudhuri and Holbrook (2001), Schallehn <i>et al.</i> (2014)

Table II. Measurement scales – items in individual scales used in the research

Notes: [X]^a indicates a brand name; ^breverse-coded question

	Sample information	Perceived value and brand trust
Age		
Mean	33.8	
SD	10.34	
<i>Gender (%)</i>		
Male	52.7	
Female	47.3	
<i>Ethnicity (%)</i>		
White	73.9	
Asian or Pacific Islander	14.6	
Black or African American	5.8	
Hispanic or Latino	5.7	
<i>Education (%)</i>		
High school graduate	19.6	
Bachelor's degree	38.1	
Post-graduate or doctoral degree	22.9	
Others	19.4	
<i>Employment (%)</i>		
Employed for wages	83.4	
Unemployed	4.6	
Retired	2.7	
Student	9.3	
<i>Location (%)</i>		
USA	100	
Note: $n = 738$		

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Table III.
Sample information – demographics

3.2 Data analysis

The quantitative analysis of the conceptual model was conducted using IBM SPSS Statistics. The six constructs used in the research were tested for internal reliability. A scale is said to be “reliable” if the reliability coefficient, Cronbach’s α , is 0.70 or higher (Bagozzi *et al.*, 1981; Chin, 1998). Dimension reduction was then performed in the form of a factor analysis to determine whether variation in the six constructs used in the research actually reflects variation in a fewer number of unobserved, underlying variables. These tests can be viewed as preliminary in the sense that they must be executed in order to verify the reliability and validity of the data and constructs.

After this introductory investigation, correlation and regression analysis formed the heart of the quantitative examination. First, correlation analysis was used to determine the degree to which two variables move together, whether positively or negatively. Second, regression analysis was utilized to ascertain the extent to which the changes in one variable, or the dependent variable, can be explained by and attributed to another variable, or the independent variable.

4. Results

The six constructs used in the research were tested for internal reliability. In this case, five of the six scales were found to have relatively high internal reliability. The BI scale was comprised of three items ($\alpha = 0.85$), the BCons scale contained three items ($\alpha = 0.84$) and the BCont scale consisted of three items ($\alpha = 0.87$). Cronbach’s α values for the five PV items and three BT items were both 0.88, indicating that these two scales have the highest reliability of the six. The BA scale, comprising six items, was found to have the lowest Cronbach’s α value of 0.58. A possible explanation for this phenomenon is the inclusion of

two reverse-coded items in the BA scale, which may have instigated comprehension issues among respondents. These two items were eliminated in hope of improving the quality of the scale and it was then re-tested, resulting in a revised Cronbach's α value of 0.82.

Subsequently, dimension reduction was conducted in the form of a factor analysis, which did not uncover the presence of any additional underlying variables in the data. All scale measurement items were correctly and reliably categorized into their respective first-order constructs. The results of the factor analysis are presented visually below in Table IV.

Regarding results from the model, they provide us with measures of the relationships between the constructs. Assessing the model, the results indicate expected relationship between BI and BA. Furthermore, changes in BI were found to have significant influence on changes in BA, thus deepening the relationship ($R^2 = 0.25$, $F(1, 736) = 248.71$, $p < 0.01$). According to these results, higher perceptions of BI result in higher perceptions of BA.

In the same sense, results show expected relationship between BCons and BA. Moreover, changes in BCons were found to have significant influence on changes in BA ($R^2 = 0.21$, $F(1, 736) = 199.81$, $p < 0.01$). With this in mind, it can be affirmed that a brand's present actions have a meaningful impact on the extent to which consumers perceive the brand as authentic.

Regarding relationship between BCont and BA, findings show that changes in BCont were found to have significant influence on changes in BA, thus further validating the relationship ($R^2 = 0.21$, $F(1, 736) = 191.09$, $p < 0.01$). Since this hypothesis is confirmed, it is evident that the prior behavior of a brand has a substantial influence on consumers' perception of BA.

Results also show expected relationship between BA and PV. Furthermore, changes in BA were found to have significant influence on changes in PV ($R^2 = 0.15$, $F(1, 736) = 126.92$, $p < 0.01$). With $H4$ also being supported, it is shown that this perception has a significant effect on how a brand is perceived in terms of value. If a brand is viewed as possessing higher authenticity, it will also be seen as being a very good value for money, a trait that may be a critical decision criterion among certain consumer groups. In addition, higher

Component	1	2	3	4	5	6
BI1		0.828				
BI2		0.831				
BI3		0.805				
BCons1					0.678	
BCons2					0.640	
BCons3					0.634	
BCont1				0.756		
BCont2				0.724		
BCont3				0.751		
BA1						0.508
BA2						0.650
BA3						0.629
BA4						0.779
BT1			0.718			
BT2			0.758			
BT3			0.787			
PV1	0.778					
PV2	0.855					
PV3	0.673					
PV4	0.659					
PV5	0.682					

Table IV.
Factor analysis –
rotated component
matrix

Notes: Extraction method: principal component analysis; rotation method: Varimax with Kaiser normalization

perceptions of BA will result in a brand being perceived as a more economical (given its price) and favorable purchase. Regarding monetary costs, the price of perceived authentic brands will be considered acceptable with regard to their quality and corresponding to their value, regardless of the levels of said prices.

Finally, BA and BT shown to be significantly and positively correlated. Furthermore, changes in BA were found to have significant influence on changes in BT ($R^2 = 0.24$, $F(1, 736) = 238.24$, $p < 0.01$). According to these results, BA is a powerful driver of BT among consumers.

Table V presents a summary of hypotheses. All the proposed relationship have been supported.

Figure 2 presents a visual summary of the findings derived from the empirical investigation.

5. Discussion

This study provides some significant contributions to the marketing theory. This research has confirmed that the three antecedents of individuality, consistency and continuity effectively capture and positively influence consumer perceptions of BA and that a higher consumers' perception of brand authenticity resulting in higher perceived value and brand trust. Nowadays, brands' competitive battles for winning the consumer's mind and heart are focusing in forging deep connections with individuals, rather than delivering excellent service or innovative technologies (Napoli *et al.*, 2016). Our findings are consistent with previous researches (Alexander, 2009; Kolar and Zabkar, 2010; Newman and Dhar, 2014) where authentic brands offer consumers an opportunity for establishing a stronger emotional connection with a brand, compared to less authentic brands.

Hypotheses	Variables	R	R ²	F-change	df	Sig. F-change	Result
H1	BI and BA	0.503 ^a	0.253	248.707	736	0.000	Supported
H2	BCons and BA	0.462a	0.214	199.806	736	0.000	Supported
H3	BCont and BA	0.454a	0.214	191.094	736	0.000	Supported
H4	BA and PV	0.384a	0.154	126.924	736	0.000	Supported
H5	BA and BT	0.495a	0.241	238.236	736	0.000	Supported

Notes: ^aPredictors: (Constant). BAavg ($p < 0.01$)

Table V. Summary of hypotheses

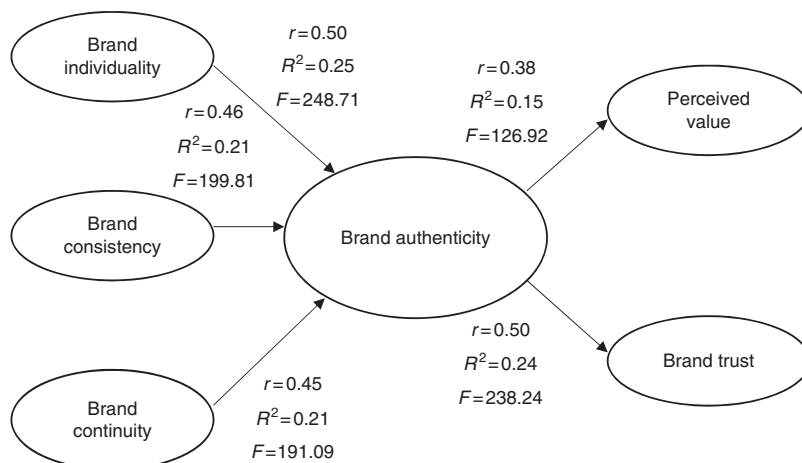


Figure 2. Evaluation of the conceptual framework

Our findings show the needs to explore the benefits that consumers experience when they consume something authentic (Hede *et al.*, 2014) as well as the need to use of BI, BCons, BCont and BA as a positioning device. Positioning a brand based on product superiority, quality and great service is all too common in the competitive market, whereas authenticity allows a brand to be true without being perfect (Beverland *et al.*, 2008). Moreover, by being able to measure and assess authenticity, marketers may be empowered to identify new opportunities for brand positioning and value creation that may contribute to greater consumer PV and BT.

According to Liao and Ma (2009), consumers with a high need for authenticity tend to spend more time and energy searching for truly authentic offerings, consume authentic products deliberately, remain trust to authentic products and refuse to consume imitation goods, compared to consumers with a low need for authenticity (Napoli *et al.*, 2016). Therefore, marketers should clearly show in their communications campaign the characteristics and attributes that demonstrate the authenticity of a product.

More specifically, in the craft beer market and regarding the relationship between BI and BA, the higher the extent to which a brand is perceived as fulfilling its brand promise differently from competing brands, the more likely the brand is to be perceived as authentic among consumers. This same principle applies to the perception that a brand fulfills its brand promise in a unique and distinct fashion. That is, a brand's ability to create unique mental associations between the brand and things that matter to an individual. This finding may hold particular importance in the highly competitive craft beer market. With an enormous array of craft beer brands, each presenting seemingly similar brand promises, value propositions, and physical products, consumers may perceive BI as an exceedingly significant attribute influencing potential consumption of these brands (Grohs *et al.*, 2016). If a single brand is able to differentiate itself among the thousands of craft beer brands available in the market, thereby increasing its perceived BI, the brand will be handsomely rewarded with perceptions of authenticity among its audience.

Regarding the relationship between BCons and BA, a brand must fulfill its brand promise consistently, ensure that its current brand behavior and present actions fit to its promise, and not engage in any other activities that contradict this essence. Otherwise, a noteworthy and negative impact on perceived BA will be realized. With an array of brands, not only those in the craft beer industry, offering consistent and fulfilling consumer experiences across a variety of touchpoints, it comes as no surprise that perceptions of BCons and BA are highly interrelated. For craft beer brands, comparable success can be achieved by following a related strategy. These brands are similar in the sense that they offer premium and aspirational products. Therefore, higher perceptions of authenticity can be realized by aiming to increase levels of perceived BCons.

Regarding the relationship between BCont and BA, the successful past fulfillment of its brand promise and the fit of past actions to its current brand promise are vital to enhancing these perceptions among a brand's audience. Again, this likely holds particular importance in the craft beer market. Although the industry sees many new entrants each year, a large number of popular brands have existed in the market for an extensive period. These entrenched brands have well-grounded sets of values, deeply rooted heritage, and an engaging story to share with consumers, attributes that have been shown to contribute to perceived authenticity. Even for new entrants in the market, the relationship between BCont and BA should not be disregarded. By crafting this engaging story and developing core values from the beginning, perceptions of BCont can be increased, resulting in higher perceptions of authenticity among consumers.

Regarding the relationship between BA and PV, since craft beer brands are positioned as premium or even luxury products with associated high price levels, this finding is tremendously informative. In order to command these premium prices and compete effectively against lower-priced, mass-market products such as those manufactured by Anheuser-Busch, craft beer brands must generate high consumer perceptions of authenticity. By doing so,

consumer PV will also likely be increased (Vera, 2015). While this relationship is the least significant of the five examined in the study, the significance should be not understated.

Finally, regarding the relationship between BA and BT, to put it simply, higher perceptions of BA result in higher perceptions of BT. If a brand is viewed as more authentic in the eyes of consumers, it will be significantly more trusted than brands with the opposite perception. Higher perceptions of BA will also produce a higher reliance on a brand to fulfill its brand promise. Additionally, consumers will enjoy feelings of safety when relying on authentic brands. In the past, craft beer firms were focused on single, short-term transactions and did not concern themselves with deepening their relationships with consumers. However, the concentration of modern firms and marketers is to develop long-term, mutually beneficial relationships with consumers in order to generate a higher customer lifetime value. In order to achieve these connections, trust must be gained from consumers. Based on the current finding, BT can be more easily formed and enhanced by increasing perceptions of BA.

6. Conclusion, limitations and future research

The positive and significant relationships found in this study provide factual support that BA can and should be considered a critical factor for the success of brands. A positive causal relationship was found among all variables in the study, confirming all five hypotheses. Thus, the individual, consistent, and continuous fulfilment of the brand promise is essential for creating and increasing perceptions of authenticity (Kolar and Zabkar, 2010). This is a particularly important revelation in the craft beer market due to with an immense number of brands employing very similar marketing strategies, it is increasingly difficult to position a single brand as having high individuality, but the yearning for BA is evident.

Managers and executives should generate higher and better consumer perceptions of individuality, consistency and BCont. Keeping track of what consumers know about BA is advisable in order to improve higher PV and BT among their target audience (McColl *et al.*, 2018). For this purpose, it could be useful considers the value of using three approaches to assess brand knowledge: free association technique, storytelling and collage-creation (Pera and Viglia, 2016). In addition, it could be useful to encourage relational activities to improve brand experiences (Delgado and Fernández, 2016). These new trends have been identified as important to know what consumers think consciously and unconsciously about a brand, which influences their attitudes and behaviors toward the brand, and ultimately brand success.

While the findings and insights gained from this research are valid and significant, there are important limitations that cannot be overlooked (numbers of participants, the US craft beer market, etc.). Also, the R^2 is at times low, so future research should analyze if others factors could explain the variance in the outcome.

It is obvious the need for continued research by expanding the conceptual framework to include moderating variables (as personality, social environment, education, etc.) or applying the model to services context. Also, future research should replicate the findings across other product categories. Moreover, it could be very interesting to consider the inclusion of mediators and covariates; identifying other antecedents of authenticity and to do a cross-cultural research taking into account the country of origin for beer or the nationality of consumers.

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Relationship between gray directors and executive compensation in Indian firms

Gray directors and executive compensation

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Abstract

Purpose – The purpose of this paper is to examine the empirical relationship between gray directors (non-executive non-independent directors) and executive compensation among companies listed in India's National Stock Exchange (NSE). The paper also examines the possible interplay of relationships between controlling shareholder duality (controlling shareholder being the CEO), ownership category and executive compensation.

Design/methodology/approach – A sample of 438 firms listed in the NSE of India was studied using data spanning five financial years, 2012–2013 to 2016–2017.

Findings – Empirical evidence suggests that there is a positive association between the proportion of gray directors on the board and executive compensation. The sensitivity of executive compensation to gray directors is found to be higher among family controlled firms. This research has also found that CEOs who belong to controlling shareholder groups received higher pay than professional CEOs. The authors conjecture that these results suggest cronyism and may contribute to lower levels of corporate governance practices in the country.

Research limitations/implications – The hybrid board structure, which India has adopted with the desire to bring the best of Anglo Saxon and Japanese board philosophies, has paradoxically led to self-serving boards. Exploration of alternative thinking to bring about changes in the regulatory framework is, therefore, necessary.

Originality/value – Serious problems are identified with the philosophy behind board composition mandated by Listing Requirements for Indian firms with empirical evidence showing how the existing rules generate cronyism and unfairness to minority shareholders.

Keywords CEO pay, Controlling shareholder duality, Gray directors, Non-executive non-independent directors

Paper type Research paper

Introduction

In India, corporate ownership is predominantly in the hands of domestic individuals and families (Balasubramanian and Ramaswamy, 2013). However, institutions, governments and foreign entities also hold their respective stakes in Indian companies. Against this background, the salaries of CEOs of firms held by domestic individuals and families are found to be higher than those of others. Studies have shown that the compensation of CEOs who are

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controlling shareholders is generally higher than that of professional CEOs (Parthasarathy *et al.*, 2006; Ramaswamy *et al.*, 2000). This phenomenon of excessive CEO compensation, which appears to be dominant in family controlled firms, assumes importance because of governance implications that warrant research attention. CEO compensation and agency conflict have many implications that generate other agency costs.

The issue of excessive and unabashedly high CEO compensation has been a matter of public debate especially in countries like the USA, and also in the corporate world in general across the globe. Corporate governance requirements *vis-à-vis* board composition and norms regarding the appointment of independent directors are expected to address the problem of excessive CEO compensation. However, evidence of the effectiveness of such measures remains mixed. In this paper, we posit that the factors that demonstrate the possible relationship between the nature of board composition and CEO compensation are different in the Indian context. Boards of Indian companies consist of a mix of independent directors, executive directors and gray directors. This kind of board mixture is also often characterized by the absence of within-board pressure and expression of the voice of dissent. However, in general, appositive pressure of dissenting opinions and expressions of dissent within corporate boards are missing in the Indian context. The absence of a purposeful voice of dissent implies that something which is of great utility from the standpoint of maintaining corporate governance standards, is absent. Therefore, it is necessary to investigate the association between the characteristics of board composition and CEO compensation.

Accordingly, this paper examines two crucial issues related to the nature of boards in the Indian context. First, it seeks to investigate whether the presence of gray directors on the corporate board has any association with the magnitude of CEO compensation. Gray directors are demarcated on the basis that they are neither executives nor independent directors (Borokhovich *et al.*, 2014; Hsu and Wu, 2014). We suspect that CEOs may collude with gray directors in fixing CEO compensation leading to adverse corporate governance and unfair treatment of minority shareholders.

Second, this paper investigates whether there would be any change in the relationship between the presence of gray directors on corporate boards and CEO compensation across different ownership categories. Accordingly, we investigate the association between board composition that is characterized by the presence of gray directors and the magnitude of CEO compensation among different ownership categories of Indian companies. It may be noted that the majority of Indian firms are family owned and very few firms are controlled by professional management. Therefore, investigation of the likely adverse impact of ownership structure and board composition is also significant to protect the interest of minority shareholders.

Though there are studies that have investigated the relationship between independent directors and CEO compensation, the literature on the relationship between gray directors and the CEO compensation is limited. This is evident from a close scrutiny of prior research on gray directors that has investigated its association with variables such as firm value and performance (Choi *et al.*, 2007; Khan *et al.*, 2012; Kumar and Singh, 2012; Srivastava, 2015; Yammeesri and Herath, 2010; Zakaria *et al.*, 2010), board composition and corporate governance (Borokhovich *et al.*, 2014; Carcello and Neal, 2000; Clifford and Evans, 2002; Core *et al.*, 1999; Raghunandan *et al.*, 2001; Ryan and Wiggins, 2004; Sarkar, 2009; Sarpal, 2015; Shivdasani and Yermack, 1999) and earnings management and fraud (Beasley, 1996; He *et al.*, 2009; Houston *et al.*, 2016; Hsu and Wu, 2014). To the best of our knowledge, this is the first study of its kind in the Indian context that has attempted to understand the relationship between gray directors and excessive CEO compensation across different categories of board composition.

Exploring the relationship between the presence of gray directors and CEO compensation is significant for several reasons. First, the presence of gray directors may be causing excessive payments to CEOs incommensurate with their performance and

industry standards. More generally, directors who are supposed to oversee the performance of their firms may have to address the issue of a conflict of interest as the “overseer,” and the “overseen” would be the same. Second, the presence of gray directors is likely to be a cause of concern for investors and minority shareholders who might perceive the role of the board to be unfavorable to them (Zhao and Brehm, 2011). Third, gray directors may be “related” to their CEOs. Here, the insidious nature of the conflict of interest is evident. Finally, there is also the issue of controlling shareholder duality, i.e., CEO being a controlling shareholder of the firm, which may hurt other shareholders (Chakrabarti *et al.*, 2012). As such, we also examine the effect of controlling shareholder duality and CEO compensation across different ownership categories.

Prior research (e.g. Chauhan *et al.*, 2016) has found that Indian family controlled firms exhibit a lower degree of board independence in comparison with management-controlled firms (MCF). The relationship between lower board independence and excessive CEO compensation may not become such a matter of concern if executive compensation is commensurate with profits earned by the company in question. However, this is not so in the Indian context (Ghosh, 2006; Narayanan and Dubey, 2015). Specifically for family owned companies, Raithatha and Komera (2016) have shown that executive compensation has no association the performance of family controlled firms. In contrast to this, non-family firms, run by professional managers place more emphasize on pay-for-performance (Saravanan *et al.*, 2017).

There are several contributions that this paper makes to the literature on executive compensation. First, it is revealed that there exists a significant association between the presence of gray directors and CEO pay in family controlled firms. In this connection, we also investigate whether and how the presence of gray directors in Indian companies is associated with CEO compensation across different ownership categories. This is accomplished by dividing Indian corporate firms into different groups based on firm ownership.

Second, we show empirical evidence of the positive association between the presence of gray directors and executive compensation. This paper situates the research discourse on gray directors on the theoretical rationale of psychological contract theory while explaining why several theories of executive compensation fail to account for the relationship between gray directors and unduly excessive executive compensation. In this respect, this paper goes beyond agency theory, stewardship theory, and a broad spectrum of theories of executive compensation to theoretically explain the phenomenon of excessive executive compensation using psychological contract theory. At last, this paper extends the research conversation on gray directors by going beyond the prior research areas of: association between gray directors and firm value/performance; association between gray directors; board composition and corporate governance; and association between gray directors, earnings management and corporate fraud.

The remainder of the paper is organized into six sections. In the second section, we review the literature and provide the theoretical underpinnings for further empirical treatment of the topic. In doing so, we examine prior empirical evidence on board and ownership structure, CEO compensation and firm performance. Furthermore, we analyze different theories of executive compensation. In this context, we show why these theoretical explanations of executive compensation and the broader approaches, which categorize the theoretical narratives of executive compensation, fail to account for the relationship between gray directors and the magnitude of executive compensation. We also discuss the appropriate theoretical perspectives that explain the hypothesized association between gray directors and executive compensation. Also, we discuss the implications of prior research on gray directors while showing how this paper extends the research conversation on gray directors. In the third section, we develop hypotheses and state the constructs of this study as also the control variables that we use. We describe the selection of variables and sampling issues in the fifth

section. In the sixth section, we document the empirical results of the association between the level of compensation and explanatory variables. And the final section provides a summary, conclusions, contributions to the literature and policy implications.

Literature review and theoretical underpinnings

Findings of prior research are noteworthy in the context of the relationship between gray directors and executive compensation. For example, Core *et al.* (1999) examine the effect of gray directors on standards of corporate governance, CEO compensation and firm performance. For this purpose, their study used a sample of 495 firms in the USA with findings suggesting that the presence of gray directors reduces the standard of corporate governance. Therefore, they call for improving the quality of corporate governance by eliminating gray directors. Clifford and Evans (2002) show that the combination of inside directors and gray directors constitutes the majority of boards of a sample of Australian firms. Those authors conclude that the presence of gray directors would compromise the objectivity and effectiveness of corporate boards. In the South Korean context, Choi *et al.* (2007) indicate that the presence of independent directors maximizes firm performance in stock markets while the presence of gray directors does not lead to higher firm performance. Srivastava (2015) shows that the presence of gray directors in no way corresponds to higher firm performance in the Indian context. The absence of a positive association between the presence of gray directors and higher firm performance is also evident among Malaysian (Zakaria *et al.*, 2010) and Thai (Yammeesri and Herath, 2010) firms.

Board of directors are expected to act as representatives of shareholders to minimize agency costs (Fama and Jensen, 1983). Accordingly, regulators in countries like the USA have mandated that public companies should constitute boards in such a manner that the majority of directors should meet requirements of the notion of independence[1]. However, there is an alternative view. According to this, independent board composition is likely to be problematic from the standpoint of what independent directors can offer to corporate value maximization in terms of their expertise. In line with such an argument, Miwa and Ramseyer (2005) observe that “What outsiders offer in independence, they sacrifice in expertise. The more independent they are, the less they know about the firm” (p. 300). Insufficient expertise of independent directors is the premise on which Japanese companies constitute their boards. In Japan, boards largely consist of insiders or top executives as members of the board. Even a cursory look at board compositions of American and Japanese firms shows that independent directors dominate the American model whilst inside director-executives play a prominent role in Japanese corporate boards. While agency theory is the foundational premise of the USA model, what drives Japanese board composition is stewardship theory (Ueda, 2015).

Though both these theories have noteworthy limitations, their relevance is undeniable. Empirical studies have shown that both models add value to firms (Jensen and Meckling, 1976; Miwa and Ramseyer, 2005) in their unique ways. Accordingly, there have been attempts to integrate the governance implications of both these theories to address the problem of agency conflicts. For example, the Indian model of board composition appears to be an amalgam of both these models.

The Securities and Exchange Board of India (SEBI) requires that all listed firms should have a corporate board with an optimum combination of inside and outside directors. SEBI's regulations stipulate that the percentage of outside directors should not be less than 50 percent of the total number of directors on a corporate board and the chairman of the board should be an outsider. Furthermore, the number of independent directors should not be less than 30 percent of the total number of directors if the chairman of the board is an outsider. The role of non-executive independent directors is meant to reduce agency costs while the function of the executive (inside) directors is to provide intellectual assistance in

taking strategic decisions. SEBI effected these changes in its related statutes (Clause 49 of the Listing Agreement) in the wake of the submission of a report in 1999 by a high-powered committee set up by the government. The objective of these regulations is, understandably, to institutionalize the notion of “independence” in the board structure itself.

While there are clear guidelines on who could be the outside directors (independent directors), there are no restrictions on the remaining 50/70 percent of directors. Accordingly, these could all be executives or a mix of executives and non-executives. This ambiguous mandate regarding non-independent directors has given rise to another class of individual directors, i.e., non-executive, non-independent directors (Quadrant 4 in Table I).

Theoretically, Quadrant 1 cannot exist at all since no executive can be “independent.” The definition of the independent director as per Clause 49 of Listing Agreement states that “independent director” means a non-executive director of the company [...]” (Sarkar, 2009). A director becomes truly independent if he/she is free from any conflict of interest in his/her dealings with the company. Accordingly, the person should be able to express the voice of dissent, if necessary, in a free manner. Therefore, we have categorized Quadrant 1 as not applicable (na).

If the corporate board is dominated by an “objective outsider,” as indicated in Quadrant 2, the underlying assumption is that those directors provide a control function. In this case, we can draw underlying theoretical premises from agency theory. As opposed to this, domination by “benevolent insiders” (Quadrant 3) presupposes underlying support from stewardship theory. Maassen (1999) points out this distinction, mentioned above, as the underlying theoretical inspiration to draw a line of demarcation among directors. It is interesting to note that there are board structures which are available to provide for both control and expertise functions as in the case of Chinese companies. For example, Chinese law allows for a two-tier board system consisting of an advisory board of directors and a supervisory board (Conyon and He, 2011), the former providing the advisory function and the latter, the expertise function.

“Gray directors” appear in Quadrant 4 because there is no explanation in the literature regarding the nature of their role and Hsu and Wu (2014) define these actors as the non-executive directors who are not independent directors. Anderson and Reeb (2004) define gray directors as those directors with existing or potential ties to the firm. For instance, those board members who may have been functioning as gray directors might be former employees of the company, relatives of controlling shareholders, investment bankers and so on (Sarkar *et al.*, 2012). Consequently, gray directors are non-independent, non-executive directors who are not “independent.” In the regulatory filings of companies, ordinarily, directors are classified as either independent or non-independent directors. This classification disguises the presence of gray directors. In this connection, Houston *et al.* (2017) find that the boards of 51 percent of the SP 500 firms of USA had gray directors during 2000–2012. The percentage representation of gray directors is increasing in India over time (Sarkar, 2009). However, prior studies have not explored their influence on corporate boards’ functioning. Nor have they investigated the nature and degree of control that gray directors exercise over the functioning of corporate boards. Table II presents a summary of the findings of prior research on gray directors.

Whether independent or not	Whether executive or non-executive	
	Executive	Non-executive
Independent	1. na	2. Objective outsider
Non-independent	3. Benevolent insider	4. Gray directors

Table I.
Cross classifying the two dimensions

Themes	Country	Sample	Findings
<i>Association between gray directors and firm value/performance</i>			
Choi <i>et al.</i> (2007)	South Korea	457	Gray directors exercise an insignificant effect on firm performance
Yammeesri and Herath (2010)	Thailand	245	Presence of gray directors is not a significant determinant of firm value
Zakaria <i>et al.</i> (2010)	Malaysia	277	There is an inverse relationship between the performance of firms and the number of gray directors
Kumar and Singh (2012)	India	157	The proportion of gray directors is negatively associated with firm value
Khan <i>et al.</i> (2012)	Australia	188	There is no statistically significant association between firm's performance and the proportion of gray directors on corporate boards
Srivastava (2015)	India	164	Presence of gray directors is negatively associated with firm's financial performance
<i>Association between gray directors, board composition and corporate governance</i>			
Core <i>et al.</i> (1999)	USA	495	There is a negative relationship between the presence of gray directors on corporate boards and standards of corporate governance. Accordingly, reduction in standards of corporate governance is associated with the presence of gray directors on corporate boards
Shivdasani and Yermack (1999)	USA	341	The degree of involvement of CEOs is found to be high in the process of appointment of gray directors
Carcello and Neal (2000)	USA	223	There is a negative association between the proportion of gray directors and receipt of going concern report
Raghunandan <i>et al.</i> (2001)	USA		The audit committee is likely to perform better in the absence of gray directors than with their presence
Clifford and Evans (2002)	Australia	47	Findings revealed that 35 percent of non-executive directors were gray directors. The combination of insider and gray directors constituted a majority of corporate boards
Ryan and Wiggins (2004)	USA	1,018	Independent directors on the board dominated by inside and gray directors are less incentivized to monitor
Sarkar (2009)	India	186	The proportion of gray directors in India increased during the study period
Osi (2009)	USA		Presence of gray directors may diminish the integrity of the board
Borokhovich <i>et al.</i> (2014)	USA	370	Gray directors place their interests as shareholders first when a replacement decision is likely to weaken their business ties with the firm
Sarpal (2015)	India	114	CEO duality improves the level of board independence by limiting the proportion of gray directors on the board
<i>Association between gray directors, earnings management and corporate fraud</i>			
Beasley (1996)	USA	150	The negative association between the likelihood of fraud and the percentage of gray directors
He <i>et al.</i> (2009)	Australia	231	Positive association between earnings management and share ownership of gray directors
Hsu and Wu (2014)	UK	158	The higher the number of gray directors on the board, the lower would be the probability of corporate failure
Houston <i>et al.</i> (2016)	USA	339	There is likely to be an increase in corporate fraud when former employees serve as gray directors
Source: Summary of literature review			

Table II.
Summary of research findings on gray directors

Prior research reveals several interesting implications of the presence of gray directors on corporate boards. First, there is a strong possibility of a conflict of interest. Such conflict might arise because gray directors are likely to demonstrate their "obligation" to CEOs as their CEO might have taken the initiative in appointing them (Shivdasani and Yermack, 1999). Second,

this will necessarily lead to a decrease in the standard of corporate governance (Core *et al.*, 1999). Third, the incentive for gray directors to be a part of the monitoring mechanism is almost non-existent (Ryan and Wiggins, 2004). Fourth, gray directors are likely to act in their capacity as shareholders rather than as representatives of other shareholders especially in those circumstances in which their self-interest is at stake (Borokhovich *et al.*, 2014). Fifth, the extent of board independence is likely to increase if there is a reduction in the proportion of gray directors on boards (Sarpal, 2015). Sixth, corporate fraud is probable (Houston *et al.*, 2016) in the presence of gray directors though the evidence on the same remains mixed (Beasley, 1996). Seventh, the tendency to engage in practices related to earnings management would increase if the proportion of shareholdings of gray directors is on the rise (He *et al.*, 2009). At last, there is overwhelming evidence to show that the presence of gray directors on corporate boards does not increase corporate value or financial performance (Choi *et al.*, 2007).

Despite the presence of compelling evidence against the utility of gray directors in maximizing corporate value, the proportion of gray directors has nevertheless increased the world over (Clifford and Evans, 2002). Therefore, it is theoretically useful to understand the underpinnings of this phenomenon. Earlier, we pointed out that we cannot understand the implications of gray directors without using agency theory or stewardship theory. While recognizing this, it is also imperative to look for other specific theories for a precise understanding of the underlying process that builds linkages between gray directors and excessive CEO compensation. Knowing these interlinkages would also help us to appreciate how this relationship becomes operational, specifically in those firms that have a dominant presence of controlling shareholders who owe their appointment on corporate boards especially in family controlled firms.

There are intellectually illuminating narratives that explain the phenomenon of executive compensation. Scholars have grouped these theories in terms of their focus. Accordingly, there are three approaches with which we can classify prior research on compensation. These are the agency approach, value approach and symbolic approach (Otten, 2007).

Under the agency approach fall complete contract theory, prospect theory, managerial theory, and, class hegemony theory (Bebchuk *et al.*, 2002; Fama, 1980; Fama and Jensen, 1983; Gomez-Mejia and Wiseman, 1997; Kahneman and Tversky, 1979; Jensen and Meckling, 1976). These theories explain executive compensation even as they address the issues of agency problem and agency costs. These theories aim at “legitimizations of pay levels and structures [...] (that) [...] are based on arguments of market forces and conceptions of executive pay at risk” (Otten, 2007). These theories assume that managers are fundamentally individualistic and rational. Accordingly, these theories articulate that it is self-interest that drives actors. Therefore, the essential argument is that the source of motivation of managers is higher levels of executive compensation. The objective of higher levels of CEO compensation is to incentivize them to act in the interests of shareholders. However, this explanation is limited to its relevance to the issue of monitoring the behavior of executives. Accordingly, these theories do not provide a convincing elucidation of the complicit behavior of gray directors in fixing excessive executive compensation.

Next, the value approach subsumes other theories such as marginal productivity theory, efficiency wage theory, human capital theory, opportunity cost theory and superstar theory (Carpenter *et al.*, 2001; Prendergast, 1999; Roberts, 1956; Rosen, 1981). These theories emphasize how much to pay based on the value brought in by the person receiving the pay. In this regard, Otten (2007) argues that “executive pay is legitimized here by arguing that pay is set by market forces and pay is mainly regarded as the market value of executive services” (p. 6). The value approach to executive compensation does not explain gray directors’ propensity to remain as mute spectators even while they sacrifice their designated role which demands exercising their independence on matters related to fixation of executive compensation.

Finally, under the rubric of the symbolic approach are theories such as tournament theory, figurehead theory, stewardship theory, crowding-out theory, implicit/psychological contract theory, socially enacted proportionality theory and social comparison theory (Baker *et al.*, 2002; Davis *et al.*, 1997; Donaldson and Davis, 1991; Frey, 1997; Kidder and Buchholtz, 2002; Lazear and Rosen, 1981; O'Reilly *et al.*, 1988; Ungson and Steers, 1984). According to Otten (2007), "the legitimizing arguments (of the symbolic approach) are based on social (or socio-economical), constructed beliefs about executive roles and how pay ought to reflect this" (p. 14). These theories of executive pay, which prior research classifies under the symbolic approach, focus on what ought to be paid to executives. We argue that it is possible to explain the complicit behavior of gray directors, from the standpoint of the symbolic approach, during the process of fixing and maintaining unduly high executive compensation in family controlled domestic firms in India.

We can invoke the symbolic approach (or more particularly psychological contract theory) to understand the relationship between gray directors and executive compensation through two strands of analyses. The first strand of analysis is "negative" in the sense that it helps us understand why the agency and value approaches are not relevant for understanding the behavior of gray directors. The second strand helps us understand why the symbolic approach is more appropriate than the other two approaches. The agency and value approaches consider the impact of market forces as foundational premises based on which determination of executive compensation can be understood. Invoking value and agency approaches to explain the linkages between gray directors and excessive executive compensation is acceptable in those situations that are marked by complete professionalization of corporate management and, consequently, there is indeed a separation of ownership from management in letter and spirit. However, the agency and value approaches both fail to explain in entirety why executive compensation is excessive in the absence of the conditions mentioned above. Though it is possible to explain excessive compensation using both agency and value approaches, they do not provide us with an acceptable explanation to make sense of the complicit behavior of gray directors. Furthermore, these theories become relevant only in the pronounced presence of agency conflict. However, as regards the role of gray directors, the issue of conflict is not between shareholders and managers. It is, in fact, between controlling shareholders and minority shareholders. Therefore, it is not possible to explain the issue of gray directors' complicity in aligning themselves with the executives of family controlled firms from the perspective of agency conflict.

Earlier we discussed how agency theory and stewardship theory direct the board structure in American and Japanese companies, and conversely, how the behavior of board members is explained (at least to a great extent) by these theories in their respective geographies. However, these theories seem to be inadequate to explain the Indian situation, and even more generally, the behavior of gray directors.

Even if agency theory may be used to explain the behaviors of CEOs and other directors including independent directors who are expected to act in the best interests of shareholders, the theory does not provide an adequate explanation of the behavior of gray directors. The irrelevance of the agency theory about gray directors' behavior while fixing executive compensation arises because of two reasons. First, prior research does not classify gray directors as "independent" directors. Therefore, the very nature of the position of gray directors does not inspire them to execute the moral responsibility of exhibiting true "independence" in their conduct. Second, scholars define gray directors as those directors with either existing or potential ties with their firms. This definition implies that they are more likely to act in the interests of their benefactors than in the interests of shareholders.

A similar problem emerges if we attempt to invoke stewardship theory to explain the behavior of gray directors. According to this theory, "principal satisfaction" is more important

than executive pay as the source of motivation for top management executives. However, this argument becomes untenable in the context of gray directors because their notion of “principal satisfaction” is unlikely to go beyond the satisfaction of their benefactors within the board itself. Accordingly, they may not consider shareholders as their true “principals.” It is against this theoretical background that directors in Quadrant 3 are fundamentally different from directors included in Quadrant 4. Therefore, just as agency theory fails to explain the relationship between gray directors and excessive executive compensation, stewardship theory also does not capture the complexity of this relationship. Otten (2007) argues that “Stewardship theory does not provide clear hypotheses about pay levels or pay structures and could, therefore, be questioned as a useful theory to legitimize executive pay” (p. 16). Accordingly, Otten (2007) narrates the viewpoint of Donaldson (1995) while he states that “stewardship theory sees subordinates as collectivists, pro-organizational and trustworthy as opposed to, e.g., agency theory, which assumes subordinates to be individualistic, opportunistic, and self-serving” (p. 16). Thus, stewardship theory articulates that executives are supposed to take their decisions in the interests of their “principal.” From this point of view, excessive executive compensation does not act as the source of executive motivation. Given these propositions of stewardship theory, it also fails to account for the complicit behavior of gray directors in fixing excessive executive compensation.

How do we make sense of the adverse role of “gray” directors in executive compensation? To address this question, we argue that psychological contract theory (within the overall rubric of the symbolic approach) provides us with a credible grasp of the complicit behavior of gray directors that makes them give their silent acceptance to excessive executive compensation. Otten (2007) states that a “psychological contract is an individual’s personal set of reciprocal expectations of his obligations and entitlements which do not necessarily have to be mutually agreed upon between the contractors” (p. 17). Accordingly, it is reasonable to argue that gray directors make their attempts to display reciprocity in their behavior while fixing executive compensation. Therefore, in the absence of mutually agreed upon obligations and entitlements, they act in the interests of executives whom they consider as their de facto principals. Accordingly, the need to demonstrate reciprocity in the relationship makes them accord their silent acceptance to decisions on executive compensation. Therefore, it becomes a matter of reciprocal exchange that they need to recognize.

Against this background, it is interesting to note the argument of Rousseau (1998) that there are two foundational features of psychological contracts that operate in such a manner that one party feels obligated to the other party and, accordingly, acts by the expectations of the other party. First, perceived mutual obligations play a critical role in making one party behave according to the expectations of the other even while those expectations are unwritten and they are only perceptual (Rousseau, 1998). These perceived mutual obligations create perceptions regarding reliance losses and, therefore, benefitted actors would strive to maintain the status quo in their relationship equations with their benefactors. Accordingly, beneficiaries of a psychological contract try to live up to the expectations of their benefactors even in those situations wherein organizational change is inevitable. Therefore, we argue that any corporate board functioning process, which bases itself on rewards and incentives, fails to account for the complicit behavior of gray directors.

Second, Rousseau (1998) argues that agency theory oversimplifies the “incentive contract” that exists between an organization and its workers. Employees do not necessarily attribute to their organization the incentives that they receive. Accordingly, they need not endow their organization with the position of “giver” of incentives in their perceptual mindspace. Instead, they might accord the status of benefactor to their immediate supervisor or someone else whom they believe to be their benefactor.

In line with the above arguments, we argue that the phenomenon of psychological contracts adequately explains the relationship between gray directors and excessive

CEO/executive compensation. The notion of psychological contracts helps provide us with an explanation for the complicit behavior of gray directors because these directors are likely to perceive mutual obligations toward their CEO, whom they might believe to be their benefactor. Therefore, they are more likely to identify themselves with the CEO than with their company or shareholders. This person-based identification, facilitated by a psychological contract between gray directors and their CEO, is likely to make gray directors behave differently from independent directors. As a result, gray directors are expected to be favorable to the CEO of their company while fixing executive compensation. Drawing on psychological contract theory, therefore, we argue that gray directors' implicit psychological contracts with their CEOs will likely to make them feel that their silent acceptance of the proposed executive compensation is a form of reciprocity that they need to demonstrate for being the beneficiaries of their position on the corporate board.

Hypotheses development

Gray directors and executive compensation

There are various viewpoints regarding the payment of compensation to executives. As pointed out by many scholars such as Bebchuk *et al.* (2010), speculative and excessive executive compensation would exercise a negative impact on the process of compliance with standards of corporate governance. Therefore, fixation of excessive executive compensation promotes various forms of misadventures relating to corporate governance on account of agency problems. Accordingly, it has also been argued in the literature that the issue of the debate should not be on how much executive compensation is paid (Jensen and Murphy, 1990a). Instead, it should be on how it is paid especially about the legitimacy of the process of fixation of CEO compensation (Jensen and Murphy, 1990a). However, this is not to deny the importance of paying adequate compensation to top executives for the talent that they bring and the risks that they assume.

Though the individual profiles of directors on boards (independent, affiliated or controlling shareholder) match firms' ownership (institutional, corporate parent and family entrepreneur control) configurations (Sur *et al.*, 2013), it is nevertheless relevant to study implications of the presence of gray directors. This is because the presence of gray directors has been on the rise, especially on the boards of Indian companies. This is intriguing because it raises the question of why this is the case. One reason to seek answers to this question is that companies often mask the presence of gray directors by projecting them as independent directors, though their "independence" is suspected. Therefore, it is reasonable to propose that this might become disadvantageous to minority shareholders. In this connection, it is noteworthy that there is no evidence to show that gray directors provide assistance either in executing a control function (the USA model) or in delivering an expertise function (the Japanese model).

If members of a corporate board owe their position on the board due to either their controlling stake or their ability to offer some functional or strategic expertise, the presence of gray directors becomes problematic. This problem may be further compounded by the relationship between a firm's ownership and board composition. If a firm's ownership lies predominantly with a few controlling shareholders who might have been instrumental in appointing gray directors, the phenomenon of psychological contracts is bound to exercise its impact on gray directors. Accordingly, this is likely to encourage gray directors to behave as if they were the beneficiaries in their relationship with their CEO or top management executives. Thus, there is also a point of concern here about which a word of caution is due. Besides not contributing to firm performance and firm value, the presence of gray directors is also found to be positively associated with earnings management and corporate fraud (He *et al.*, 2009; Houston *et al.*, 2017). It is clear that there are no justifiable theoretical underpinnings behind the presence of gray

directors. It is not naïve, therefore, to suspect that this could be a case of cronyism as it is not possible to justify the purpose of the selection of gray directors with compelling arguments. Furthermore, it is quite probable that gray directors might only be reciprocating their appointment as a matter of social exchange that they wish to make because of the implicit psychological contract with the CEO and a few other top management executives of their company. Therefore, we argue that the presence of gray directors would be associated with executive compensation and this phenomenon occurs more in family controlled firms than in other categories of firms:

- H1a.* The proportion of influence of gray directors on the board is positively associated with executive compensation.
- H1b.* The proportion of influence of gray directors on executive compensation is higher in family controlled firms than in other categories of firms.

Controlling shareholder duality and executive compensation

As observed by Berle and Means (1932), the distribution of capital among a significantly high number of shareholders allows greater freedom to managers in the use of enterprise resources in publicly traded companies. However, this might lead to agency conflict over the allocation and distribution of corporate resources (Jensen and Meckling, 1976). Furthermore, the information asymmetry that exists between managers and shareholders, which creates a moral hazard problem, does not enable shareholders to verify whether the actual performance of a firm is due to luck or hard work (Rose, 2005). Against this background, the pay-for-performance theory suggests that CEO pay should be fixed to incentivize CEOs for their hard work (Bebchuk, 2005).

In terms of publicly traded large firms wherein a controlling shareholder himself/herself occupies the position of CEO, a situation which we term the controlling shareholder duality, conflict of interest is apparent. Controlling shareholder duality would lead to unfavorable consequences. For instance, fixing one's compensation would expropriate what is otherwise legitimately due to minority shareholders. Expropriation of resources that belong to minority shareholders is known as "tunneling." It manifests itself among CEOs in the form of fixing their compensation (Cheung *et al.*, 2005). This process of "tunneling" is likely to be supported by gray directors too. In this regard, Holderness and Sheehan (1988) provide evidence regarding managers, who are majority shareholders in publicly held corporations, having received marginally higher salaries than others. Similar research findings support this phenomenon in other settings (Jiang, 2011; Mangel and Singh, 1993; Mehran, 1995; Ozkan, 2011).

In contrast, scholars have argued that majority shareholders negatively influence the compensation of professional CEOs, and minority shareholders influence the same positively (Abraham and Singh, 2016). As a result, there would be a conflict between the majority and minority shareholders when the compensation of the controlling shareholder-CEO is higher than that of a professional CEO in the same position. Those CEOs who belong to the controlling shareholders' group may also influence the remuneration committee that fixes the CEO's compensation (Jaiswall and Frith, 2009). Jaiswall and Bhattacharya (2016) conclude that the ownership characteristics of Indian private sector firms are positively related to ownership structure. The relationship between ownership characteristics and ownership structure would result in lowering the standards of corporate governance of the firm. Thus, we arrive at the following hypothesis:

- H2a.* CEOs who are controlling shareholders receive higher pay than professional CEOs.
- H2b.* CEO pay in family controlled firms with dominant controlling shareholders is higher than CEO pay in firms of other categories.

Constructs

CEO compensation

We define CEOs to be those who have the designation of being not only the CEO of their respective companies but also executive directors who may have designations such as those of executive chairman, managing director or joint managing directors. CEO is not a commonly used title of designation for the executive head of companies in India. CEO compensation, for this study, is the aggregate of salary, bonus and perquisites paid to the executive head.

Gray directors

We define gray directors as those non-executive directors who do not qualify as independent directors.

Family controlled firms

Family controlled firms are divided into two categories. First, where the dominant shareholder owns the majority of the shares, i.e., Indian individuals or families hold more than 50 percent of shares of the respective companies. Second, where the dominant shareholder owns more than 25 percent but less than 50 percent of shares of their respective companies.

Other categories of firms

This includes firms where the majority of the shares are owned by the state (government/public sector undertakings (PSUs)), the majority of shares are held by foreign individuals/institutions (FORGN) and Indian firms where no individuals/institutions own more than 25 percent of the shares.

Controlling shareholder duality

Controlling shareholder duality exists when the CEO of the firm is the controlling shareholder, or he/she belongs to the family that possesses a controlling stake in shares of the respective company.

Control variables

We controlled for CEO duality, profitability, firm size (FS), board size (BS), growth opportunities and risk. The pay-for-performance theory is interlinked with traditional agency theory, which states that executives should work toward maximizing the value of their firm and shareholders. If this were true, we would expect that the level of pay is an increasing function of firm performance (Jensen and Murphy, 1990b; Veliyath and Ramaswamy, 2000). Hence, we controlled for profitability.

We also controlled for other factors based on prior research. For example, Mehran (1995) points out that FS is generally found to be positively related to CEO compensation. Hence, we considered FS as a control variable. We also controlled for BS as it was found to have a positive association with executive compensation. Scholars have argued that large boards are less effective at monitoring (Core *et al.*, 1999) corporate affairs. A lower degree of monitoring will increase the power of CEOs on the board. The trade-off between the degree of monitoring and power of CEOs emerges because inside directors are expected to be loyal to their CEO (Pfeffer, 1981). Hence, we argue that bigger boards may lead to higher compensation. However, prior studies have documented a non-linear relationship between BS and CEO compensation (Agoraki *et al.*, 2010; Yeung, 2018). The non-linear relationship between BS and CEO compensation implies that BS demonstrates a positive association with CEO pay up to a point beyond which this relationship is expected to become negative. Increase in BS, beyond a point, is likely to bring in diverse and independent opinions. Hence, BS may exercise a constraining effect on the magnitude of CEO pay. Therefore, we include the square of BS as a control variable to control for this potentially non-linear effect.

Furthermore, previous studies have also established a positive association between CEO being the chairman of the board, i.e., “CEO Duality” and executive compensation (Dorata and Petra, 2008; Tien *et al.*, 2013). Hence, we include CEO Duality as a control variable. Furthermore, prior research argues that firms with higher growth opportunities would have businesses which are complex to manage. Therefore, CEO compensation may be higher in those firms which have higher growth opportunities (Core *et al.*, 2003). Consistent with prior research, we use the price-to-book ratio as a proxy for capturing growth opportunity (Li and Kuo, 2017).

Sample and methodology

Sample

We divide publicly traded firms into five categories based on their shareholding pattern. This categorization is partially derived from how corporate ownership is classified by Balasubramanian *et al.* (2013):

- (1) family controlled firm – dominant shareholding (FC-1): Indian firms with controlling shareholder(s) who own more than 50 percent of shares;
- (2) family controlled firms – non-dominant shareholding (FC-2): Indian firms in which the shareholding of the controlling shareholders is between 25 and 50 percent;
- (3) PSUs: promoted by the central/state government with their shareholding being more than 50 percent;
- (4) firms controlled by foreign controlling shareholders (FORGN): firms listed in India with a foreign controlling shareholder who owns more than 50 percent of shares; and
- (5) MCF: Indian firms in which nobody owns shares more than 25 percent.

The sample herein consists of 438 publicly traded firms listed in the NIFTY 500 index of the National Stock Exchange (NSE), which constitutes over 95 percent of the free float market capitalization. This sample covers all five categories of firms delineated above. The Nifty 500 is a broad-based index and an appropriate sample that adequately represents publicly traded Indian firms. We have drawn sample firms from 11 industries (GICS classification), i.e., communication services, consumer discretionary, consumer staples, energy, financials, health care, industrials, information technology, materials, real estate and utilities. The NIFTY 500 index comprises 501 listed companies. We considered Tata Motors Ltd (ordinary shares) and Tata Motors Ltd (DVR) as a single firm. Accordingly, the number of sample firms would come down to 500 firms. Next, we eliminated 18 firms which were listed after March 2013 as the data for these firms were not available for a full period of five years. Furthermore, the CEO compensation data for 44 companies were either unreported or unavailable for a full period of five years. We excluded these companies from further inquiry. Hence why the final sample size comprised of 438 publicly traded firms. Table III reports the sample firms based on ownership categories.

We collected data on board structure and compensation from the Indian Board Database (NSEINFORMBASE), which provides details about directors of the companies listed in NSE. The Indian Board database provides the details such as the names of directors, designation, whether the directors are independent or not, whether the director/CEO belongs to the controlling shareholder’s group, and the presence of CEO duality. This information is not available in other databases that provide information on Indian boards. We collected data such as profits and total assets from Ace Equity database. Data on price-to-book ratio and Bloomberg one-year default probability were retrieved from the Bloomberg database. All data for all sample firms span March 2013 to March 2017. While the majority of the firms followed April to March as the financial year, a few of them followed the calendar year (January to December) as their financial year.

Table III.
Ownership categories
of the sample firms

Ownership categories	Number of firms in NIFTY 500		Number of firms in the sample	
		%		%
Family controlled firms – FC-1	185	37.00	161	36.76
Family controlled firms – FC-2	159	31.60	138	31.51
Public sector enterprises – PSU	55	11.00	48	10.96
Firms controlled by foreign controlling shareholders (FORGN)	54	10.80	50	11.42
Management-controlled firms – MCF	48	9.60	41	9.36
Total	501	100.00	438	100.00

Note: NIFTY 500 index comprised of 501 firms. The differential voting rights (DVR) shares issued by a firm were also included in the Index

Model

The relationship between CEO compensation, gray directors, ownership structure and control variables (Model 1) is tested using the following equation with variable definitions provided in Table IV:

$$\ln(\text{CEO pay}) = \beta_0 + \beta_1 \text{PROPGD} + B_2 \text{CSDUAL} + \beta_3 \text{FC} - 2 + \beta_4 \text{PSU} + \beta_5 \text{FORGN} + \beta_6 \text{MCF} + B_7 \text{CEODUAL} + \beta_8 \text{PFT} + \beta_9 \text{SIZE} + \beta_{10} \text{BS} + \beta_{11} \text{BS}^2 + \beta_{12} \text{PTB} + \beta_{13} \text{DRSK} + \text{YearEffect} + \text{IndustryEffect} + \epsilon_t \quad (1)$$

Variables	Measurements of variables
<i>Ownership variables</i>	
Family controlled firms – dominant controlling shareholder (FC-1)	A dummy variable takes 1 if a controlling shareholder owns 50 percent or more of the shares, 0 otherwise
Family controlled firms – non-dominant controlling shareholder (FC-2)	A dummy variable takes 1 if a controlling shareholder owns 25–50 percent of the shares, 0 otherwise
Government/public sector undertakings (PSUs)	A dummy variable takes 1 if the controlling shareholder is central or state government, 0 otherwise
Firms controlled by foreign controlling shareholders (FORGN)	A dummy variable takes 1 if a foreign controlling shareholder owns 50 percent or more shares, 0 otherwise
Management-controlled firms (MCF)	A dummy variable takes 1 if the controlling shareholders holding is less than 25 percent, 0 otherwise
Controlling shareholder duality (CSDUAL)	A dummy variable takes 1 if the CEO belongs to the controlling shareholders group, 0 otherwise
<i>Board structure variables</i>	
The proportion of gray directors (PROPGD)	Computed by dividing the number of gray directors by the total number of directors
CEO duality (CEODUAL)	A dummy variable takes 1 if the CEO is chairman of the board, 0 otherwise
Board size (BS)	The number of directors on the board
Board size squared (BS ²)	Square of board size to test for potential non-linearity
<i>Other variables</i>	
Profitability (PFT)	A dummy variable takes 1 if ROE is positive, 0 otherwise
Firm size (SIZE)	Log of total assets
Price-to-book ratio (PTB)	Market price per share divided by book value per share
Risk (DRSK)	Bloomberg one-year default probability
Note: The table reports the operational definitions of all independent variables	

Table IV.
Description of
variables and their
measurements

To control for changes in variables, which may be due to time and industry-specific factors, we included year and industry dummies in the model. By doing this, we also controlled for the presence of serial correlation in the panel data (Basuroy *et al.*, 2014). We checked the data for the presence of outliers that could affect the predictive power of the results. For this purpose, we performed the Grubbs test (also known as the maximum normed residual test). The results indicate that there are no incoherent values in any variables.

To examine the association between the presence of gray directors and CEO pay based on ownership category, we split the sample into five ownership categories listed above. Splitting the sample is consistent with the method adopted in earlier studies (Raithatha and Komera, 2016; Saravanan *et al.*, 2017). In the following equation (Models 2 and 3), we consider the presence of gray directors (PROPGD), controlling shareholder duality (CSDUAL), CEO duality (CEODUAL), FS, profitability (ROE), BS, growth opportunities (PTB) and risk (DRSK) on CEOs of family controlled firms (FC-1 and FC-2):

$$\begin{aligned} \text{Ln(CEOPay)} = & \beta_0 + \beta_1 \text{PROPGD} + \beta_2 \text{CSDUAL} + \beta_3 \text{CEODUAL} + \beta_4 \text{PFT} \\ & + \beta_5 \text{SIZE} + \beta_6 \text{BS} + \beta_7 \text{BS}^2 + \beta_8 \text{PTB} + \beta_9 \text{DRSK} \\ & + \text{YearEffect} + \text{IndustryEffect} + e_t. \end{aligned} \quad (2)$$

In the following equation (Models 4–6), we test the relationship among variables such as gray directors, CEO duality, FS and profitability on CEOs' pay of the other three ownership categories (PSUs, FORGN and MCF):

$$\begin{aligned} \text{Ln(CEO pay)} = & \beta_0 + \beta_1 \text{PROPGD} + \beta_2 \text{CEODUAL} + \beta_3 \text{PFT} + \beta_4 \text{SIZE} + \beta_5 \text{BS} + \beta_6 \text{BS}^2 \\ & + \beta_7 \text{PTB} + \beta_8 \text{DRSK} + \text{YearEffect} + \text{IndustryEffect} + e_t. \end{aligned} \quad (3)$$

We estimated Equations (1)–(3) on our pooled time-series data using generalized least squares (GLS) random effects models with robust standard errors, thus mitigating against omitted variables bias, autocorrelation and heteroscedasticity. GLS random effects models have been used to examine CEO compensation in prior studies (Combs *et al.*, 2010; Grasse *et al.*, 2014).

Results and discussion

Table V presents trends relating to executive compensation in terms of mean, median, maximum and minimum summary statistics of the independent and dependent variables. The average remuneration paid to CEOs is Rs9.75m with Rs898.88m being the maximum. The maximum proportion of gray directors is 0.78, which violates Clause 49 of the listing agreement of having at least 30 percent (50 percent) independent directors on the board when the chairman is independent (non-independent). We observe this violation mainly in PSUs. They report this information in their Corporate Governance Reports. For instance, in the case of Indian Oil Corporation Ltd, the 2014–2015 report states as follows: “The company does not have the requisite number of independent directors on its board required under the provisions of Section 149 (4) of the Act (Companies Act of 2013) and revised clause 49 of the Equity Listing Agreement.” Kaur and Gill (2008) made similar observations about PSUs. This non-compliance is due to conflicts in the law that governs PSUs. Beyond PSUs, all other firms were found to be compliant with Clause 49 of the listing agreement.

The mean of absolute total assets was Rs35.95bn with a minimum of Rs0.0481bn and a maximum of Rs2,973bn. For statistical purposes, we have taken the natural logarithm of total assets to address the issue of heteroscedasticity (Ramaswamy *et al.*, 2000). Controlling shareholder duality (CSDUAL) is commonly found in family controlled firms in India. Similarly, playing dual roles of being a CEO and chairman of the board is also found in

Variable	Obs.	Mean	SD	Min.	Max.
ln(CEOPay)	2,190	15.145	1.535	9.210	20.617
PROPGD	2,190	0.157	0.148	0.000	0.778
CSDUAL	2,190	0.170	0.376	0.000	1.000
CEODUAL	2,190	0.423	0.494	0.000	1.000
FC-1	2,190	0.368	0.482	0.000	1.000
FC-2	2,190	0.315	0.465	0.000	1.000
PSU	2,190	0.110	0.312	0.000	1.000
FORGN	2,190	0.114	0.318	0.000	1.000
MCF	2,190	0.094	0.291	0.000	1.000
SIZE	2,190	22.407	1.700	15.386	28.721
ROE	2,190	14.715	14.863	-47.100	124.250
BS	2,190	10.859	2.614	2.000	23.000
BS ²	2,190	124.748	62.178	4.000	529.000
PTB	2,190	4.035	7.765	0.047	251.148
DRSK	2,190	0.003	0.011	0.000	0.370

Notes: ln(CEO pay) is the natural logarithm of CEO compensation defined as the sum of salary, perquisites, commission, sitting fees and bonuses. PROPGD is the proportion of gray directors on the board. CSDUAL is controlling shareholder duality. CEODUAL is CEO duality. FC-1 is family controlled firms with a dominant controlling shareholder. FC-2 is family controlled firms with a non-dominant controlling shareholder. PSU is public sector undertaking with majority shareholding by the government. FORGN is firms with a foreign controlling shareholder and MCF is management-controlled firms wherein shares are held severally. ROE is return on equity, defined as income after tax and extraordinary items divided by average total shareholders' funds. SIZE is firm size measured by the natural logarithm of total assets. BS is board size. BS² is the square of board size. PTB is the market price per share divided by the book value per share. DRSK is one-year Bloomberg default risk

Table V.
Summary statistics

many corporate cases. The average BS is 10.86 with the maximum number being 23 directors on the board of Larsen and Toubro Ltd.

Table VI presents a correlation matrix. CEO pay, represented by its natural logarithm, is positively correlated with the following independent variables: controlling shareholder duality (CSDUAL), family controlled firms with both dominant and non-dominant shareholding by controlling shareholders (FC-1 and FC-2), firms with a foreign controlling shareholder (FORGN) and profitability (ROE). Furthermore, CEO pay is negatively correlated with the proportion of gray directors, PSU, firms with dispersed ownership (MCF) and FS (SIZE).

The correlation matrix reveals that multicollinearity is not an issue since the correlation between the independent variables is low. Furthermore, we estimated variance inflation factors (VIFs). The average VIF and individual VIFs are within an acceptable range (1.05–1.82).

Table VII provides estimates from Model 1 wherein the log (of CEO pay) is the dependent variable. The proportion of gray directors (PROPGD) is found to be positively related to CEO pay. It is found to be statistically significant as hypothesized, at the 5 percent level. Results of this study thus lend support to the proposition that as the number of gray directors on corporate boards increases, so too does CEOs' pay. Controlling shareholder duality (CSDUAL) is also found to be positively associated with CEOs' pay. In other words, the salary of a CEO, who is also a controlling shareholder or belongs to the controlling shareholder group, is higher than that of a professional CEO. Therefore, we fail to reject *H1a*. According to Kumar and Singh (2013), controlling shareholders may wield significant influence over the board and management due to their substantial shareholding and voting rights. Therefore, the higher pay for CEOs who are controlling shareholders cannot be justified.

CEOs who are also controlling shareholders (CSDUAL) received higher salaries than professional CEOs. Hence, we fail to reject *H2a*. CEOs from founding families or the

	ln(CEO Pay)	PROPGD	CSDUAL	CEODUAL	FC-1	FC-2	PSU	FORGN	MCF	SIZE	ROE	BS	BS ²	PTB	DRSK
ln(CEO Pay)	1														
PROPGD	-0.054	1													
CSDUAL	0.273	-0.031	1												
CEODUAL	0.086	-0.106	0.083	1											
FC-1	0.119	-0.209	0.361	-0.013	1										
FC-2	0.158	-0.023	-0.069	-0.013	-0.517	1									
PSU	-0.366	0.219	-0.159	0.239	-0.268	-0.238	1								
FORGN	-0.055	0.126	-0.159	-0.136	-0.274	-0.244	-0.126	1							
MCF	0.003	0.011	-0.145	-0.066	-0.245	-0.218	-0.113	-0.115	1						
SIZE	-0.025	0.214	-0.025	0.010	-0.239	-0.048	0.440	-0.144	0.157	1					
ROE	0.225	-0.026	0.081	0.004	0.042	-0.052	-0.094	0.114	-0.011	-0.184	1				
BS	0.231	0.147	0.030	0.176	-0.093	0.020	0.163	-0.138	0.098	0.336	-0.004	1			
BS ²	0.210	0.129	0.025	0.172	-0.088	0.008	0.165	-0.128	0.096	0.324	-0.001	0.984	1		
PTB	0.025	0.011	0.009	-0.073	0.073	-0.074	-0.104	0.153	-0.058	-0.187	0.231	-0.057	-0.056	1	
DRSK	-0.090	-0.015	-0.008	0.008	-0.012	0.042	0.000	-0.045	0.001	0.074	-0.197	0.046	0.053	-0.089	1
VIF		1.160	1.220	1.170	1.410	1.410	1.810	1.340	1.330	1.560	1.140	1.120	1.110	1.050	0.953
Tolerance		0.862	0.816	0.857	0.709	0.709	0.551	0.744	0.750	0.639	0.879	0.830	0.902	0.922	0.953

Notes: ln(CEO pay) is the natural logarithm of CEO compensation defined as the sum of salary, perquisites, commission, sitting fees and bonuses. PROPGD is the proportion of gray directors on the board. CSDUAL is controlling shareholder duality. CEODUAL is CEO duality. FC-1 is family controlled firms with a dominant controlling shareholder. FC-2 is family controlled firms with a non-dominant controlling shareholder. PSU is public sector undertaking with majority shareholding by the government. FORGN is firms with a foreign controlling shareholder and MCF is management-controlled firms wherein shares are held severally. ROE is return on equity, defined as income after tax and extraordinary items divided by average total shareholders' funds. SIZE is firm size measured by the natural logarithm of total assets. BS is board size. BS² is the square of board size. PTB is the market price per share divided by the book value per share. DRSK is one-year Bloomberg default risk

Table VI. Correlation matrix

	Model 1
PROPGD	0.238 (2.27)**
CSDUAL	0.286 (3.38)***
FC-2	0.118 (0.91)
PSU	-2.057 (10.69)***
FORGN	-0.414 (2.54)**
MCF	-0.145 (0.45)
CEODUAL	0.131 (2.25)**
SIZE	0.215 (3.28)***
ROE	0.013 (6.01)***
BS	0.203 (3.28)***
BS ²	-0.004 (2.00)**
DRSK	-4.209 (2.58)**
PTB	-0.003 (1.66)*
Industry effect	Yes
Year effect	Yes
_cons	-1.202 (5.72)**
n	2,190

Notes: Standard errors in parentheses. The dependent variable is the Log of CEO Pay. $\ln(\text{CEO pay})$ is the natural logarithm of CEO compensation defined as the sum of salary, perquisites, commission, sitting fees and bonuses. PROPGD is the proportion of gray directors on the board. CSDUAL is controlling shareholder duality. CEODUAL is CEO duality. FC-1 is family controlled firms with a dominant controlling shareholder. FC-2 is family controlled firms with a non-dominant controlling shareholder. PSU is public sector undertaking with majority shareholding by the government. FORGN is firms with a foreign controlling shareholder and MCF is management-controlled firms wherein shares are held severally. ROE is return on equity, defined as income after tax and extraordinary items divided by average total shareholders' funds. SIZE is firm size measured by the natural logarithm of total assets. BS is board size. BS² is the square of board size. PTB is the market price per share divided by the book value per share. DRSK is one-year Bloomberg default risk. *, **, ***Significant at the 0.10, 0.05 and 0.01 levels, respectively

Table VII.
Model 1 estimates

controlling shareholder's group are perceived to wield considerable managerial power in board decisions (Chakrabarti *et al.*, 2012). The combined effect of the presence of gray directors on boards and controlling shareholder duality in fixing CEO compensation might be a matter of concern for minority shareholders.

Ownership structure is found to be a significant determinant of CEO pay in the Indian context. We find that the salary of CEOs of family controlled firms with dominant controlling shareholder (FC-1) is significantly higher than that of CEOs of PSUs and firms controlled by foreign controlling shareholders (FORGN). Hence, we fail to reject *H2b*. The CEOs of PSUs received a lower level of compensation. Results of prior research (Ghosh, 2010) also conclude that CEO compensation in state-owned firms is significantly lower than CEO compensation across other ownership groups. Firth *et al.* (2007) argue that the CEO is more likely to be a bureaucrat and his or her managerial skills may be lower than those of a professional CEO in private firms when the government owns the majority shares in a firm. They further observe that equilibrium wages will be lower in government-owned firms (PSUs) when there is a difference in managerial quality. The relationship between lower wages in government-owned firms and the differences in managerial quality explains the lower compensation for the CEOs of PSUs. CEO compensation in family controlled firms with non-dominant controlling shareholder(s) is higher in comparison with FC-1. However, this relationship is found to be statistically insignificant.

Executive compensation is positively associated with CEO duality (CEODUAL). The positive association between executive compensation and CEO duality implies that when a CEO is chairing the board, the compensation will be higher. Our results support the findings of an earlier study in India (Saravanan *et al.*, 2017). Hence, firms may consider

separating the positions of CEO and the chairperson of the board (Dorata and Petra, 2008). As hypothesized, the CEOs of larger firms received higher compensation. Also, the results indicate that there is a positive relationship between firm performance and executive compensation. Jaiswall and Frith (2009) and Raithatha and Komera (2016) have also reported similar findings. Based on this, we can conclude that, in general, there is a positive association between compensation and firm performance. We again examine the effect of firm performance on compensation across ownership categories. This analysis will reveal if the positive relationship between pay and performance exists across the ownership categories.

BS is a significant predictor of executive compensation. This is an indication of the possible collusion between the CEO and the board of directors in fixing compensation. However, it is interesting to note that the nature of the relationship between BS and compensation is non-linear. Therefore, we infer that the increase in the size of the board of directors beyond a certain point will reduce CEO pay. These results are consistent Yeung (2018). The relationship between price-to-book ratio and CEO pay, which is a proxy for growth opportunity, is negatively related to CEO pay. The negative association between the price-to-book ratio and CEO pay may be due to the firm's willingness to commit financial resources to growth opportunities. Furthermore, default risk is negatively associated with CEO pay. This indicates that there is no adequate, corresponding reward for the risks that top executives take in their strategic business decisions.

To test the relationship across ownership categories, we estimated the relationship between the variables based on the sample split methodology explained earlier. We divided all the firms into five ownership categories, as described in Table IV. Out of the 438 sample firms, there were 299 family controlled firms, and the remaining 139 firms were from other ownership categories. Table VIII presents the results.

	Model 2 FC-1	Model 3 FC-2	Model 4 PSUs	Model 5 FORGN	Model 6 MCF
PROPGD	2.382 (6.36)***	0.844 (1.72)*	-1.084 (2.67)***	-0.410 (0.65)	-0.342 (0.80)
CSDUAL	0.287 (2.61)***	0.217 (1.53)			
CEODUAL	-0.014 (0.17)	0.316 (3.08)***	0.040 (0.17)	0.146 (0.77)	0.108 (0.79)
SIZE	0.123 (1.39)	0.267 (3.89)***	0.215 (2.34)**	0.482 (3.24)***	0.287 (3.61)***
ROE	0.015 (3.57)***	0.011 (3.13)***	-0.001 (0.03)	0.018 (2.87)***	0.011 (1.46)
BS	0.070 (0.91)	0.311 (1.91)*	0.040 (1.35)	0.220 (1.10)	0.122 (0.76)
BS ²	0.001 (0.36)	-0.008 (1.28)	-0.006 (1.09)	-0.007 (0.75)	-0.003 (0.60)
PTB	-0.003 (2.31)**	0.002 (0.13)	0.003 (0.21)	-0.012 (0.09)	0.069 (1.92)*
DRSK	-6.857 (1.75)*	-2.066 (1.54)	-21.101 (1.03)	15.605 (3.22)***	-43.37 (1.43)
Industry Effect	Yes	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes	Yes
_cons	10.643 (5.08)***	5.710 (3.07)***	7.207 (2.66)**	3.629 (1.03)	7.602 (3.43)***
n	805	690	240	250	205

Notes: Standard errors in parentheses. The dependent variable is the Log of CEO Pay. $\ln(\text{CEO pay})$ is the natural logarithm of CEO compensation defined as the sum of salary, perquisites, commission, sitting fees and bonuses. PROPGD is the proportion of gray directors on the board. CSDUAL is controlling shareholder duality. CEODUAL is CEO duality. FC-1 is family controlled firms with a dominant controlling shareholder. FC-2 is family controlled firms with a non-dominant controlling shareholder. PSU is public sector undertaking with majority shareholding by the government. FORGN is firms with a foreign controlling shareholder and MCF is management-controlled firms wherein shares are held severally. ROE is return on equity, defined as income after tax and extraordinary items divided by average total shareholders' funds. SIZE is firm size measured by the natural logarithm of total assets. BS is board size. BS² is the square of board size. PTB is the market price per share divided by the book value per share. DRSK is one-year Bloomberg default risk. *, **, ***Significant at the 0.10, 0.05 and 0.01 levels, respectively

Table VIII. Estimation of relationship between CEO compensation and independent variables

Estimations of Equations (2) and (3) demonstrate that the association between the proportion of gray directors (PROPGD) and CEO pay increases for family controlled firms (FC-1 and FC-2). These results are also statistically significant. Thus, we fail to reject *H1b*. The proportion of gray directors (PROPGD) is negatively associated with the CEO compensation of PSUs, firms with foreign controlling shareholder(s), and MCF. In the case of PSUs, gray directors of PSUs are nominees of government. For example, in BHEL Ltd, we observe that the gray directors are from: the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry; and the Department of Heavy Industry, Ministry of Heavy Industries & Public Enterprises.

Similarly, in ONGC Ltd, nominee directors were from the Ministry of Petroleum & Natural Gas. Government is the majority shareholder in PSUs. Therefore, its nominee directors may be considered as the shareholder representatives on the board. In the case of firms controlled by foreign shareholders such as 3M Ltd, or BASF Ltd, we observe the presence of representatives of parent firms on their respective boards. We may consider this as “international overseeing.” Gray directors, in firms with dispersed ownership (MCF), represent institutional shareholders who may happen to be the single largest shareholder group. For instance, in Larsen & Toubro Ltd, non-executive non-independent directors represent equity interest of Life Insurance Corporation of India and Specified Undertaking of Unit Trust of India.

However, in the case of family controlled firms, the role of gray directors leads us to suspect cronyism. Sarpal (2015) and Srivastava (2015) suggest that there is a negative relationship between firm performance and the proportion of gray directors. Whilst there is a negative effect of board structure of family controlled firms on firm performance according to Bhatt and Bhattacharya (2017). Therefore, based on this evidence, the role of gray directors on the respective corporate boards would become questionable. Empirical evidence, provided in this paper, lends support to the implications of psychological contract theory in making sense of the role of gray directors in influencing the magnitude of CEO compensation.

CSDUAL was found to be significantly associated with CEO compensation of family firms wherein controlling shareholders own more than 50 percent of shares (FC-1). CEO duality (CEODUAL) is positively related to the CEO compensation of family controlled firms with non-dominant controlling shareholder(s) (FC-2). This finding is interesting because firms belonging to the FC-2 category may attempt to control the board by holding the dual position of CEO and chairperson. Therefore, we posit that controlling shareholders may exercise their power to pay themselves high compensation (Jaiswall and Frith, 2009).

The relationship between CEO pay and CEO duality is insignificant across other ownership categories. CEO pay increased with FS except in the case of family controlled firms with dominant controlling shareholder(s) (FC-1). BS failed to explain the changes in CEO pay across ownership categories except for the FC-2 ownership category.

Results of this study show that profitability (ROE) exhibits a significant positive association with CEO pay in firms that belong to FC-1, FC-2 and FORGN ownership categories. However, the relationship between profitability and CEO pay is statistically insignificant among firms grouped under PSU and MCF ownership categories. There is no evidence for the presence of a non-linear relationship between CEO pay and BS across ownership categories.

Robustness of results

We reexamined the models using a two-step dynamic panel data model (Table IX) introducing a lagged dependent variable (Fabbri and Marin, 2012). Dynamic panel estimation addresses the issue of endogeneity. The utility of estimating a dynamic model stems from the fact that it accounts for potential dynamic relationships among variables (Raithatha and Komera, 2016). The outcomes are consistent with the results reported using GLS random effects modeling.

	Model 1 Overall	Model 2 FC-1	Model 3 FC-2	Model 4 PSUs	Model 5 FORGN	Model 6 MCF
ln(CEOPay) _{t-1}	0.585*** (0.091)	0.327*** (0.120)	0.688*** (0.197)	0.128 (0.148)	0.764*** (0.274)	0.153 (0.193)
PROPGD	0.544** (0.251)	2.589*** (0.324)	-0.341 (0.492)	-0.897* (0.506)	0.478 (0.923)	-0.912 (0.814)
CSDUAL	0.233*** (0.105)	0.187** (0.098)	0.530* (0.297)			
CEODUAL	0.223*** (0.069)	0.168** (0.083)	0.055 (0.129)	-0.431** (0.219)	-0.388 (0.278)	-0.456** (0.196)
SIZE	0.298** (0.136)	0.185 (0.140)	0.644** (0.274)	-0.776 (0.743)	-0.062 (0.562)	0.533* (0.318)
ROE	0.009*** (0.003)	0.0112*** (0.004)	0.0148** (0.006)	-0.015 (0.011)	-0.005 (0.013)	0.018 (0.011)
BS	0.227** (0.106)	0.011 (0.153)	0.443* (0.235)	0.381* (0.200)	-0.359 (0.525)	0.313 (0.254)
BS ²	-0.006 (0.004)	0.004 (0.007)	-0.016 (0.011)	-0.010 (0.008)	0.023 (0.026)	-0.012 (0.009)
PTB	0.001 (0.004)	0.001 (0.003)	-0.010 (0.028)	-0.026 (0.096)	0.000 (0.021)	0.039 (0.084)
DRSK	-0.081 (5.054)	4.402 (5.120)	8.416 (10.510)	-33.06* (17.510)	7.362 (23.230)	-35.95*** (13.350)
Constant	-2.199 (3.096)	5.415 (3.475)	-12.45** (6.258)	28.740 (17.960)	6.363 (11.410)	-1.412 (7.732)
Observations	1,314	483	414	144	150	123
Number of firms	438	161	138	48	50	41

Notes: Standard errors in parentheses. The dependent variable is the Log of CEO Pay. ln(CEO pay) is the natural logarithm of CEO compensation defined as the sum of salary, perquisites, commission, sitting fees and bonuses. PROPGD is the proportion of gray directors on the board. CSDUAL is controlling shareholder duality. CEODUAL is CEO duality. FC-1 is family controlled firms with a dominant controlling shareholder. FC-2 is family controlled firms with a non-dominant controlling shareholder. PSU is public sector undertaking with majority shareholding by the government. FORGN is firms with a foreign controlling shareholder and MCF is management-controlled firms wherein shares are held severally. ROE is return on equity, defined as income after tax and extraordinary items divided by average total shareholders' funds. SIZE is firm size measured by the natural logarithm of total assets. BS is board size. BS² is the square of board size. PTB is the market price per share divided by the book value per share. DRSK is one-year Bloomberg default risk. *, **, ***, ****Significant at the 0.10, 0.05 and 0.01 levels, respectively

Table IX.
Results of dynamic
panel estimator

The results indicate that past pay has a significant positive association with current CEO pay. Also, the results confirm our hypothesis that the proportion of gray directors (PROPGD) on the board demonstrates a positive and significant association with CEO pay. The effect is positive for family controlled firms and negative for firms controlled by foreign shareholders. Furthermore, the estimation using the dynamic panel model confirms the results presented earlier. For instance, the compensation of the CEO belonging to the controlling shareholder group is higher than that of a professional CEO. The ROE had a significant positive association with the CEO pay among the family controlled firms (FC-1 and FC-2). This result confirms the “pay-for-performance” theory. Thus, the results of the dynamic panel model confirm that our findings are robust and not spurious.

Directions for future research

Future research may focus on describing the role of gray directors on the board based on ownership categories and investigate the relationship between the presence of gray directors and firm value. It would also be fruitful to explore possible moderators in the relationship between gray directors, firm performance, corporate governance and earnings management.

Conclusion

We hypothesized that the presence of gray directors would be positively associated with the magnitude of CEO compensation, and the findings reported herein lend support to this. Furthermore, we found that this association changed across ownership categories. The presence of gray directors is found to be associated with higher compensation of CEOs of family controlled firms. However, their presence is found to be associated with decreased CEO compensation in private foreign, PSUs and dispersed ownership firms. Adding to this, we found that the compensation of CEOs who are in the controlling shareholder group is higher than that of professional CEOs.

Furthermore, this paper has situated the relationship between gray directors and CEO pay on the theoretical rationale advanced by psychological contracts theory. We conclude, therefore, that gray directors’ complicity in fixing unduly high CEO compensation is a symptom of cronyism. The hybrid board structure that India has adopted, with the desire to bring the best of Anglo Saxon and Japanese board philosophies, should be held responsible for the emergence of a self-serving situation. Therefore, this calls for the exploration of fresh thinking to bring about required changes in the regulatory framework.

Note

1. A NYSE-listed US company must have a majority of directors meeting the independence requirements under Section 303A of the NYSE-Listed Company Manual.

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Corporate governance and innovation: a theoretical review

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Abstract

Purpose – The purpose of this paper is to present a review of the literature on two lines of research, corporate governance and innovation, explaining how different internal corporate governance mechanisms may be determinants of business innovation.

Design/methodology/approach – It explores the theoretical background and the empirical evidence regarding the influence of both ownership structure and the board of directors on company innovation. Then, conclusions are drawn and possible future research lines are presented.

Findings – No consensus was observed regarding the relation between corporate governance and innovation, with both positive and negative arguments being found, and with empirical evidence not always pointing in the same direction. Thus, new studies trying to clarify this relationship are needed.

Originality/value – Over recent years, interest has grown in the influence of governance mechanisms on innovation decisions taken by the management. Innovation efforts and results depend on factors that are influenced by corporate governance, such as ownership structure or the functioning of the board of directors. Thus, the paper shows an updated state of the art in this field proposing future lines for empirical research.

Keywords Corporate governance, Innovation, Ownership structure, Board of directors

Paper type Research paper

Introduction

Separation between ownership (shareholders) and control (management) and its relevance for company value and decisions makes it necessary to draw up management control mechanisms. This idea led to the appearance of the corporate governance concept, which has attracted great interest among academic researchers, especially as a result of certain financial scandals over recent years (Enron, Parmalat, WorldCom, etc.). According to Shleifer and Vishny (1997), corporate governance can be understood as the set of mechanisms that align objectives and interests between the providers of finance and company managers so that the former have a degree of certainty against the risk they take by making their funds available to managers, and can try to avoid opportunistic behavior by the latter.

Governance mechanisms can be separated into internal ones (set up by the company itself) and external ones (linked to the different markets in which the company may be present). This study focuses on the former which are the most developed in Spain and have most often been linked to innovation. They include, on the one hand, ownership structure (degree of concentration and large shareholder identity) and, on the other, the board of directors and its functioning in association with certain characteristics

JEL Classification — G3, 03

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(size, composition, etc.) such as the most important measures for overseeing the management (Salas, 2002) and, as a result, for overseeing the decisions taken by the company regarding its performance and competitiveness.

In his two best-known books, Schumpeter (1934, 1942) claims that innovation is the main force for economic development. According to the Oslo Manual, the concept of innovation can be defined as “the introduction of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations” (OECD, 2005, p. 56). Most of the literature focuses on two methods for measuring innovation, the most common being to consider inputs (any efforts made by the company to be more competitive and more innovative, which are usually represented either by expenditure on Research and Development (R&D) as a percentage of the company’s total sales, or by the number of people involved in R&D activities as a percentage of the company’s total employees) and outputs (the result of the innovative activity measured as the number of patents registered or in process of registration by the company).

Although most of the prior studies have tried to analyze the influence of governance on company performance and value, others (some recently) have shown that corporate governance is one of the main determinants for innovation and technological change (Tylecote and Visintin, 2007). Over recent years, interest has grown in the influence of governance mechanisms on innovation decisions taken by the management (Tribo *et al.*, 2007; Wu, 2008; Latham and Braun, 2009; Belloc, 2012[1]; Block, 2012; Balsmeier *et al.*, 2014; Zhang *et al.*, 2014; Tsao *et al.*, 2015). Amongst others, these authors argue that innovation efforts and results depend on factors that are influenced by corporate governance, such as ownership structure, shareholder identity or the functioning of the board of directors.

In this context, the purpose of this study is to link these two fields of research by reviewing the literature (from the late 1980s until today, and including both Spanish and international journals). The ultimate aim is to find out the state of the art in this field and thus to propose future lines for empirical research. The paper is therefore organized as follows: second and third sections present the relation between ownership structure and the board of directors and business innovation, respectively, adding theory on the influence of one on the other and providing empirical evidence to corroborate the relations described. Finally, the fourth section draws conclusions from the review, points out some limitations and suggests possible lines for future research.

Ownership structure and innovation

Ownership structure is one of the main mechanisms for corporate governance (Shleifer and Vishny, 1997; La Porta *et al.*, 1998, 2000) so we review its influence on innovation, distinguishing between two aspects – ownership concentration, and the identity of the main owners[2].

Ownership concentration and innovation

The prior literature includes arguments supporting both a positive and a negative relation between ownership concentration and R&D activities[3]. An initial argument on a negative relation lies in greater risk aversion. Ownership concentration and combined ownership and management may reduce the pressure that external investors or other supervisors exert on managers in their control of financial statements, information transparency and strategic renewal (Carney, 2005). Agency theory (Jensen and Meckling, 1976; Fama and Jensen, 1983) claims that owners or managers become more risk averse as their share in the company capital grows (Beatty and Zajac, 1994; Denis *et al.*, 1997). This is because it is often difficult for them to diversify their risk so they become more conservative and carry out fewer R&D

activities. In addition, concentrated ownership can lead not only to risk aversion but also to a lack of willingness to participate in activities for strategic change, such as innovation, because this involves short-term expenditure on R&D while any possible returns would only appear in the long term (Hill and Snell, 1988; George *et al.*, 2005).

Another argument that may explain the negative relation between ownership concentration and innovation is the conflict between minority and large shareholders which results from limited legal shareholder protection in some countries (Young *et al.*, 2008). High concentration may allow owners to use the company's resources to maximize their own private benefits (Su *et al.*, 2007), at the expense of the minority shareholders, instead of performing profitable activities, such as innovation, that would benefit everyone.

In line with the above arguments, there are studies that support this negative relation for Italy (Battaglion and Tajoli, 2000), Spain (Ortega-Argilés *et al.*, 2005; Ortega-Argilés and Moreno, 2009), Switzerland (Brunninge *et al.*, 2007) and Germany (Czarnitzki and Kraft, 2009). Outside Europe, other results also back this idea for Canada (Di Vito *et al.*, 2008) and China (Chang *et al.*, 2010; Zeng and Lin, 2011). Moreover, as suggested by Ortega-Argilés and Moreno (2009), not only ownership concentration but also the inclusion of owners in management tasks and decision-making could lead to a drop in risky projects because they are less specialized in the patent system and have fewer technical skills.

On the other hand, a positive relation between ownership concentration and innovation is suggested because large owners are likely to be more concerned about the market value of the company and more motivated to invest in projects that are expected to generate value (Baysinger *et al.*, 1991; Lee, 2005; Belloc, 2012). When ownership is concentrated in just a few hands, it is likely to prevent incorrect use of investment funds by the management (Ortega-Argilés *et al.*, 2006). A small number of large shareholders may prefer to make long-term investments in R&D in order to increase company stability instead of focusing on their own profits. Some empirical studies show that ownership concentration has a positive effect on innovation (Hill and Snell, 1988; Baysinger *et al.*, 1991; Lacetera, 2001, for the USA; Di Vito *et al.*, 2008 for Canada; Munari *et al.*, 2010, for Europe).

There have also been some studies supporting a two-way relation between ownership concentration and innovation, depending on the countries studied. For example, Lee and O'Neill (2003) conclude that an increase in ownership concentration is positively related to R&D expenditure in US companies, but not in Japanese companies. On the other hand, in a study on companies in France, Germany, Italy (all countries with high ownership concentration) and the USA and UK (where ownership is more dispersed), Hall and Oriani (2006) found that in France, Germany, UK and US investment in R&D is positively related to market value, and that in Italy and France only companies with no large shareholders were positively valued in the market for their R&D expenditure.

In addition, some empirical studies show that the relation between concentration and innovation might not be linear. Denison and Mishra (1995) argue that large shareholders have a vision that strengthens long-term success but, since they have a large share in the capital they are more risk averse, which causes a negative effect on R&D investment. So, if the risk aversion of large shareholders predominates, ownership concentration will have a negative effect on innovation but if a long-term vision predominates, the effect will be positive. Shapiro *et al.* (2015) explain this non-linear relation between the two variables by the hypotheses of alignment of interests and of entrenchment or opportunism, which results in an inverted U-shape relation, as found by Chen *et al.* (2014). Alignment of incentives may mean that at low levels of concentration, shareholders are more concerned about decisions that will create value in the company, such as innovation. Concentrated ownership dominated by large shareholders, on the other hand, may encourage the latter to divert resources at the cost of minority shareholders, especially when the latter's rights are not well

protected (La Porta *et al.*, 2000; Hess *et al.*, 2010), and this self-interested behavior may have a negative effect on R&D expenditure (La Porta *et al.*, 2000).

Cho (1998), however, states that the relation between corporate ownership and innovation activity may work both ways. He argues that ownership structure affects R&D expenditure, which affects company value, which in turn affects ownership structure. Other studies do not analyze a direct relation between ownership concentration and innovation but consider that the former may moderate another existing relation. For example, Tsao and Chen (2012) find that cash flow control by owners positively moderates the relation between internationalization and innovation in the company, while the entrenchment effect that arises from the diverging interests between control and cash flow rights may negatively moderate this relation. Other studies propose that R&D expenditure may mediate in the relation between ownership concentration and business performance (Zhang *et al.*, 2014).

In summary, regarding ownership concentration, although the empirical evidence is not conclusive, from a theoretical point of view and in line with what has been found in other prior studies, it seems reasonable to expect an inverted U relation between concentration and innovation. For low levels of ownership, what predominates is the incentive alignment effect and the fact that innovation may help create value. On the other hand, at greater levels of concentration and especially in countries with less protection for minority shareholders, risk aversion and the incentive to obtain private benefits from control may result in a negative relation. Moreover, the fact that the causality in the relation is not clear makes it necessary to control for endogeneity in any estimation.

Large shareholder identity

We describe below the different identities of large shareholders (institutional investors, bank owners, state ownership, non-financial entities, foreign investors, individual investors, family ownership and manager ownership) and how they relate to innovation.

Institutional investors. Institutional investors may lead to a lower level of innovation, because they tend to be short-sighted, looking only for short-term profits. They value these more than long-term profits (Kochhar and David, 1996) because access to specific company information is not readily available to them, which in turn makes it difficult for them to evaluate the company's value in the long term (Porter, 1992). They may prefer to benefit only from share price rises and drops even if such changes are only short-lived (Loescher, 1984). A consequence of this preference for investing in the short term is that managers may also set this time line when taking decisions (Kochhar and David, 1996). Also, since managers want to minimize threats of acquisition, which would leave them without a job (Walsh, 1989), they may have incentives to reduce the risk of long-term investments in, for example, innovation activities (Hayes and Abernathy, 1980). Institutional ownership may also pressure managers to report profits in the short term, especially in loss-making companies (Graves and Waddock, 1990). This reduces their interest in entrepreneurial activities, especially R&D investment and the development of new internal products, which involve a high level of risk and only bring returns in the long term (Hill *et al.*, 1988).

In line with these ideas, Graves (1988) showed a negative relation between institutional ownership and R&D expenditure. David *et al.* (2001) argued that institutional investors are not positively associated with R&D inputs, and Kochhar and David (1996) suggest that institutional ownership is negatively associated with the new product ratio, even though the relation is not statistically significant.

There may also be a positive relation between the two variables. Because of their wealth, institutional investors can obtain economies of scale in investment projects, so they have more market knowledge than individual investors (Black, 1992). They may therefore have the necessary incentives for carefully evaluating the possible benefits of long-term

investments rather than short-term gains from price fluctuations (Kochhar and David, 1996). And, since it is not easy for them to diversify their investment in the short term, they might encourage managers to make long-term investments (Kochhar and David, 1996). Another argument in support of a positive relation was made by Aghion *et al.* (2009). Institutional owners have greater incentives and supervisory capacities than other owners. This increased oversight protects managers from the consequences of a failed R&D project which might affect their reputation so institutional ownership can be said to reassure managers about their future job stability. In line with the above arguments Baysinger *et al.* (1991) and Hansen and Hill (1991) find that institutional investors have a positive effect on R&D expenditure by companies. Similarly, Aghion *et al.* (2009) for the USA and Choi *et al.* (2011) for China conclude that the presence of institutional ownership increases the number of registered patents.

Bank ownership. Banking entities maintain trade relations with the companies in which they invest, often providing loans and credits (Kroszner and Strahan, 2001). This exposes banks to uncertainty on the returns on R&D investments. In addition, the presence of banks encourages companies to increase their capital by borrowing (Petersen and Rajan, 1994). The greater the debt, the greater the risk and the greater the importance of distortions generated by debt in investment decisions. One of them is short-term investment (Grinblatt and Titman, 1998), which may hold back investments in R&D which are mainly for the long term (Hoskisson *et al.*, 1993).

However, the empirical evidence is not conclusive because some studies support a negative relation (Tribo *et al.*, 2007; Xiao and Zhao, 2012), some find the opposite (Sherman *et al.*, 1998; Miozzo and Dewick, 2002; Lee, 2005) and some find no significant relation (Kochhar and David, 1996).

State ownership. A positive relation might be expected between state ownership and innovation. Governments have an important role to play in developing innovation because they provide resources for creating new technologies (Amsden, 1992; Haggard, 1994). Some authors argue that they have positive effects on company performance in both advanced countries (Kole and Mulherin, 1997) and countries that are in an economic transition (Sun *et al.*, 2002). State-run companies have significant incentives and access to important infrastructure that facilitates innovation (Chang *et al.*, 2006). In some studies, however, the influence of state ownership on performance and business decisions is found to be negative (e.g. Vickers and Yarrow, 1991; Dewenter and Malatesta, 2001). A double agency relationship or the existence of political objectives going beyond profit maximization are possible explanations.

The empirical evidence, therefore, is not conclusive. Miozzo and Dewick (2002) conclude that, in the case of Denmark, the government plays an important role in stimulating innovative projects through collaboration. For China, Chen *et al.* (2014), Choi *et al.* (2011) and Zeng and Lin (2011) maintain that the State is positively related to innovation outputs or inputs. However, in an international study, Xiao and Zhao (2012) conclude that state-controlled banks have a negative effect on business innovation, especially in small companies. But neither Choi *et al.* (2012) nor Munari *et al.* (2010) find a significant relation.

Non-financial entities. Unlike banks, non-financial companies rarely have credit relations with the companies they control (Kroszner and Strahan, 2001; La Porta *et al.*, 2006). This reduces the degree of risk in debt, avoids investment inefficiencies such as the above-mentioned short-term investment bias, and encourages investment in R&D. Also, non-financial companies are more likely to recognize the importance of R&D in market success. Reciprocal trade relations and synergies between the company and its owner can be expected to encourage investment in R&D (Jaffe, 1986). By investing in R&D, controlled companies can improve their absorption capacity (Cohen and Levinthal, 1990). Sometimes,

owners invest strategically in R&D-intensive companies with the intention of delegating to them some of their own investments in R&D, which would thus become more efficient. Large companies invest in starting up others, give them incentives to invest in R&D and, if such new companies are then successful, the large companies include them in their own division to improve their own investments in R&D (Gompers *et al.*, 2008). Tribo *et al.* (2007) corroborate these ideas for Spain because their results suggest that non-financial companies have a positive impact on R&D investments.

Foreign investors. Foreign partners provide companies with advanced techniques, knowledge and management resources in addition to funding. According to Choi *et al.* (2011) there are three reasons for a positive relation between foreign ownership and innovation. First, foreign investment by multinationals tends to focus on the domestic market for their main business. This requires a competitive technological advantage over other domestic companies (Johanson and Vahlne, 1977; Chang, 1995) and the foreign companies are taken as the model for developing technological and innovation capacity. Second, foreign partners can help companies step up their R&D efforts by means of advanced transfer of technological resources. Finally, foreign investors also encourage their domestic partners to invest in technological development by using their own shares (Chang *et al.*, 2006).

The empirical evidence corroborates the positive relation in the European context (Love *et al.*, 1996 for Scotland, Kostyuk, 2005 for Ukraine), in China (Chen *et al.*, 2014; Choi *et al.*, 2011, 2012) and Korea (Lee, 2012). Similarly, for the USA Francis and Smith (1995) argue that foreign ownership reports a significantly larger number of patents granted than companies with dispersed ownership.

Individual investors. There can be both a positive and a negative relation between individual investors and R&D. On the one hand, supervision is enhanced when the main individual shareholders are present because they offer more points of view. Also, the stakes of large individual shareholders represent a significant proportion of their wealth so they have incentives to supervise and this may have a positive effect on R&D. On the other hand, agreements on long-term investment projects are more difficult to reach when there are numerous large investors (Hoskisson *et al.*, 2002). The empirical study performed by Tribo *et al.* (2007) for Spain did not find a significant relation, whereas Baysinger *et al.* (1991) conclude that the positive effect of ownership concentration on R&D expenditure can be attributed more to the impact of institutional rather than individual investors.

Family ownership. Families have better access to information and focus more on longer time frames than non-family shareholders (Anderson and Reeb, 2003; Brenes *et al.*, 2011). Family owners have an information advantage over minority shareholders and are better able to understand the value and risks involved in R&D projects. With their longer-term horizon, families see their company as an asset to be passed on to their descendants rather than as wealth to be consumed during their lifetime. Also, this longer time horizon allows family owners to tolerate an increased deficit if it encourages the managers and directors to participate in R&D investment strategies. On the other hand, family owners tend to be large shareholders whose wealth is tied up in their companies, so it is difficult for them to diversify their risks (Tsao *et al.*, 2015). So, since R&D projects are intrinsically risky, family enterprises may prefer to invest less in R&D (Anderson *et al.*, 2012).

The empirical evidence is not conclusive. For the USA, Francis and Smith (1995) reach the conclusion that family-owned enterprises hold significantly more patents than companies with multiple owners. For Korea, Yoo and Sung (2015) find that family control is positively related to R&D intensity, especially when there are few opportunities for growth. Along the same line, for Taiwan Tsao *et al.* (2015) conclude that family companies invest more in R&D. In European countries, Munari *et al.* (2010) argue that family ownership is negatively and significantly related to R&D investment. Similarly, for China, Choi *et al.* (2011) suggest that

family ownership leads to a smaller number of registered patents, and Chrisman and Patel (2012) find that families generally invest less in R&D than non-family companies adding that, when performance is worse than expected, their views change and they increase their investments in R&D more than non-family companies.

Other studies suggest that the effect is different depending on whether the company is in the hands of the founder or of the descendants. For the USA, Block (2012) finds that founder-led companies have a positive effect on both R&D expenditure intensity and productivity, but that when they are in the hands of descendants, the effect changes to neutral or even negative. In their analysis of Korean companies, Choi *et al.* (2015) find that the relation is positively moderated by growth in opportunities. Their results indicate that a family-run company generally invests less in R&D but, when performance drops below what was expected, prospects change to the extent that family-run companies increase their investments in R&D more than non-family companies. The relation is not the same for all companies, being weaker in large family-run business groups where family control is more secure.

Finally, family ownership may be a moderating variable for other relations. For example, Kim *et al.* (2008) find that family ownership has a positive moderating effect on the relation between financial slack and R&D investment, and Tsao *et al.* (2015) conclude that it positively moderates the relation between R&D investment and CEO remuneration.

Management ownership. Management ownership helps reduce agency problems between shareholders and managers and the fact that managers have greater voting power guarantees their job stability so also reduces their risk aversion (Cho, 1992). When managers hold shares in the company they are more likely to take decisions that will maximize shareholder profit, such as R&D investment (Hill and Snell, 1988; Latham and Braun, 2009).

However, the empirical evidence on the one hand suggests the relation may be both positive (Hill and Snell, 1988; Francis and Smith, 1995) and negative. Latham and Braun (2009) argue that the relation between organizational decline and innovation is moderated by management ownership. That is, when managers face a loss of their wealth or job security, they cut back any risky actions, which leads to a drop in innovation activities. Greater ownership leads managers to adopt behavior that is more in line with the rigidity model, significantly holding back investment. However, in some cases, no statistically significant relation is found (Lacetera, 2001; Choi *et al.*, 2012).

So, regarding the influence of the main shareholder's identity on business innovation, it seems that, in line with the theory, a company is more likely to carry out innovation activities if the largest shareholder is a long-term institutional investor, a non-financial entity or a foreign investor. In companies run by a family or individuals, if they have sufficient resources or a situation in which they can afford to carry out risky activities (such as innovation) without placing their future at risk, innovation activity can be expected to be more intense. This is also the case if the company is under the control of its founder rather than descendants, in which case business performance is usually worse and there is greater conflict over decisions (Blumentritt *et al.*, 2013). In the case of companies in which the State has a significant stake, the problems of State-Owned companies may predominate (such as a double agency relation, soft budgetary restrictions, distorted objectives, etc.), which may affect decisions to create value. Along these lines, some studies suggest that product and service innovation increases after privatization (Antoncic and Hisrich, 2003). Finally, when managers hold a stake in the capital, they will align their interests with those of the owners, thus encouraging value-creating decisions on, for example, innovation.

Boards of directors and innovation

The board of directors provides a formal link between the owners and those in charge of the day-to-day running of the company, and is described as the top body for control decisions

within corporate governance (Fama and Jensen, 1983; Adams *et al.*, 2008). Although the literature, especially in the fields of finance and business management, shows that the board plays a crucial role in the relation between corporate governance and strategy, the evidence on the relation between the board and innovation by companies is limited (Balsmeier *et al.*, 2014). As far as we know, Baysinger *et al.* (1991) were the first to analyze the link between certain board characteristics and innovation, and concluded that there is a positive link between the proportion of internal board members and R&D expenditure per employee. Since then, the literature has gradually shown how other board characteristics may also influence companies' innovation activities. These include composition (Baysinger *et al.*, 1991; Hoskisson *et al.*, 2002; Kor, 2006; Brunninge *et al.*, 2007; Balsmeier *et al.*, 2014), size (Lacetera, 2001; Adams *et al.*, 2008; Driver and Guedes, 2012), directors' educational level (Escribá-Esteve *et al.*, 2009; Barroso *et al.*, 2011; Dalziel *et al.*, 2011), board meeting frequency (Chen and Hsu, 2009; Wincent *et al.*, 2010) and CEO duality (Lhuillery, 2011).

An essential aspect of boards is their composition. On the one hand, external directors can reconcile differences on the board, evaluate whether independent agendas fit in corporate routines and reduce potential agency conflicts (Yoo and Sung, 2015). This type of director plays two important roles in a firm. First, their independence places them in a better position to supervise management (Rosenstein and Wyatt, 1990; Peng, 2004; Brunninge *et al.*, 2007). Second, external directors, such as bankers or politicians, have different assets to offer or represent important interest groups (Adams *et al.*, 2008).

This type of director also plays an essential role in the acquisition of specialist knowledge, as do their networks for speeding up knowledge transfer (Westphal, 1999). Company expansion through external directors can help to attract funds and to improve its learning experience for innovation activities (Fried *et al.*, 1998). So external directors can be expected to help promote strategies that will boost shareholder wealth, including R&D investments (Kosnik, 1987, 1990). And when external directors work in close collaboration with companies, they can give not only new strategic guidelines but can also provide information and advice during a process of change because of their personal contacts linking the company with important elements in its environment (Borch and Huse, 1993). They can be agents for the acquisition of resources (Goodstein and Boeker, 1991; Kim and Kim, 2015) and can improve the organization's reputation (Hung, 1998; Johannisson and Huse, 2000), facilitating external conditions for change or innovation actions.

In line with the above arguments, Brunninge *et al.* (2007) and Shapiro *et al.* (2015) find that the presence of external directors has a positive effect on strategic changes, including innovation. Similarly, for Germany Balsmeier *et al.* (2014) find that external directors with experience who sit on the boards of technological companies have a positive and significant effect on applications for patents in the companies which they advise and supervise.

However, the monitoring and advice that can be expected from external directors is not always positive for R&D investment (Yoo and Sung, 2015). These authors state that the main role of such directors is not to promote R&D activities but to discipline the strategic decisions taken by main shareholders. They thus become cautious and, as a result, may unwittingly affect long-term performance and discourage certain business strategies because they do not have access to all the information available on strategic decisions so base their approval on the available financial information (Lorsch and Young, 1990).

Internal directors, on the other hand, may be more likely to adopt new strategies for new product development because they know more about such products so do not perceive so much uncertainty (Hill and Snell, 1988; Hoskisson *et al.*, 2002). Baysinger *et al.* (1991) conclude that senior executives may be more prepared to invest in risky R&D projects if they are well represented on the boards because they are less dependent on the opinions and evaluations of external directors and because the proportion of internal directors has a positive effect on the R&D expenditure of large enterprises. On the other hand, Hayes and

Abernathy (1980) and Baysinger and Hoskisson (1989) argue that when companies emphasize financial goals instead of strategic control for evaluating managerial performance, they tend to prefer short-term strategies instead of long-term projects. Also, if senior executives are penalized for adopting strategies involving poor returns, they will be more reluctant to invest in risky R&D projects[4].

Regarding the type of innovation and in comparison with external directors, internal directors may prefer internal innovation (new product development) to external innovation (acquisition) because of the uncertainty inherent in the latter. Also, external directors may find it difficult to evaluate the efficiency of strategic decisions (Mizruchi, 1983; Lorsch and Young, 1990), including product development. Holmstrom (1989) argues that external directors may favor the external acquisition of innovation, in which case evaluation may be based on financial criteria because decisions do not require full understanding by the companies involved. In fact, the empirical evidence suggests that companies that carry out control based on financial information tend to favor external innovation (Hitt *et al.*, 1996; Hoskisson *et al.*, 2002).

For another board characteristic, that of size, both a positive and a negative relation with innovation are possible. On the one hand, a larger number of directors increases the overall experience, information and advice that the company can resort to (Goodstein *et al.*, 1994; Haynes and Hillman, 2010). It also offers more links with the external environment and, probably, more resources (Jackling and Johl, 2009), because more directors increase the company's access to a greater number of external resources, including the technological and financial ones that are essential for innovation (Shapiro *et al.*, 2015). Therefore, a large board of directors can improve a company's capacity to deal with uncertainty in the environment and can increase links with other partners (Pfeffer and Salancik, 2003).

An alternative view suggests that a larger board may prevent it from being effective in its strategic decisions because, for example, there is greater diversity of opinions which may lead to conflict and mistrust among directors (Amason and Sapienza, 1997), and to difficulties for meeting frequently or for coordinating different points of view (Goodstein *et al.*, 1994; Yermack, 1996; Ruigrok *et al.*, 2006).

Regarding the empirical evidence, for Taiwan, Chen (2012) finds that R&D investment is negatively related to board size. But for the UK, Driver and Guedes (2012) do not find evidence of a significant impact of board size on R&D expenditure. Similarly, for China, Shapiro *et al.* (2015) obtain results indicating the board size has no impact on the introduction of new patents.

The educational level of board members determines their abilities and level of knowledge (Barroso *et al.*, 2011). The highest educational levels are characterized by greater cognitive complexity (Wally and Baum, 1994), leading to a greater capacity for grasping new ideas (Barker and Mueller, 2002), adopting new behavior, defining problems better and searching for creative solutions to complicated problems (Bantel and Jackson, 1989). Bearing in mind that R&D projects are complex, directors with a higher educational level may be more receptive to innovation (Barroso *et al.*, 2011; Dalziel *et al.*, 2011). They may be able to take new technologies on board (Lin *et al.*, 2011), acquiring new knowledge and processes, analyzing information much more precisely (Escribá-Esteve *et al.*, 2009) and developing new methods for solving problems (Wincent *et al.*, 2010). So, companies whose board members have a higher educational level will have a more thorough understanding of R&D processes and of external environments, so will be better equipped to implement R&D activities, in line with the findings of Chen (2012) and Lacetera (2001).

In addition, more frequent board meeting allow directors to devote more time and effort to the company strategy and to business operations, sharing their experience, knowledge and judgment. This would provide more critical information and valuable resources (Forbes and Milliken, 1999) for advising the management team on important matters for the company while reviewing the main strategic actions (Haynes and Hillman, 2010). More

frequent meetings are likely to result in a more efficient board (Vafeas, 1999) and better governance (Chiang and He, 2010) and are likely to be valuable for building and developing a network of relations among members (Gabrielsson and Winlund, 2000). Such relations among directors may facilitate access to necessary resources (capital, information, talent, etc.), thus reducing the risk of a shortage of resources for R&D (Chen and Hsu, 2009).

Also, frequent board meetings may give members a better understanding of R&D activities. In meetings they can develop alternative strategies, reducing uncertainty and therefore leading to a greater probability of success in innovative activities (Wincent *et al.*, 2010). However, the results found by Chen (2012) do not support this positive relation between meetings and innovation.

Finally, the distinction between the roles of directors and of managers is clearest when the positions of President of the Board and CEO are separate (Fama and Jensen, 1983), this being known as the absence of duality. Supervision by the board may clearly influence the impact of risk-taking by the CEO (Hambrick and Finkelstein, 1987; Crossland and Hambrick, 2007). When a single person holds several positions (President of the Board and CEO), agency problems arise because of information asymmetries between the CEO and the board. Prior studies suggest that duality leads to unfavorable results for shareholders (Hambrick and D'Aveni, 1992; Boyd, 1994; Webb, 2004; Petra and Dorata, 2008) or may lead to decisions to protect the wealth of all the stakeholders in the company being set aside (Sahin *et al.*, 2011). On the other hand, the separation of these positions may reduce tension between the management and the board, and it is more likely that the President will adopt decisions with long-term potential and within economic and social benefits such as R&D investments (De Villiers *et al.*, 2011). In line with this, Zhang (2012) also argues that separation of these positions may mean that not only shareholders' interests are taken into account but also those of other stakeholders.

Against these arguments, for France, Lhuillery (2011) indicates that certain board practices that address shareholders, such as duality, may individually have a positive influence on R&D investments in line with the results also found by Driver and Guedes (2012) for the UK.

In summary, the relation between a company's innovation and certain characteristics of its board seems clear from a theoretical point of view, with a positive effect expected the higher the educational level of board members, the number of board meetings and the lack of duality or accumulation of positions. However, in the case of board composition and size, the final influence on the degree of innovation will depend on compliance by the company with recommendations in codes of good governance.

Conclusions

This paper first carried out a theoretical review of the influence of ownership concentration and of different types of owner on innovation. It was noted that neither the theory nor the empirical evidence are conclusive for establishing a relation between these variables, because different authors find different results depending on the sample, country or firms studied. Second, no consensus was observed regarding the relation between board composition and innovation, with both positive and negative arguments being found, and with empirical evidence not always pointing in the same direction.

Although in recent years many researchers have been focusing on this field of study, a more consistent explanation still needs to be found for these relations. Also, since the empirical evidence is not extensive, most prior studies have analyzed the influence on innovation of the degree of ownership concentration (Cho, 1998; Ortega-Argilés *et al.*, 2005; Brunninge *et al.*, 2007; Czarnitzki and Kraft, 2009; Shapiro *et al.*, 2015) or the identity of the main shareholders (Hill and Snell, 1988; Kochhar and David, 1996; Lacetera, 2001; Xiao and Zhao, 2012; Yoo and Sung, 2015; Tsao *et al.*, 2015). But there have been fewer studies considering how one of the main governance mechanisms, that is, the board of directors, relates to innovation actions (Wu, 2008; Driver and Guedes, 2012; Balsmeier *et al.*, 2014).

For these reasons, future research could focus on the influence of the board of directors on innovation for Spanish firms, a subject not yet studied in depth because, while Tribo *et al.* (2007), Ortega-Argilés *et al.* (2005) and Ortega-Argilés and Moreno (2009) use samples of Spanish firms, they only consider ownership structure as a determinant of innovation. In addition, Hernández *et al.* (2010), using a sample of 86 Spanish quoted companies in technology companies, show how the ownership structure can moderate the relationship between board composition and R&D investments. Thus, it might be of interest to analyze how board characteristics and functioning may delimit innovation at both input and output level, focusing on the board characteristics that have traditionally been considered (composition, size, meetings, duality). 98.5 percent of Spanish listed firms have a majority of external directors on their boards (CNMV, 2016) to comply with the code of good governance. Thus, if they see innovation as a strategic tool and also receive advice from internal members, they can be expected to carry out more innovation, especially by means of external acquisition. Similarly, in line with the Spanish good governance code, the average size of the board in Spanish firms is 9.8 members (CNMV, 2016). This is not very large and is likely to reduce conflicts between board members and minimize problems of coordination, so there may be a positive effect according to innovation theory. Considering that the theory supports a positive effect, and the fact that the average number of meetings per year of Spanish listed firms is 10.6 (higher than the recommended figure), it can also be expected that during such frequent meetings, decisions on innovation will be taken. 54.7 percent of Board Presidents are also CEOs of their companies (CNMV, 2016) so, since the positions are combined in almost one half of Spanish companies, a negative effect on innovation can be expected in Spain. However, other newer variables could be considered such as diversity within the board (gender, educational background, nationality, tenure, etc.), with analysis of the role played by another of the bodies with great influence, the management team (socio-demographic and psychological characteristics, type of management style, culture, values, etc.) on business innovation.

In addition, it might be possible to include moderating variables in the existing models. For example, in line with the study by Choi *et al.* (2015) (in the case of family firms), it might be of interest to consider whether growth opportunities moderate the relation between board characteristics and innovation.

Another possible line of research would involve a set of analyses to establish differences by country, depending on the type of legal system to which they are subject. Various studies have shown that a country's legal origin and its impact on investor protection and financial development influence a variety of economic aspects including financial markets, labor and competitiveness, and therefore allocation of resources (La Porta *et al.*, 2008). For example, Common Law countries afford greater protection for shareholders than Civil Law countries, which affects the development of governance mechanisms and might determine the innovation strategy. Such greater protection in the case of Common Law countries might reduce one of the negative effects of concentration on innovation. On the other hand, Spain has traditionally been classified as having a bank-based financial system because of the importance traditionally placed on the stakes held by banks in business capital. Spanish listed companies are characterized by high shareholder concentration and high levels of borrowing, mostly from banks. Regarding ownership structure, control is usually exerted by families, followed in importance by financial entities (Sacristán and Cabeza, 2008). On the other hand, in systems based on capital markets, it is the latter that mostly allocate funds because firms request long-term funding from them while the banking system usually supplies short-term funds. Moreover, in this model, usually associated with countries such as the UK and the USA, ownership is dispersed (Sacristán and Cabeza, 2008). While banks can paralyze innovation by extracting informational income and protecting established firms (Rajan, 1992), markets are more likely to promote innovative, R&D-based industries (Allen, 1993). It is for this reason that higher levels of innovation can be expected in countries with a market-oriented governance model.

In order to achieve the above-mentioned objectives in our country, a sample of Spanish non-financial listed companies over recent years could be used. The data could be taken from the SABI database and from companies' annual corporate governance reports and annual reports which have to be filed with the National Stock Exchange Commission and posted on their websites. Information on management teams can be found on the internet, in documentation provided by companies, the "Who's Who" directory, etc.

For Europe, the Amadeus (Bureau van Dijk) database could be used. This contains business and financial information on the 510,000 largest European enterprises, and searches can follow different criteria. It contains data on ownership structure, the stakes held by the different shareholders, direct or indirect ownership, and information on the ultimate owner. It also provides financial data (such as annual accounts), from which it would be possible to extract information on R&D expenditure.

The methodology to be used could be panel data analysis and, more specifically, the generalized method of moments, which affords two advantages. First, since information is available for various time periods, it is possible to control the individual effect or the unobservable heterogeneity of the firms by first differences. Second, it helps to mitigate endogeneity by avoiding bias in the ordinary least square regression coefficient when the error term is correlated with any of the explanatory variables by means of instrumental variables (lags).

Finally, regarding the limitations of this study, although the literature review is as thorough as possible, it is possible that some studies may have been omitted. Also this study does not have an empirical part allowing for the relations considered to be tested in future lines of research. Similarly, we are aware that for future research, performing empirical studies related not so much to the amount but more to the quality of corporate governance would face the added difficulty of how to obtain such information.

Notes

1. As far as we aware, Belloc (2012) is the only review of the literature that adopts a similar approach to this one although its presentation of prior empirical studies is less extensive than ours. More specifically, we give a more detailed review of the influence of ownership on innovation, making an explicit distinction according to the different identities of the main or largest shareholder. Also, unlike Belloc (2012), who focuses on ownership structure and on some of the external control mechanisms, we analyze the relation between another of the main internal governance mechanisms, the board of directors with its different characteristics and firms' innovation activity.
2. Some studies consider a corporate governance index rather than specific ownership measures as an explanatory variable. For example, Chiang *et al.* (2011) conclude that high levels of corporate governance control (a single construct made up of board size, independent directors, owner identity or the difference between control rights and cash flow) are positively linked to the technical and economic success of R&D activities but have no significant influence on commercial success.
3. Some studies, however, do not support a significant relation between ownership concentration and innovation (Choi *et al.*, 2011).
4. Other studies do not find that the presence of managers on the board has a significant effect on R&D intensity (Lacetera, 2001).

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Family board ownership, generational involvement and performance in family SMEs

Family board
ownership

A test of the S-shaped hypothesis

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Abstract

Purpose – In order to deepen our knowledge of governance of family firms, the purpose of this paper is to focus our attention on the relation between family owners who are members of the board of directors and firm performance. Also, this study sheds more light on how the generation in charge of the family firm affects that relationship, as generational involvement may be a unique predictor of governance behavior in these firms.

Design/methodology/approach – The authors applied a cross-sectional ordinary least squares regression model to test the hypotheses on a sample of 313 non-listed Spanish family SMEs. The authors suggest the possibility of a non-linear relationship between the percentage of ownership by family members of the board of directors and firm performance, and specifically, the authors propose an S-shaped effect that implies two breakpoints.

Findings – The authors find not only that an inverted U-shaped relationship exists, but also an S-shaped relationship between family board members' ownership and firm performance in family SMEs. Nevertheless, the results are different in comparing first-, second- and later-generation family firms.

Originality/value – This is one of the few empirical studies that examine the relationship between family board ownership and firm performance in the context of non-listed family SMEs. The authors consider that the influences of family directors on the board of directors as well as the concentration of family ownership on the board of directors are worth studying in non-listed family SMEs. Moreover, previous studies have focused mainly on large listed family firms but not on unlisted ones.

Keywords Ownership, SME, Generation, Performance, Board of directors, Agency theory, Family firm, Family board ownership

Paper type Research paper

1. Introduction

The ownership structure and the effect of the corporate governance mechanism on firm behavior are some of the most debated issues in business and management literature since the seminal article of Berle and Means (1932). Most studies have tried to identify effective mechanisms and



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requirements for solving agency problems arising for top management in the situation of diffuse shareholder structure and separation of ownership and control (e.g. Fama and Jensen, 1983; Jensen and Meckling, 1976). Moreover, most of those studies have focused on large publicly listed firms (e.g. Morck *et al.*, 1988; Anderson and Reeb, 2003; Villalonga and Amit, 2006).

Within the analysis of ownership structure, firms may be differentiated from each other depending not only on whether their ownership is more or less dispersed but also on the nature of the owners (Iannotta *et al.*, 2007). This happens, for instance, in family firm, which can be understood as a business where one family (or more) exerts power over the organization and its strategic direction through ownership, top management team and/or board positions (Pieper *et al.*, 2008). The ownership in such firms – identified as the predominant type of organizations around the world (e.g. La Porta *et al.*, 1999; Faccio and Lang, 2002; Claessens *et al.*, 2002) – is often concentrated within a controlling family, and thus, is regarded as a particular case for the study of ownership structure (Anderson and Reeb, 2003; Villalonga and Amit, 2006).

In private family firms, most of which are family SMEs, the influence of the family in the firm takes the form of family involvement in ownership, governance and/or management. According to agency theory these firms could have a problem of ownership and control, not only as first described by Jensen and Meckling (1976) (i.e. shareholders and managers agency conflict), but also between majority shareholders (controlling owner family) and minority shareholders (i.e. principal–principal problem), between family members in different roles in the business, or as a result of altruism, and so forth (Chrisman *et al.*, 2004; Schulze *et al.*, 2001; Songini and Gnan, 2015).

The agency consequence of ownership in family SMEs is therefore still open to debate since governance mechanisms are often related to family influence and control, and family owners tend to consider their organizations as an extension of themselves (Miller and Le Breton-Miller, 2005).

The governance mechanisms try to employ the organizational resources to resolve conflicts and align the interest of the different stakeholders of the firm (Daily *et al.*, 2003), and to achieve it, the firm should use a variety of corporate governance mechanisms to facilitate the balance of interests of its stakeholders (Chrisman *et al.*, 2004). In the case of family firms, the governance mechanisms used vary in terms of their extent and type, and this, in the words of Daspit *et al.* (2018), means creating substantial heterogeneity in family firm behavior and performance. Therefore, it is interesting to analyze how a source of family control acts in a formal governance mechanism such as in the case of the board of directors. Moreover, despite increasing research efforts, empirical evidence on the influence of ownership structure on family firm performance has produced mixed results (for a review, e. g., see Tsao *et al.*, 2009; Villalonga *et al.*, 2015). In this regard, there are various issues which remain unresolved, and therefore, the literature continues to study various aspects of the interaction among family ownership and different governance mechanisms that can originate from inside or outside the firm (Chrisman *et al.*, 2018).

In order to deepen our knowledge on the governance of family firms, in this study we focus our attention on the relation between family ownership, board composition and firm performance, given that, as Chua *et al.* (2012) asserted, the accumulation of power unrestricted by external board members or outside owners leads to personalistic and particularistic behavior that are sources of heterogeneity in family firms. Thus, our study of Spanish family non-listed SMEs examines the influence of family owners who are members of the board of directors to understand the effect of this mechanism on firm performance. The second objective of this study is to shed light on how the generation in charge of the family firm affects family directorship and firm performance relationship.

The paper contributes to the literature on the impact of ownership structure on firm performance in the following ways. First, our findings provide a new perspective on the role

that family ownership plays in corporate governance as an internal mechanism in family firms. Previous studies have investigated the effect of the degree of family ownership on performance by taking the percentage of shares held by managers who are family members but few have analyzed the percentage of ownership by the family members of the board. Second, this study expands on several others exploring non-linear effects of family board ownership (FOB) on firm performance. Specifically, it is hypothesized that there exists not only an inverted U-shaped relationship, but also an S-shaped relationship between those variables. Third, we analyze the relationship between ownership structure and firm performance using family ownership in the board as an independent variable in comparing first-, second- and later-generation family firms. The motivation of family directors toward performance is different from that of non-family directors (Chua *et al.*, 1999) and is perhaps dissimilar between different generations of family firms. Fourth, previous studies have focused on relatively large publicly listed family firms, however, only a small amount of available literature focuses on unlisted family SMEs. Moreover, family firms with highly concentrated ownership are common in most countries with the exception of Anglo-American ones (e.g. the USA and the UK) (La Porta *et al.*, 1999).

The remainder of the paper is organized as follows. The following section presents the relevant literature regarding ownership structure and presents the hypotheses and models to be tested. Section 3 sets out the data, the measurement of the variables and the procedures for analysis used in undertaking this empirical study. The empirical results are reported in the penultimate section. Finally, the conclusions, implications and limitations are discussed in Section 5.

2. Theoretical debate and hypotheses development

2.1 *Governance mechanisms: ownership concentration and board of directors*

Empirical evidence collected from large publicly listed Anglo-American companies has long enabled studies of the principal–agent problem described by Jensen and Meckling (1976), and Fama and Jensen (1983), where dispersed shareholders (principals) are forced to delegate control to top managers (agents) giving rise to the so-called Type I principal–agent problem. Consistent with the monitoring hypothesis, concentrated ownership among top management can mitigate the classical principal–agent conflict by aligning the interest of managers and shareholders. However, a concentrated ownership structure can lead to the appearance of agency conflicts between controlling shareholders and minority shareholders (i.e. Type II principal–principal problem). In this regard, Shleifer and Vishny (1997) argued that in some countries the Type II agency problem is more usual than Type I agency problem (e.g. see La Porta *et al.*, 1999, for an extensive survey).

Adopting the agency lens, “control” is associated with voting control and board power (Villalonga *et al.*, 2015), and this involves strong connection between the interests of controlling shareholders and minority shareholders although the effects can be different (Fama and Jensen, 1983; Shleifer and Vishny, 1997). That view is shared by Villalonga and Amit (2006), who suggested that in situations where the major shareholder is an individual or a family, there will be a greater incentive for both the monitoring of the manager and the expropriation of minority shareholders. Thus, two opposite differentiated firm’s behaviors have been argued in the analysis of the relation between concentrated ownership structure and firm performance when analyzing the relationship between controlling shareholders and minority shareholders: the convergence of interests hypothesis and the entrenchment hypothesis (Jensen and Meckling, 1976; Fama and Jensen, 1983; Morck *et al.*, 1988; Shleifer and Vishny, 1997).

The convergence of interest hypothesis suggests that the controlling shareholders face strong incentives to monitor managers and maximize profits when they retain substantial cash flow rights in addition to control (La Porta *et al.*, 1999). These incentives also enhance the

value of minority shares, and hence the interests of both shareholders' group converge. Since the board of directors is an effective corporate mechanism and from there the controlling shareholders can exercise control over the firm, when the percentage of ownership by directors grows, their interests and those who represent minority shareholders are aligned. In this way, Type II agency problem tends to disappear and the hypothesis of convergence of interests prevails. Consequently, an improvement in the firm's performance is expected because the dissonance between shareholder groups is reduced.

In the context of family firms, family owner-directors are likely to have more incentives to be good monitors because in addition to linking their wealth with the firm (Chrisman *et al.*, 2004) they maintain emotional ties with the family firm (Gómez-Mejía *et al.*, 2007). Family members have incentives to be good monitors because their economic and non-economic preferences are linked to the continuation of the firm and therefore, it is to be expected that agency conflicts are minimized in family firms and lower than they are in non-family firms (Chrisman *et al.*, 2005).

The so-called entrenchment hypothesis is based on the idea that concentrated ownership creates incentives for the controlling shareholder to expropriate wealth from minority shareholders. The entrenchment hypothesis claims that the more concentrated the ownership is, the more serious the information asymmetry and the agent problems that exist between controlling and minority shareholders are (Shleifer and Vishny, 1997). The "private benefits of control" hypothesis labeled by Grossman and Hart (1984) can appear because the controlling shareholder may use its dominant position in the firm. Morck *et al.* (1988) suggested that, at high level of ownership by board members, these directors may use the voting power to secure their positions, and it can be seen as an entrenchment problem. This view is also shared by Ozkan and Ozkan (2004), who maintained that higher levels of board ownership give controlling board members more voting control and influence over the firm, increasing their ability to resist outside pressures, which can lead to difficulties for minority shareholders in developing their functions in the board. The board of directors as a governance mechanism may not help protect minority shareholders if it is highly controlled by major shareholders. Therefore, Morck *et al.* (1988) predicted that concentrated ownership above a certain threshold has a negative effect on the firm value due to the inherent conflict between controlling shareholders and minority shareholders.

In this regard, Villalonga and Amit (2006) considered controlling shareholder situations in other institutions apart from family firms, and argued that the private benefits of excessive control over the firm are, in general, divided among several groups of stockholders (e.g. banks, and other corporations and institutions). In these cases, controlling shareholders can redistribute wealth from other minority shareholders, whose interests need not coincide (De Miguel *et al.*, 2004). It is therefore concluded that in non-family firms the controlling shareholders' incentives for expropriating the minority shareholders are diluted and are less pronounced than in family firms (Morck and Yeung, 2003; Villalonga and Amit, 2006). According to Villalonga *et al.* (2015, p. 640), "in family firms, more than in any other corporation with concentrated ownership, Agency Problem II is likely to overshadow Agency Problem I." In fact, the empirical literature has shown that under the assumption of (asymmetric) altruism and opportunistic behavior, family firms are exposed to agency costs (Siebels and zu Knyphausen-Aufseß, 2012). That view is shared by Corbetta and Salvato (2004) who, adopting the agency view, also considered that the altruistic tendencies of family members are limited to narrower family groups and it does not help align the incentives of different board members (or board groups).

In summary, the existence of these two competing arguments suggests the possibility of a non-linear relationship between ownership concentration and firm performance in family firms. Therefore, we hypothesize an inverted U-shaped relationship in the context of family SMEs between the percentage of ownership by the family members of the board of directors and firm performance. Thus, as FOB increases, we expect to observe first a positive alignment between family controlling board members and other non-family shareholders'

interests leading a positive impact on firm performance (convergence of interest hypothesis). Then, we expect a negative effect (entrenchment hypothesis) exerted by FOB on firm performance because of reduced alignment of interests between the controlling family board members and the rest of shareholder groups. Formally:

H1. There is an inverted U-shaped relationship between family board members' ownership and firm performance in family SMEs.

To validate this hypothesis, firm performance is regressed against FOB and its square. The inclusion of these two variables in the value model enables us to explicitly test both the convergence of interest and entrenchment effects as well as to optimally determine the breakpoint of the value–concentration relationship:

$$Y_i = \beta_0 + \beta_1 \text{FOB}_i + \beta_2 \text{FOB}_i^2 + \beta_3 \text{GO}_i + \beta_4 \text{Lev}_i + \beta_5 \text{Size}_i + \beta_6 \text{Age}_i + \varepsilon_i, \quad (1)$$

where i refers to family firm 1 to n .

In addition, to test the non-linear nature of the relationship we also hypothesize a cubic model that implies two turning points. The S-shaped form allows the possibility that the relationship becomes positive again above some level of FOB. This could happen in boards dominated by different families or family branches because it implies the necessity of a greater convergence of interests between different family members of the board of directors (or groups of board members) as family ties may be more diffuse than in situations where there is either only one family or earlier generations controlling the board of directors. Based on the arguments mentioned above, we hypothesize an S-shaped relationship between the percentage of ownership by the family members of the board of directors and firm performance. Formally:

H2. There is a cubic relationship between family board members' ownership and firm performance in family SMEs.

Our model extends the piecewise linear regression of Morck *et al.* (1988) by permitting the coefficients on the FOB variables to determine their optimal breakpoints. To test this hypothesis we suggest the following model:

$$Y_i = \beta_0 + \beta_1 \text{FOB}_i + \beta_2 \text{FOB}_i^2 + \beta_3 \text{FOB}_i^3 + \beta_4 \text{GO}_i + \beta_5 \text{Lev}_i + \beta_6 \text{Size}_i + \beta_7 \text{Age}_i + \varepsilon_i, \quad (2)$$

where i refers to family firm 1 to n .

2.2 The generational perspective in ownership concentration and board of directors

The arguments previously reported highlight the potentially positive and negative effects of concentrated (family) ownership in the board on firm performance. They also outline the contrasting views between the convergence of interest and entrenchment hypotheses. But a firm's ownership structure can be defined not only by the ownership concentration (whether diffuse or concentrated) but also by the role and identity of the owners in the firm. This happens, for instance, in the case of family firms as generational involvement may be a unique predictor of governance behavior in these firms.

First-generation family firm is defined as a family-owned and managed firm by members of the first-generation or founding generation of the family involved in the business. In the latter type of family firm, stronger ties are created between the family and the firm. The founding family shares a common destiny with the firm and there is a concurrence of family and business objectives (Miller and LeBreton-Miller, 2005). Founding-owner and a narrow group of family members are involved in ownership, governance and management, which alleviates or eliminates agency problems.

When multiple generations, i.e., second-, third- and later-generations are involved in the ownership and the management of the family firm, priorities and the nature of problems may begin to change (Gersick *et al.*, 1997). Conflicts may ensue when the interests of the family members diverge, and agency relationships between various participants in the firm are conducted on the basis of economic and non-economic preferences (Chrisman *et al.*, 2005; Sharma *et al.*, 2007). When family members are involved in different roles in the firm, intra-family agency problems can arise between principals (family shareholders) and agents (family members also involved in governance and/or management) as the likelihood of opposite opinions and objectives increases and agents pursue their interests contravening those of the principals (Chrisman *et al.*, 2004). Thus, Davis and Harveston (2001) found that more conflicts arise when second-, third- or later-generations run family firm. Relationships during the sibling partnership stage become more problematic; moreover, the family (or part of the family) could be progressively becoming a passive owner (Gedajlovic *et al.*, 2004). Although some shareholders (actively) participate in the governance and/or management of the firm (agent-family shareholders), others may take a passive role (principal-family shareholders), and as a result members may have different interests and goals (Siebels and zu Knyphausen-Aufseß, 2012). For example, passive shareholders might prefer high dividend payouts, whereas active shareholders would rather retain profits and use them for reinvestment (May, 2004, cited by Siebels and zu Knyphausen-Aufseß, 2012). Moreover, sibling partners are likely to prioritize concerns for their own and narrow family welfare over concerns for each sibling's welfare (Gersick *et al.*, 1997). Thus, family cohesion in subsequent generations could be weaker and therefore the sense of shared interests of family members would be lower. In addition, family firms are potentially subject to an additional conflict of interest between family shareholders and family non-shareholders. In this case, as in any agency relationship, the goals of principal and agent may diverge. According to Villalonga *et al.* (2015), family shareholders, being part of the larger family group, are likely to share some or all of the larger family objectives, but they are also likely to have some objectives of their own that may conflict with those of the family as a whole.

Consequently, second-, third- or later-generation family firms need a lower percentage of ownership on the board of directors to control and influence the firm because share ownership is more widespread than previously. Formally:

H3. The turning point of family board members' ownership, both in quadratic and cubic relationships, decreases over generations.

This relationship is analyzed using the following models:

$$\begin{aligned}
 Y_i = & \beta_0 + \beta_1\text{FOB}_i + \beta_2\text{FOB}_i^2 + \beta_3\text{FOB}_i \times \text{Gen1}_i + \beta_4\text{FOB}_i \times \text{Gen2}_i \\
 & + \beta_5\text{FOB}_i \times \text{Gen3}_i + \beta_6\text{FOB}_i^2 \times \text{Gen1}_i + \beta_7\text{FOB}_i^2 \times \text{Gen2}_i \\
 & + \beta_8\text{FOB}_i^2 \times \text{Gen3}_i + \beta_9\text{Gen1}_i + \beta_{10}\text{Gen2}_i + \beta_{11}\text{Gen3}_i\beta_7 \\
 & + \beta_{12}\text{GO}_i + \beta_{13}\text{Lev}_i + \beta_{14}\text{Size}_i + \beta_{15}\text{Age}_i + \varepsilon,
 \end{aligned} \tag{3}$$

$$\begin{aligned}
 Y_i = & \beta_0 + \beta_1\text{FOB}_i + \beta_2\text{FOB}_i^2 + \beta_3\text{FOB}_i^3 + \beta_4\text{FOB}_i \times \text{Gen1}_i \\
 & + \beta_5\text{FOB}_i \times \text{Gen2}_i + \beta_6\text{FOB}_i \times \text{Gen3}_i + \beta_7\text{FOB}_i^2 \times \text{Gen1}_i \\
 & + \beta_8\text{FOB}_i^2 \times \text{Gen2}_i + \beta_9\text{FOB}_i^2 \times \text{Gen3}_i + \beta_{10}\text{FOB}_i^3 \times \text{Gen1}_i \\
 & + \beta_{11}\text{FOB}_i^3 \times \text{Gen2}_i + \beta_{12}\text{FOB}_i^3 \times \text{Gen3}_i + \beta_{13}\text{Gen1}_i + \beta_{14}\text{Gen2}_i \\
 & + \beta_{15}\text{Gen3}_i + \beta_{16}\text{GO}_i + \beta_{17}\text{Lev}_i + \beta_{18}\text{Size}_i + \beta_{19}\text{Age}_i + \varepsilon,
 \end{aligned} \tag{4}$$

where *i* refers to family firm 1 to *n*.

3. Empirical research: method, data and analysis

3.1 *Sample and data sources*

We conducted a study of Spanish small- and medium-sized family firms included in the Iberian Balance Sheet Analysis System (SABI) database provided by Bureau Van Dijk. We imposed certain restrictions on this group of firms in order to obtain a sample that is representative of the population. We eliminated firms affected by special situations such as insolvency, winding-up, liquidation, or zero activity and we eliminated listed companies and firms with less than 50 employees. Thus, companies were large enough to ensure the existence of a management team and a board of director. Finally, selected firms should have provided financial information in 2013.

In this study companies must meet the following two conditions to consider them as family firms (Arosa *et al.*, 2010): majority ownership is controlled by a single family (over 50 percent of shares); and family members actively participate in firm management. To find compliance with these two conditions, we conducted an exhaustive review of shareholding structure (percentage of common stock) and composition (names and surnames of shareholders), and examined the composition of the board of directors of each of the selected firms in the database. The sample comprised 1,493 private Spanish firms.

Once the preliminary criteria were established, the financial reporting information was obtained from the SABI database, which collects financial information from annual accounts filed with the Spanish Mercantile Register. Subsequently, a structured questionnaire was used to collect additional information on items not included in the SABI database as, for example, the percentage of ownership of family members in the board of directors and the generational involvement in the firm, which is consistent with studies investigating family firms (Eddleston *et al.*, 2008). A professional survey agency was employed to collect data by means of telephone interviews, a method that ensures a high response rate. To maximize responses, managers received written notifications regarding the purpose and importance of the research before the study was conducted. To ensure a high response rate and reliable and accurate responses, the CEOs were promised that the information about the respondents and the company would remain strictly confidential. Telephone interviews were scheduled in advance in cases where managers signaled reluctance or limited availability. The total response rate to the questionnaire was 24.72 percent of the sample, i.e., 369 family firms out of 1,493. Considering data deputation, the final sample was 313 family firms or 20.96 percent of the overall sample. These 313 firms are a representative sample with a confidence level of 95% (Malhotra and Birks, 2007).

We used some techniques to reduce the potential response bias. First, we protected the respondents' anonymity by assuring the confidentiality of their responses in the cover letter that accompanied the survey (Podsakoff *et al.*, 2003). Second, we created a pre-test to fine-tune the questionnaire and prepared a presentation letter, emphasizing the need for research on ownership structure of family firms and their boards of directors in order to increase the interest in the topic. Moreover, a non-response analysis revealed no statistically significant differences between respondents and non-respondents with regard to age and size (p -value > 0.1).

3.2 *Variable measurement*

3.2.1 *Dependent variable.* Several performance indicators have been used for measuring performance as growth in sales, growth in market share, growth in employees, growth in profitability, return on equity, return on total assets, profit margin on sales or the ability to fund growth from profits, among others (Eddleston *et al.*, 2008). In this regard, several articles use indicators obtained through questionnaire survey as assessment of performance (e.g. Arzubiaga *et al.*, 2018; Sanchez-Famoso *et al.*, 2017). However, other studies use

indicators obtained from financial reporting information as performance measure (e.g. Chu, 2009; Mazzola *et al.*, 2013). In this paper, the profitability is measured by the accounting measure return on assets (ROA) obtained from the annual accounts collected from SABI. ROA indicates how well a firm is performing by comparing the profit it is generating to the capital invested in its assets. ROA ratio formula is calculated by dividing operating income (earnings before interest and taxes, EBIT) by the book value of total assets.

3.2.2 Independent variables. Family ownership in the board (FOB). This variable indicates the percentage of ownership of family members in the board of directors.

Generational involvement in the firm (Gen). Consistent with Miller *et al.* (2007), we have generated three Gen variables. Gen1 has a value of 1 if the firm is managed by the first generation and 0 otherwise; Gen2 has a value of 1 if the firm is managed by the second generation and 0 otherwise; and Gen3 takes the value of 1 if the firm is managed by the third- and later generations and 0 otherwise. These three variables enable us to analyze whether the behavior of family firms varies depending on the generation that manages the firms.

3.2.3 Control variables. Different additional variables were included to calibrate the model specification and to consider possible alternative explanations for the results of our study. Firm Size was measured by the total assets (e.g. Hernandez-Trasobares and Galve-Gorriz, 2017). Growth opportunities (GO) has been proxied by the sales growth rate, i.e., $Sales_t/Sales_{t-1}$, following Acedo-Ramirez *et al.* (2017) and Steijvers and Niskanen (2013) given that it cannot be measured using the book-to-market ratio since no information is available about market value. The degree of leverage (Lev) is also a control variable that is used to avoid the influence of ownership structure on firm financial structure (Demsetz and Lehn, 1985). In these models, we use the total debt to total assets ratio to measure the degree of leverage (Maseda *et al.*, 2015). Finally, firm age (Age) is measured by taking into consideration the time since the firm was established (Barros *et al.*, 2017). The Size and Age variables were both log-transformed to achieve normality.

3.3 Method

We applied a cross-sectional ordinary least squares (OLS) regression model to test the hypotheses presented in the preceding section. The quadratic relations proposed in Equations (1) and (3) presented only one breakpoint for each generation, which could be optimally derived by differentiating performance with respect to FOB. Letting this partial derivative equal 0, this breakpoint is $FOB = -\beta_1/2\beta_2$. The coefficients display an inverted U shaped, with the breakpoint occurring when β_1 and β_2 are significantly positive and negative, respectively (De Miguel *et al.*, 2004).

Our second model tested an S-shaped form of the relationship between firm value and FOB (Equations (2) and (4)). This model extended the piecewise linear regression of Morck *et al.* (1988), enabling the coefficients on the FOB variables to determine their optimal breakpoints. According to De Miguel *et al.* (2004), these optimal breakpoints could be calculated by differentiating profitability from FOB. Equating the partial derivative to 0, the cut-off points were given by the following equation:

$$FOB/FOB^2 = \left(2\beta_1 \pm \sqrt{4\beta_2^2 - \beta_1\beta_3}\right)/6\beta_3.$$

In order to test for multicollinearity, the VIF was calculated for each independent variable. The results (Table II) indicated that all the independent variables had VIF values of less than 10.

Finally, we also checked for potential endogeneity problems, specifically reverse causality in the relationship between the dependent and independent variables.

4. Results

Tables I and II present the descriptive statistics and correlation coefficients for the variables used in this study. It should be noted that the average of FOB stake in family firms in the sample is 52 percent. Nevertheless, when different generations join the firm, this ownership stake is diluted significantly.

Given that there might be a potential problem of the endogeneity of FOB, we estimate our models using an instrumental variable (IV) analysis. On the basis of the availability of data and the correlations (Maseda *et al.*, 2015), we identified the instrument “number of family directors” that is correlated with FOB (-0.2050 , p -value < 0.01) but unrelated to firm performance (0.0281 , p -value > 0.01). This instrument is considered valid (p -value < 0.00) for the first-stage regressions in the models. These indicate a sufficiently strong correlation between the instrument and the potential endogenous variable FOB. Having established a significant correlation between the instrument and FOB and given the validity of the instrument, the IV results can then be used to address the question of whether the FOB effect estimated by a simple OLS regression is substantially biased or not (Bennedsen *et al.*, 2007). The Hausman F -test, p -value > 0.01 , does not reject the null hypothesis of no endogeneity in any of the models (Bennedsen *et al.*, 2007). Thus, our OLS regression results are unlikely to be inconsistent or biased.

Table III shows the results of regression analysis. All the models tested are significant (p -value < 0.00). R^2 is not high in any model, although always higher than 0.1. Scholars do suggest the convenience of scoring higher values than 0.1 in R^2 (Falk and Miller, 1992), although acceptable R^2 values depend on the research context (Hair *et al.*, 2011).

Family firms			
Number of observations		313	
	1st Gen	2nd Gen	3rd Gen
	102	144	67
Family board ownership (%)		51.73	
	1st Gen	2nd Gen	3rd Gen
	59.06	50.62	43.14
<i>Control variables</i>			
Return on assets (%)		6.72	
Growth opportunity (Sales _{<i>t</i>} /Sales _{<i>t-1</i>}) (%)		14.61	
Leverage (total debt/total assets)		42.50	
Firm's size (total assets) (thousand euros)		27,309.48	
Firm's age (years)		40	

Sources: Data of ownership structure and board of directors were obtained from the survey. Financial information was obtained from SABI

Table I.
Descriptive statistics

Variables	VIF	1	2	3	4	5	7
1. ROA	1.30	1					
2. FOB	1.23	0.02	1				
3. GO	1.10	-0.05	-0.01	1			
4. Leverage	1.15	-0.23*	0.12*	-0.24*	1		
5. Firm size	1.10	1.10	-0.09	-0.05	0.13*	1	
6. Firm age	1.05	-0.01	-0.11*	-0.013	0.03	0.01	1

Note: *Correlation is significant at the 1 percent level

Table II.
Correlation data

	ROA			
	I	II	III	IV
Constant	-0.042	-0.027	-0.04	0.008
FOB	0.082**	0.262***	0.098	0.087
FOB ²	-0.078**	-0.629**	0.095	-0.082
FOB ³		0.384**		0.007
FOB × Gen1			0.279**	0.427**
FOB × Gen2			0.149	-0.236
FOB × Gen3			0.154	0.301
FOB ² × Gen1			-0.260**	-0.893**
FOB ² × Gen2			-0.123	-0.469
FOB ² × Gen3			-0.155	-0.605
FOB ³ × Gen1				0.491*
FOB ³ × Gen2				0.259
FOB ³ × Gen3				0.310
Gen1	0.043**	0.043**	0.023	0.017
Gen2	0.017	0.014	-0.001	-0.02
Gen3	0.016	0.012	0.009	0.001
GO	-0.048	-0.002*	-0.002*	-0.001
Lev	-0.083***	-0.090***	-0.103***	-0.097***
Size	0.009***	0.007**	0.008**	0.007**
Age	0.032	0.006	0.003	0.006
F-value	3.93***	4.02***	3.21	2.74
R ²	0.15	0.17	0.18	0.19

Table III.
Regression results

Notes: *, **, ***Significant at the 10, 5 and 1 percent levels, respectively

In the first regression (Equation (1)), we examined the influence of FOB on firm performance without considering the generation runs on the firm (Table III, Column I). The coefficient on the FOB variable is positive ($\beta_1 = 0.08$) and negative for its square ($\beta_2 = -0.078$). These results confirm our first hypothesis (H1) that an inverted U-shaped relationship exists between FOB and firm performance in family SMEs. This result demonstrates the existence of an optimal level of FOB, which stands at approximately 52.56 percent (Figure 1).

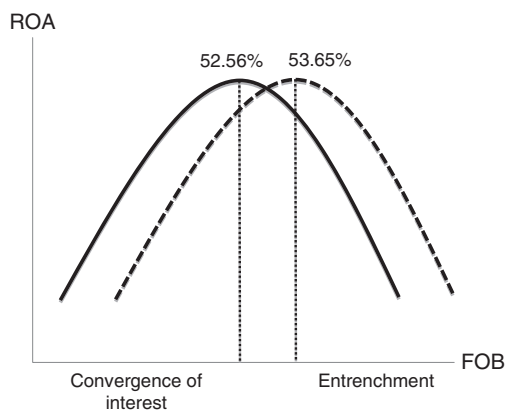


Figure 1.
U-shaped relationship between family board ownership and firm performance

Note: The hypothesized S-shaped family board ownership–performance link

In Table III, Column II, β_1 and β_3 are positive and β_2 is negative, which supports the S-shaped specification for the value proposed by the second hypothesis ($H2$). There is evidence of a significant cubic relationship between FOB and firm profitability in family firms. Firm performance increases with relatively high and low levels of FOB and falls at intermediate levels. Once $H2$ is supported, the next step is to calculate the breakpoints. We note that when FOB is between 0 and 28.01 percent, an increase in the percentage of ownership positively improves firm performance. However, when FOB is between 28.01 and 81.19 percent, the firm performance decreases as the percentage of ownership increases (Figure 2).

In order to fulfill the second objective of the study, we compared the behavior of family firms when second- and later-generations run family firm. We analyzed whether significant differences exist in the optimal FOB proportion for the sample firms based on their generational stage. We included three variables to indicate the generation that is managing the firms (first, second and later generations). Our statistical results provide support for first-generation family firms. The coefficient is positive and significant ($\beta_4 = 0.279$, Column III) and its square is negative and significant ($\beta_7 = -0.260$, Table III, Column III). Therefore, the results indicated an inverted U-shaped relationship because the coefficients β_1 and β_2 are significantly positive and negative, respectively. This result demonstrates that the optimal level of FOB of first-generation family firms stands at approximately 53.65 percent. Nevertheless, for second-generation and subsequent generation family firms, the coefficients are not significant. The results exhibit no relationship between the proportion of FOB and firm performance when the second- and later-generations run family firms.

Finally, we test whether there is evidence of a significant cubic relationship between FOB and firm performance based on the generation that manages the firm. The results shown in Table III (Column IV) confirmed the existence of a cubic relationship between FOB and profitability in family firms run by the first generation. The coefficients β_4 (0.427) and β_{10} (0.491) are positive and significant and β_7 (-0.893) is negative and significant. Therefore, our results indicate that the break-point at which the relation between FOB and firm performance turns from positive to negative is 32.76 percent in first-generation family firms. Over that level of ownership, an increase of FOB negatively influences firm performance. The break-point in which the relationship turns from negative to positive stands at approximately 88.49 percent. Nevertheless, for second- and later-generation family firms no cubic relationship is supported. Although if we compare the values of the breakpoints for the whole sample *vis-à-vis* Gen1 we see that the former is lower which suggests that the

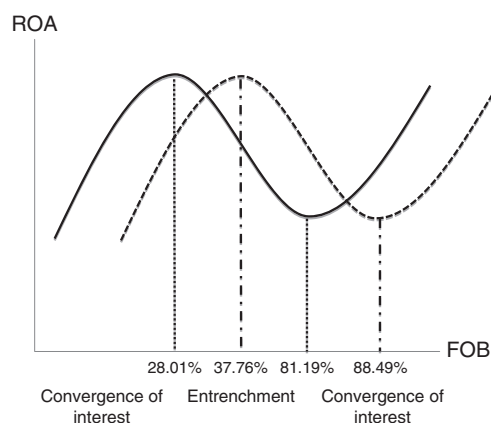


Figure 2.
S-shaped relationship
between family
board ownership and
firm performance

inclusion of later generations in the sample lowers the break-point offering some support (albeit not conclusive as such) to the idea posited in *H3*. This is the case in both the quadratic and cubic equations.

5. Discussion, implications and limitations

Most of the previous studies that explore the agency problem of family firms have focused on managerial ownership instead of board ownership. The present study is one of the few empirical articles that examine the relationship between FOB and performance in family SMEs as the shares held by the family directors can be an indicator of the control and influence of majority (family) owners. The results provide evidence that the composition of the board is one mechanism which can explain agency relationships within family firms.

We suggest an inverted U-shaped relationship between the percentage of ownership by the family directors and firm performance. The results confirm our hypotheses, both in the set of family firms sample and in the specific case of first-generation family firms, the family firm performance is maximized when the proportion of family ownership of the board reaches 52.56 and 53.65 percent, respectively. However, beyond those points of optimal ownership concentration, performance is negatively affected.

These findings suggest that the degree of performance is increasing as the percentage of FOB and convergent-of-interest effect increases. However, when family directors own a substantial percentage of shares which gives them the complete control and influence on the board, firm performance decreases and the entrenchment hypothesis prevails. Thus, the convergence of interest hypothesis and expropriation hypothesis have opposite predictions in determining board ownership concentration and performance relationship in family SMEs. The positive perspective suggests that FOB is an important tool to supervise management by effective monitoring. The interest of family directors in monitoring and supporting top management is shared with minority shareholders and their representatives on the board, and thus, the effect of convergence of interests prevails. The negative perspective supports the idea that the positive impact of an effective monitoring activity in the board is mitigated by a substantial voting power and a high degree of influence of family owner-directors. To reduce the expropriation effect, one strategy could be to consider opening up family firms' equity to other shareholders or to introduce active (independent) outside directors whilst retaining family influence, which would secure the advantages of concentrated ownership.

Moreover, our results suggest that the percentage of ownership which is required to maximize FOB-performance relationship is higher in first-generation family firms than in the overall of the family firms. The reason can be that second, third and later generations of family firms need a lower percentage of ownership to control and influence the firm since there is a tendency for share ownership to become dispersed among larger numbers of family branches/members. It should also be noted that the family influence can be measured not only on the basis of ownership, but also on whether a family member holds the position of chief executive officer or family members are in the senior management. In this regard, it should also be noted that though we found the results support the convergence of interest and entrenchment effects for first-generation family firms, in second and later generations there is no significant relationship between FOB and firm performance. It is not possible to predict a specific relationship.

This study expands on several others exploring non-linear effects of FOB on firm performance. Specifically, it also hypothesized a cubic relationship between those variables. Our statistical results provide support for this hypothesis and indicate that an S-shaped form is not only significant in the overall sample, but also in the specific case of first-generation family firms. In this sense, the results are consistent with those of Morck *et al.* (1988) and De Miguel *et al.* (2004) for large publicly listed firms. The breakpoints for first-generation family firms also are higher than those of the overall sample, which

includes all generations. In first-generation family firms, the optimal level of FOB stands at 32.76 percent compared with 28.01 percent for the entire sample of family firms. Beyond those breakpoints, an increase in the percentage of shares held by family directors negatively influences firm performance. In addition, the S-shaped form allows the possibility that the relationship becomes positive again above a break-point of 81.19 and 88.49 percent of FOB, in the case of first generation and the overall sample of family firms, respectively. Put differently, when family members own a substantial percentage of shares, their interests are also aligned with minority shareholders. This situation could be possible in family firms with different family groups or family branches because it implies a greater convergence of interests between different members of the board of directors. In firms whose ownership is concentrated in different family branches, family directors can help align the different interests of branches which also allow the interests of minority shareholders to be aligned with controlling owners.

Although our results are exploratory in nature, they have meaningful practical implications for the effective composition of board of directors. Families have a strong interest in firm survival since most of them consider the family firm as an asset that should be passed on from generation to generation. Families are not just a large shareholder, they are part of the firm and may even feel responsible for other outside shareholders. Family directors should therefore have incentives to monitor firm activity closely. Board of directors can mitigate agency problems because directors can improve communication between family shareholders involved in the firm and outside non-family members (minority shareholders) as well as with outside family members (or their representatives in the family council). Hence, the importance of selecting representatives in the board who work as a link and point of union between the family and the firm helping to align the respective interest of family branches. Moreover, it could be important to introduce active outsiders into boards because they have other skills and knowledge that can help board of directors' monitoring and strategic tasks.

A limitation found in this research derives from the size and composition of the sample itself, which was composed of 313 family SMEs. There is no guarantee that the results obtained can be generalized to other contexts. However, non-response bias was not observed. Therefore, a similar study could be conducted in countries other than Spain in order to increase the validity of our result. Another limitation is related to the use of cross-sectional data, together with the fact that part of the data was collected from a survey as all the necessary information were not publicly available. A research design based on longitudinal data would be more suitable for this type of research in order to increase the reliability of causality directions.

Nevertheless, this study can contribute to improve our knowledge of ownership characteristics and types of owners in the corporate governance literature. Since ownership is an essential dimension of corporate governance research, it is important to take into account the ownership structure in SMEs, most of which being family firms. As Daspit *et al.* (2018) asserted, the nature of involvement of owners in governance bodies such as the board of directors, family council, etc., can have influential behavioral and performance implications at the firm and/or family levels. In this regard, future lines of research could analyze the influence of different governance bodies on family firm.

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Do Islamic stock indexes outperform conventional stock indexes? A state space modeling approach

Islamic stock indexes

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Abstract

Purpose – The purpose of this paper is to investigate whether Islamic stock indexes outperform conventional stock indexes, in terms of informational efficiency and risk, during the recent financial instability period.

Design/methodology/approach – The paper uses a state space model combined with a standard GARCH (1,1) specification while taking into account structural breakpoints. The authors allow for efficiency and volatility spillovers to be time-varying and consider break dates to locate periods of financial instability.

Findings – Empirical results show that Islamic stock indexes are more volatile than their conventional counterparts and are not totally immune to the global financial crisis. As regards of the informational efficiency, the results show that the Islamic stock indexes are more efficient than the conventional stock indexes.

Practical implications – Resulting evidence of this paper has several implications for international investors who wish to invest in Islamic and/or conventional stock markets. Policy makers and even academics and *Sharias* researchers should as well take preventive measures in order to ensure the stability of Islamic stock markets during turmoil periods. Overall, prudent risk management and precocious financial practices are relevant and crucial for both Islamic and conventional financial markets.

Originality/value – The originality of this study is performed by the use of time-varying models for volatility spillovers and informational efficiency. It considers structural break dates that think about the dynamic effect of informational flows on stock markets. The study was developed in a global framework using international data. The global analysis allows avoiding country specific effects.

Keywords Subprime crisis, Conditional volatility, Informational efficiency, Islamic stock markets, Financial fragility

Paper type Research paper

1. Introduction

In spite of the notable increase of Islamic finance, studies on Islamic equity markets have gained ground, in particular following the global financial crisis (GFC). Indeed, current financial literature focused on the analysis of the performance of Islamic indexes by raising the question of whether Islamic indices outperform their conventional counterparts (Hussein, 2004; Hakim and Rashidian, 2002). They mainly paid attention to differences

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in risk and return characteristics between Islamic and conventional investments (Dewandaru *et al.*, 2015; Al-Khazali *et al.*, 2014; Abul Basher *et al.*, 2014; Ho *et al.*, 2014; Milly and Sultan, 2012; Hayat and Kraussl, 2011; Abdullah *et al.*, 2007). Nevertheless, mixed and conflicting empirical observation was found and no consensus was attained to date. Indeed, number of studies revealed an outperformance of Islamic stock indexes compared to conventional stock indexes (Jawadi *et al.*, 2014; Ali *et al.*, 2014; Arouri *et al.*, 2013). Other investigations observed notable diversification benefits associated with the investing in Islamic assets (Hakim and Rashidian, 2002; Guyot, 2011). On the contrary, Girard and Hassan (2008) and Kok *et al.* (2009) found contrary results. Consequently, we believe that this research field deserves further investigations in so far as it allows providing support tools to investment decision or capital budgeting.

Modern financial theory suggests that the capital budgeting on stock markets depends mainly on development level, performance and risk. Indeed, investors have to consider informational efficiency given that on an efficient market; they are able to easily determine risk and profitability of their investments, since there is no overvalued and/or undervalued title. Additionally, given that on an efficient market, stock price adequately reproduces firms' perspectives and capital will be allocated effectively to the most profitable investment, which is beneficial for market development and economic growth. However, the market efficiency alone is not enough for capital budgeting; market volatility is another main axis because it is straightforwardly related to the degree of risk.

The empirical literature of financial markets has grown in recent years to go further than the analysis of performance in terms of risk and return. Indeed, a limited part of the literature was interested in the international transmission of shocks in terms of either efficiency or volatility between Islamic indices on the one hand and between them and their developed counterparts on the other hand (Ben Rejeb, 2017; Ben Rejeb and Arfaoui, 2017; Al-Khazali *et al.*, 2015; Ajmi *et al.*, 2014; Hammoudeh *et al.*, 2014; Dania and Malhotra, 2013). The results were divergent and inconclusive. Authors have tried mainly to study the degree of interdependence between Islamic and conventional stock markets, especially in periods of high financial fragility and during the last GFC, in terms of two important concepts separately namely: information efficiency and conditional volatility. The two concepts are extremely useful in either selection of investments or portfolio designs.

Some of these articles (Ben Rejeb, 2017; Ben Rejeb and Arfaoui, 2017; Hammoudeh *et al.*, 2014) make a significant contribution to the empirical financial literature, since they used econometric techniques that are pertinent to deal with high-frequency data and especially to analyze interactions between several variables while considering a time-varying framework (the copula and the wavelet approach, the Bai and Perron (1998, 2003) technique, the state space model and the quantile regression technique). Nevertheless, each of the previous empirical studies treats either separately an important tool of financial performance or they just focused on the analysis of interdependencies.

The main objective of this study is to analyze the performance of Islamic stock indices with regard to their conventional counterparts, in high financial fragility periods and, especially, during the subprime crisis considering the volatility spillover effects. In addition, this paper is an attempt to combine the informational efficiency and volatility concurrently to analyze the performance of Islamic stock indices in comparison with their conventional counterparts. Indeed, the market efficiency is not alone enough for capital budgeting and for the analysis of market performance; market volatility is another main axis because it is straightforwardly related to the degree of risk. We note here that we allow both informational efficiency and conditional volatility to be time-varying not static. The time-varying parameters make it possible to track the dynamics of good and bad news inherent to market risk factors.

To achieve our objective, we first measured the volatility by a standard GARCH (1,1) model, that allows to consider an essential market characteristic, namely, the conditional volatility,

which is not constant over time. We note that various empirical studies show that the GARCH (1,1) specification performs well to predict the volatility of financial series despite the diversity of conditional volatility models in financial empirical literature (Charles and Darne, 2006; Nikkinen *et al.*, 2008; Ramlall, 2010). The originality of this study is primarily the use of specific econometric approach to the stock market context. Indeed, the empirical investigations are essentially based on time-varying models that take into account the variability over time of the various financial aspects. Second, compared to previous studies, this study examines the interdependencies during financial fragility periods and especially the last GFC. Indeed, we adopt the Bai and Perron's (1998, 2003) technique to detect different structural break dates and then determine high financial fragility periods. This technique is very relevant in the data processing related to stock markets that are generally characterized by the presence of multiple regimes in the variance (Bensafta and Semedo, 2011; Nguyen, 2008). The third contribution is the adoption of a different methodological approach that considers the dynamic effect of informational flows on stock markets. We then consider the hypothesis of time-varying weak efficiency. We then use an auto-regressive model in which the coefficients may vary depending on market conditions. This model was first introduced by Zalewska-Mitura and Hall (1999) and developed by Fontaine and Nguyen (2006). It can detect both changes in the degree of efficiency and convergence speed toward the weak efficiency via the mutation of coefficients.

This present paper is a synthesis and a generalized work, it brings an important contribution to the empirical literature in so far as it adds significantly to the analysis of performance using relevant dynamic econometric tools, which have not been used until now or rarely used in the financial markets research area. The empirical analysis may constitute a help support to international investment decisions. Since investment decisions depend on stock market performance. Resulting evidence of this work has several implications for market regulators and international investors who wish to invest in Islamic and/or conventional stock markets.

The remainder of this paper is organized as follows. Section 2 presents a brief literature review. Section 3 outlines the empirical methodology. Section 4 describes the data and their statistical properties. Section 5 reports the empirical results and Section 6 concludes the paper.

2. Literature review

The empirical literature on the performance of Islamic equity indices is growing but shows a controversy when compared to their conventional counterparts. Two reasons may be discussed here; first, in accordance with modern financial theory, Islamic equity indices can be assumed riskier than their conventional counterparts due to the lack of diversification (Albaity and Ahmad, 2008). Furthermore, these indices could be more profitable than their counterparts since they include companies that have passed the financial and extra-financial screening criterion (Atta, 2000; Hussein and Omran, 2005). In addition to these two divergent positions, another current literature concludes that the performance of Islamic indices is similar to their conventional counterparts (El khamlichi *et al.*, 2014).

Hassan (2004) empirically examines market efficiency and time-varying risk-return relationship for the DJIM and volatility of the DJIM index over the 1996–2000s period. Using serial correlation, variance ratio, the Dickey Fuller tests and the GARCH econometric framework, the author finds that the DJIM outperformed the conventional indices but underperformed them for the period 2001–2005. He shows a significant positive relationship between conditional volatility and DJIM equity index returns. He further reveals that the reward to risk and diversification benefits are similar for both indices. Similarly, Girard and Hassan (2008) find no influential differences between Islamic and non-Islamic equity indices between January 1999 and December 2006. The analysis of many ratios about market risk, size, book-to-market, momentum, and local and global risk factors results in a non-significant

difference in return between Islamic and conventional indices. The performance gap is attributed to differences in style between the two types of series.

Elfakhani *et al.* (2005) study the Islamic investment funds and investment fundamentals in such channels. They explore the dynamics of Islamic investment funds, governance and control, marketing and distribution. The ANOVA statistical test shows that there is no significant disparity regarding fund performance compared to all used indices. Therefore, the study concludes that the behavior of Islamic mutual funds is not different from that of other conventional funds, whether some mutual funds comply with the *Shariah* that have exceeded underperforming funds. Hussein (2004) examines whether returns earned by investors who purchase shares in the FTSE Global Islamic Index are significantly different from their index counterpart. The results show that although Islamic and conventional indices have similar performance, Islamic indices reach abnormal returns in bullish markets and underperform in bearish markets. In general, the author concludes that the application of ethical screening does not have an adverse effect on the FTSE Global Islamic Index performance. Likewise, Al-Zoubi and Maghyreh (2007) using the Value-at-Risk methodologies in the 1996–2005 period, examine the relative risk performance of the Dow Jones Islamic Index and find that the index outperforms the Dow Jones World Index in terms of risk. Indeed, they conclude that Islamic indices are less risky than the benchmark and attribute this evidence to the profit and loss sharing principle in Islamic finance. Arshad and Rizvi (2013) address the question whether Islamic indices are affected through fundamental changes or short-term influences by sudden changes in volatility as compared to their conventional counterparts. The authors employ the continuous wavelet technique to identify co-movements between world financial indices and Islamic indices for world, Asia Pacific and emerging markets. Over a period of 15 years, they find that Islamic indices in the Asia Pacific and emerging market region are partially immune to speculative shocks to global financial services. These results corroborate those of Milly and Sultan (2009) which conclude that Islamic funds perform much better during calm periods and moderately better during times of crisis. He then assumes that Islamic asset allocation may be safer during times of economic and financial distress. Mansor and Bhatti (2011) analyze performance of the mutual funds for the Islamic and conventional portfolios in Malaysia, from 1996 to 2009. The results show that the Islamic portfolio provides slightly less returns relative to the conventional counterparts and that the Islamic portfolio is riskier than the conventional portfolio. The results also reveal that both Islamic and conventional portfolios are dependent on the market portfolio of which the former portfolio was closely mirrored to the market movement in relation to the latter portfolio. Abdullah *et al.* (2007) examine the relative performance of 14 Islamic funds and 51 conventional investment mutual funds in Malaysia during the period spanning from January 1992 to December 2001 using a number of methods, such as the Sharpe index, the adjusted Sharpe index, the Jensen Alpha, the Modigliani measure and the timing method. In this study, Islamic funds achieve better results than conventional funds during a bear market, while conventional funds reverse the trend during a bull market. The introduction of Islamic mutual funds in a portfolio can cover the downside risk in adverse economic conditions.

From the previous literature review, we can note that despite the multiplicity of previous empirical works focusing on the analysis of Islamic and conventional stock markets performance, the results are much divergent and no consensus has been reached to date. In the same context, this paper attempts to fill the gap in the literature to deal with this same concept of performance. However, unlike previous studies, we try to give special importance to the econometric techniques. Indeed, our empirical investigations are essentially based on time-varying models that take into account the variability over time of the various financial aspects addressed in this work.

3. Empirical methodology

In this study, we use the standard GARCH model to measure the conditional volatility for all conventional and Islamic stock markets. It is worth noting that the choice of the standard GARCH specification is far from being arbitrary. Indeed, we estimated different GARCH-model specifications and we chose the GARCH (1,1) specification for all markets' volatility processes according to the widely-used information criteria (Akaike information criterion, Schwarz criterion or Bayesian information criterion and log-likelihood value).

More specifically, we compared the standard GARCH specification to the non-linear EGARCH and GJR-GARCH specifications. The choice of these specifications is justified by the fact that it accounts for the asymmetry in the response of the conditional variance to innovations. Nevertheless, the results of different information criteria clearly show the relevance of the standard GARCH model[1]. Again, many studies (see among others, Bollerslev *et al.*, 1994; Ramlall, 2010) argued that the standard GARCH specification is the most appropriate specification, especially when it comes to high-frequency data. We also highlighted the relevance of this model in terms of theoretical stability conditions. Parameters estimation of the conditional variance model that has been reported (see Table II) turned out to be positive and statistically significant at the 1 percent level.

In order to determine the financial fragility periods, we proceed to detect structural break dates in the conditional volatility series using the Bai and Perron's (1998, 2003) econometric technique. We consider the following regression model with m breaks and $m + 1$ regimes[2]:

$$V_{i,t} = \lambda_0 + \lambda V_{i,t-1} + \varepsilon_{i,t}, \quad (1)$$

$$V_{i,t} = \lambda_0 + \lambda_1 V_{i,t-1} + \varepsilon_{i,t}. \quad (2)$$

$V_{i,t}$ is the estimated volatility in period t . If there are m multiple structural breaks (T_1, \dots, T_m) in the time path of $V_{i,t}$, Bai and Perron (1998, 2003) explicitly treat structural breakpoints as unknown, and estimates of the breakpoints are implemented using the OLS method for each T_m . The breakpoints estimations are generated by minimizing the sum of squared residuals.

The breakpoints estimations are generated by minimizing the sum of squared residuals and are given by:

$$\left(\hat{T}_1, \dots, \hat{T}_m \right) = \operatorname{argmin}_{T_1, \dots, T_m} S_T(T_1, \dots, T_m). \quad (3)$$

In this expression, S_T is the sum of squared residuals issued from the estimation of m regressions in Equation (3). The selection procedure of structural breaks is based on the Bayesian Information Criteria.

As about the market efficiency, it has been defined in the financial literature in different ways[3] and no standard conventional definition has been advanced yet. Therefore, it is important to shed light on the measurement of the informational efficiency. We take on the definition of Fama (1970), according to which, market efficiency is attributed to the informational content of news. Furthermore, on an efficient market, prices fully reveal all relevant and available information. According to Fama (1970, 1998), there are three types of efficiency and this depends on the available information on the market, i.e., weak, semi-strong and strong efficiency.

We try to add to traditional methods and focus on the time-varying efficiency in so far as maturing stock markets involves sustainable information inflows, changing markets structure, and an increasing sophistication of markets participants. These changes result in a shifting of market efficiency through time (Arouri and Nguyen, 2010). Such feature, if it exists, will be considered using a dynamic modeling of returns. We then adopt the time-varying technique proposed by Zalewska-Mitura and Hall (1999), through which

the autocorrelation coefficient of equity returns is likely to vary conditional on market conditions. The weak form of efficiency can be tested using the following model:

$$R_{i,t} = \beta_{i,t}^{(0)} + \beta_{i,t}^{(1)}R_{i,t-1} + U_{i,t}, \quad (4)$$

$$U_{i,t} = h_{i,t}z_{i,t}, \quad (5)$$

$$h_{i,t} = \alpha_i^{(0)} + \alpha_i^{(1)}U_{i,t-1}^2 + \alpha_i^{(2)}h_{i,t-1}, \quad (6)$$

$$\beta_{i,t}^{(k)} = \beta_{i,t-1}^{(k)} + \eta_{i,t}^{(k)}, \quad k = 0, 1. \quad (7)$$

The variable R_{it} stands for the Islamic and conventional stock market returns at time t . $\beta_{i,t}^{(0)}$ and $\beta_{i,t}^{(1)}$ measure, respectively, the long-term trend and the potential serial dependency of market i . They are allowed to change over time according to a first-order random-walk process described in Equation (7). The idea behind this dynamic modeling is that time values of these unobserved factors are a function of underlying market fundamentals that drive stock market price formation (Arouri and Nguyen, 2010). h_t represents the conditional variance of residuals ($U_{i,t}$), which is assumed to follow the standard GARCH (1,1); $z_{i,t}$ and $\eta_{i,t}^{(k)}$, random noises, assumed to be normally distributed with a zero mean and variances of 1 and $V_i^{(k)}$, respectively. In order to apply the Kalman filter, innovations in Equation (4) are assumed to be uncorrelated with those in Equation (7). The estimated value of $\beta_{i,t}^{(1)}$ should be equal to “zero” or statistically insignificant to confirm the hypothesis of weak-form efficiency.

The estimation of this state space model which is characterized by the presence of hidden variables requires the application of an optimal algorithm (the Kalman filter). Generally, the Kalman filter recursively provides the optimal estimator of the system’s current states, conditional to the available information at that time, by a two-steps process. To determine estimated values of the set of unknown parameters ($V_{i,t}^k, \alpha^{(0)}, \alpha^{(1)}, \alpha^{(2)}$), we have to construct a log-likelihood function based on the Kalman gain under the normality assumption (Harvey, 1995). Estimation of the model is then carried out using the quasi-maximum likelihood[4] method of Bollerslev and Wooldridge (1992), which provides asymptotic and robust estimates even though the conditional returns are not normally distributed. This was tested by Zalewska-Mitura and Hall (1999). The authors show that the model is quite powerful in the detection of the time-varying efficiency in the case of the Kalman filter, except for a minimum number of observations at the beginning of the period.

4. Data and descriptive analysis

Our sample includes ten Islamic equity indices, namely: the DJIM Global Index, as well as its conventional counterparts, the DJIM Emerging Markets Index, the DJIM Arab Markets Index, the DJIM Arab Markets excluding Saudi Arabia Index, the DJIM GCC Index, the DJIM Canada Index, the DJIM UK Index, the DJIM US Index, the DJIM Europe index, the DJIM Asia-Pacific Index and the DJIM World Developed Index. The choice of DJIM indexes is justified by the fact that it is the most comprehensive and the most used representative index of Islamic stocks in view of the screening criteria, country and sector allocations.

We use daily frequency data expressed in US dollars, covering the period from January 1, 1996 to January 18, 2016 and extracted from DataStream wherein market returns are computed based on the log differences of the daily market price index. The sampling period covers major

international events such as the Brother Lehman collapse (September 15, 2008) and the extreme market movements around the 2008–2009, GFC and the 2009–2012 Eurozone crisis (EZDC).

Table I summarizes descriptive statistics of the daily returns. First, the Jarque–Bera test confirms that market returns are significantly departed from normality. Second, market returns are stationary at the 1 percent confidence level, since the ADF calculated value is strictly below the critical threshold. Finally, the Engle's (1982) test for conditional heteroskedasticity rejects the null hypothesis of no ARCH effect in daily returns which justifies the use of the GARCH specification with confidence.

5. Empirical results and discussion

5.1 Empirical results

Our primary objective consists in comparing the performance of Islamic and conventional stock indices in terms of risk.

Table II presents empirical results of the standard GARCH parameters estimation along with a detailed descriptive analysis of volatility series. We note that the parameters of the conditional variance equation, for all markets, are positive and statistically significant at 1 percent and then satisfy conditions of theoretical stability ($\alpha_i^{(0)} > 0$, $\alpha_i^{(1)} \geq 0$ and $\alpha_i^{(2)} \geq 0$). Moreover, persistence of the conditional volatility is verified, in so far as the risk premium ($\alpha_i^{(1)} + \alpha_i^{(2)}$) is close to one. Diagnostics of standardized residuals (Tables III and IV, part II) suggest that the standard GARCH(1,1) specification seems to be adequate to explain variations of the stock returns, since the residuals and squared residuals are not serially correlated. In addition, we note the absence of ARCH effect among residual series.

In order to compare the extent of stock markets conditional volatility, we present, in Tables III and IV (part I) a summary of some descriptive statistics. We observe, first, that Islamic stock indexes are more volatile than their conventional counterparts (see Figure 1 as well), and second, conventional wisdom of “high risk, high returns” is also verified to Islamic stock indexes, where markets with higher returns exhibit high volatility.

The analysis of the structural break dates (Table V) shows, first, a strong interdependence between the various stock indexes. Second, we can remark a significant impact of the last subprime crisis on the volatility of both conventional and Islamic markets in so far as the structural break dates coincide with the financial crisis period. So, we conclude that, arguably, the Islamic stock indexes as their conventional counterparts are not fully immunized against the effects of crisis.

In terms of the time-varying informational efficiency, reading the estimation results of the state space model, Table II, shows that the mean of $\beta_{i,t}$ coefficient is usually very close to zero, which shows that past returns do not help for price discovery on both Islamic and conventional equity markets. A thorough reading of the findings makes it possible to notice that the average values of $\beta_{i,t}^{(0)}$ coefficients, in Equation (4), are close to zero and listed in the interval (0.006 percent; 0.081 percent) for conventional stock markets and in the interval (0.001 percent; 0.027 percent) for Islamic stock markets. This suggests a low level of returns predictability along with the implications of other potential factors, such as macroeconomic effects, political events and external shocks (Arouri and Nguyen, 2010). As regards to the $\beta_{i,t}^{(1)}$ coefficients, which tell about the time-varying predictability (autocorrelation) of stock returns, their averages are not very different across markets and stand around an average of 8.95 percent for conventional stock markets and 8.73 percent for Islamic stock markets. This evidence supports the hypothesis that past and future returns are serially independent, except for the conventional and Islamic emerging stock markets, the conventional Arab markets and the global market that recorded usually very high coefficients, indicating that past returns predict about 14 percent of the current returns dynamics. In light of these results, it is obvious to note that the hypothesis of weak efficiency is well verified in the

Table I.
Basic statistics of
conventional and
Islamic stock markets
daily returns

	Mean (%)	SD (%)	Skewness	Kurtosis	Jarque-Bera	ADF Statistics	Q(6)	Q(12)	ARCH (12)
<i>Conventional markets</i>									
Emerging markets	0.008	1.209	-0.534	10.595	12,820***	-56.651***	319.34***	332.61***	158.794***
Arab markets	-0.021	1.207	-1.580	20.443	36,322***	-47.897***	51.547***	54.404***	38.395***
Arab markets excluding SA	-0.018	1.008	-1.262	16.203	20,885***	-31.911***	83,061***	99,500***	32,672***
GCC	-0.024	1.311	-1.485	21.117	38,955***	-48.519***	40,549***	43,858***	38,870***
Canada	0.020	1.383	-0.747	12.525	20,255***	-33.530***	71,313***	83,740***	154,446***
UK	0.006	1.311	-0.136	11.590	16,094***	-35.529***	67,687***	85,929***	157,583***
USA	0.022	1.213	-0.249	11.006	14,021***	-76.951***	32,771***	47,203***	147,883***
Europe	0.012	1.314	-0.136	9.910	10,421***	-34.765***	54,113***	70,275***	134,929***
Asia Pacific	-0.002	1.237	-0.083	7.962	5,372***	-70.367***	15,980**	21,013*	85,732***
World	0.014	0.994	-0.365	10.555	12,553***	-50.655***	118,070***	121,940***	147,883***
<i>Islamic markets</i>									
Islamic emerging markets	0.010	1.316	-0.342	8.868	7,605***	-60.005***	197,490***	207,370***	105,478***
Islamic developed markets	0.021	1.028	-0.352	9.865	10,379***	-50.670***	119,790***	123,300***	183,306***
Islamic Canada	0.013	1.741	-0.808	13.335	23,846***	-33.417***	64,351***	73,346***	102,446***
Islamic UK	0.011	1.364	-0.104	9.419	8,989***	-46.471***	59,375***	75,774***	155,675***
Islamic USA	0.026	1.252	-0.133	9.608	9,531***	-54.751***	28,799***	39,086***	131,507***
Islamic Europe	0.018	1.320	-0.055	9.623	9,560***	-34.958***	54,697***	71,307***	143,841***
Islamic Asia Pacific	0.010	1.427	-0.245	8.124	5,774***	-68.315***	28,649***	35,214***	104,626***
Islamic world	0.021	1.028	-0.352	9.865	10,379***	-50.670***	119,790***	123,300***	183,306***

Notes: The table presents basic statistics of daily returns. Q (6) and Q (12) are statistics of the Ljung-Box autocorrelation test applied on returns with lags between 6 and 12. ARCH(12) is the statistics of the conditional heteroskedasticity test proposed by Engle (1982) using the residuals of the AR (1) model. ADF is the statistics of the ADF unit root test proposed by Dickey and Fuller (1981). The ADF test is conducted without time trend or constant. *, **, *** Denote that the null hypothesis of tests (no-autocorrelation, normality, no-stationarity and homogeneity) are rejected at, respectively, 10, 5 and 1 percent levels. The study period is from January 1, 1996 to January 18, 2016

	Conditional mean equation	State equations	Conditional variance equation	Likelihood value
	$\beta_t^{(1)}$ (%)	$V_t^{(0)}$	$\alpha_t^{(1)}$	$\alpha_t^{(1)} + \alpha_t^{(2)}$
<i>Conventional markets</i>				
Emerging markets	0.022 (0.000)	0.000** (0.000)	0.106** (0.005)	0.993
Arab markets	-0.114 (0.006)	-0.002** (0.000)	0.077** (0.003)	0.990
Arab markets excluding SA	-0.088 (0.005)	-0.001** (0.000)	0.082** (0.004)	0.991
GCC	-0.033 (0.004)	-0.001** (0.000)	0.080** (0.003)	0.998
Canada	0.033 (0.000)	0.000 (0.000)	0.069** (0.004)	0.997
UK	0.030 (0.000)	-0.000 (0.000)	0.089** (0.005)	0.989
USA	0.017 (0.001)	-0.000 (0.000)	0.087** (0.005)	0.987
Europe	0.031 (0.000)	0.000 (0.001)	0.084** (0.005)	0.993
Asia Pacific	-0.011 (0.001)	-0.000* (0.000)	0.085** (0.005)	0.990
World	0.006 (0.000)	-0.000** (0.000)	0.081** (0.006)	0.991
<i>Islamic markets</i>				
Islamic emerging markets	0.021 (0.001)	0.000 (0.000)	0.103** (0.006)	0.992
Islamic developed markets	0.006 (0.000)	-0.000* (0.000)	0.082** (0.005)	0.990
Islamic Canada	0.008 (0.001)	-0.000 (0.000)	0.063** (0.003)	0.997
Islamic UK	0.021 (0.000)	-0.000 (0.000)	0.063** (0.004)	0.992
Islamic USA	0.009 (0.000)	-0.000 (0.000)	0.086** (0.005)	0.987
Islamic Europe	0.027 (0.001)	0.000 (0.000)	0.075** (0.005)	0.994
Islamic Asia Pacific	-0.008 (0.001)	0.000** (0.000)	0.080** (0.005)	0.992
Islamic world	0.001 (0.001)	-0.000 (0.000)	0.081** (0.006)	0.989

Notes: The standard deviations of estimated parameters are given in parenthesis. For the estimated parameters in the conditional mean equation, we report their averages since they are allowed to vary over time. The significance of these coefficients ($\beta_t^{(1)}$ in particular) in each time period is examined by using a standard *t*-test and shown in the graph of time-varying predictability (see, Figure 1). *, **, indicate that coefficients are, respectively, statistically significant at 5 and 1 percent level

Table II. Estimation results from the state space model with GARCH effects

Table III.
Diagnostic tests for
conditional volatility –
conventional
stock markets

	Emerging markets	Arab markets	Arab markets excluding SA	GCC	Canada	UK	USA	Europe	Asia Pacific	World
<i>Panel I: basic statistics of conditional volatility</i>										
Mean (%)	0.014	0.015	0.011	0.019	0.02	0.017	0.015	0.018	0.016	0.010
SD (%)	0.022	0.021	0.014	0.028	0.033	0.026	0.022	0.025	0.017	0.015
Minimum	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00003	0.00002	0.00003	0.00001
Maximum	0.00315	0.00196	0.00144	0.00248	0.00387	0.00356	0.00279	0.00294	0.00239	0.00192
Jarque-Bera	129.9960+++	32.100+++	55.944+++	32.589+++	77.4702+++	883.563+++	601.178+++	458.176+++	552.367+++	697.481+++
ADF test	-6.986+++	-5.595+++	-5.417+++	-5.357+++	-7.477+++	-6.618+++	-6.718+++	-6.451+++	-7.654+++	-6.895+++
Q(12)	51.162+++	24.251+++	24.737+++	24.936+++	56.303+++	53.564+++	53.001+++	53.525+++	48.827+++	54.441+++
<i>Panel II: diagnostic of standardized residuals</i>										
Mean	-0.040	-0.074	-0.053	-0.068	-0.031	-0.036	-0.039	-0.038	-0.029	-0.035
SD	0.999	0.998	0.999	0.998	0.999	0.999	1.000	0.999	0.999	1.000
Minimum	-5.287	-9.045	-6.749	-9.061	-8.313	-5.583	-6.486	-6.025	-4.848	-5.624
Maximum	4.024	10.319	5.577	4.766	3.911	4.776	3.381	3.870	5.217	3.698
Skewness	-0.337	-0.937	-0.847	-1.494	-0.460	-0.219	-0.470	-0.254	-0.235	-0.308
Kurtosis	4.211	17.910	8.673	15.400	4.951	3.930	4.666	3.867	4.072	4.111
Jarque-Bera	418.312+++	26.092.780+++	4,049.758+++	18,796.860+++	1,013.433+++	229.935+++	797.555+++	220.022+++	298.350+++	351.403+++
Q(12)	22.695++	33.257+++	58.600+++	28.929+++	6.411	14.997	12.768	11.440	9.763	11.191
Q ² (12)	9.713	11.011	13.625	10.991	5.003	11.420	20.204*	18.019	12.742	13.324
ARCH(12) test	9.702	11.154	13.284	10.684	5.035	11.264	20.117*	18.263	12.589	13.978
Notes: +, ++, +++ indicate that the null hypothesis of statistical tests (no-autocorrelation, normality, homogeneity and no-stationary under the ADF test) is rejected, respectively, at 10, 5 and 1 percent levels										

	Islamic emerging markets	Islamic developed markets	Islamic Canada	Islamic UK	Islamic USA	Islamic Europe	Islamic Asia pacific	Islamic world
<i>Panel I: basic statistics of conditional volatility</i>								
Mean (%)	0.017	0.010	0.031	0.019	0.016	0.018	0.016	0.010
SD (%)	0.021	0.015	0.049	0.024	0.021	0.024	0.018	0.015
Minimum	0.00002	0.00002	0.00004	0.00002	0.00003	0.00002	0.00002	0.00002
Maximum	0.00289	0.00201	0.00536	0.00292	0.00270	0.00302	0.00245	0.00201
Jarque-Bera	384,073 ⁺⁺⁺	875,209 ⁺⁺⁺	455,451 ⁺⁺⁺	564,143 ⁺	581,823 ⁺⁺	563,104 ⁺⁺⁺	624,536 ⁺⁺⁺	875,209 ⁺⁺⁺
ADF test	-8.616 ⁺⁺⁺	-6.822 ⁺⁺	-5.218 ⁺⁺⁺	-6.761 ⁺⁺⁺	-6.398 ⁺⁺⁺	-6.873 ⁺⁺⁺	-7.535 ⁺⁺⁺	-6.822 ⁺⁺⁺
Q(12)	47,400 ⁺⁺⁺	53,428 ⁺⁺⁺	56,383 ⁺⁺⁺	55,245 ⁺⁺⁺	51,132 ⁺⁺⁺	54,596 ⁺⁺⁺	50,885 ⁺⁺⁺	53,428 ⁺⁺⁺
<i>Panel II: diagnostic of standardized residuals</i>								
Mean	-0.033	-0.035	-0.026	-0.036	-0.039	-0.032	-0.025	-0.035
SD	0.999	1.000	0.999	0.999	1.000	0.999	0.999	1.000
Minimum	-5.082	-5.869	-7.887	-5.583	-6.486	-5.973	-5.142	-5.624
Maximum	4.302	3.946	4.379	4.776	3.381	4.225	4.979	3.698
Skewness	-0.272	-0.312	-0.536	-0.219	-0.470	-0.245	-0.270	-0.308
Kurtosis	4.060	4.169	5.421	3.930	4.666	3.850	4.061	4.111
Jarque-Bera	309,376 ⁺⁺⁺	382,266 ⁺⁺⁺	1,527,367 ⁺⁺⁺	229,935 ⁺⁺	797,555 ⁺⁺⁺	209,727 ⁺⁺⁺	309,079 ⁺⁺⁺	351,403 ⁺⁺⁺
Q(12)	12,544	10,504	9,388	15,543	12,037	10,594	13,791	10,504
Q ² (12)	20,151	16,553	4,536	15,801	17,010	19,477 ⁺	12,917	20,595 ⁺
ARCH(12) test	20,866	16,897	4,557	15,706	17,378	19,341 ⁺	12,876	20,897 ⁺

Notes: ⁺, ⁺⁺, ⁺⁺⁺ Indicate that the null hypothesis of statistical tests (no-autocorrelation, normality, homogeneity and no-stationary under the ADF test) is rejected, respectively, at 10 and 1 percent levels

Table IV.
Diagnostic tests
for conditional
volatility – Islamic
stock markets

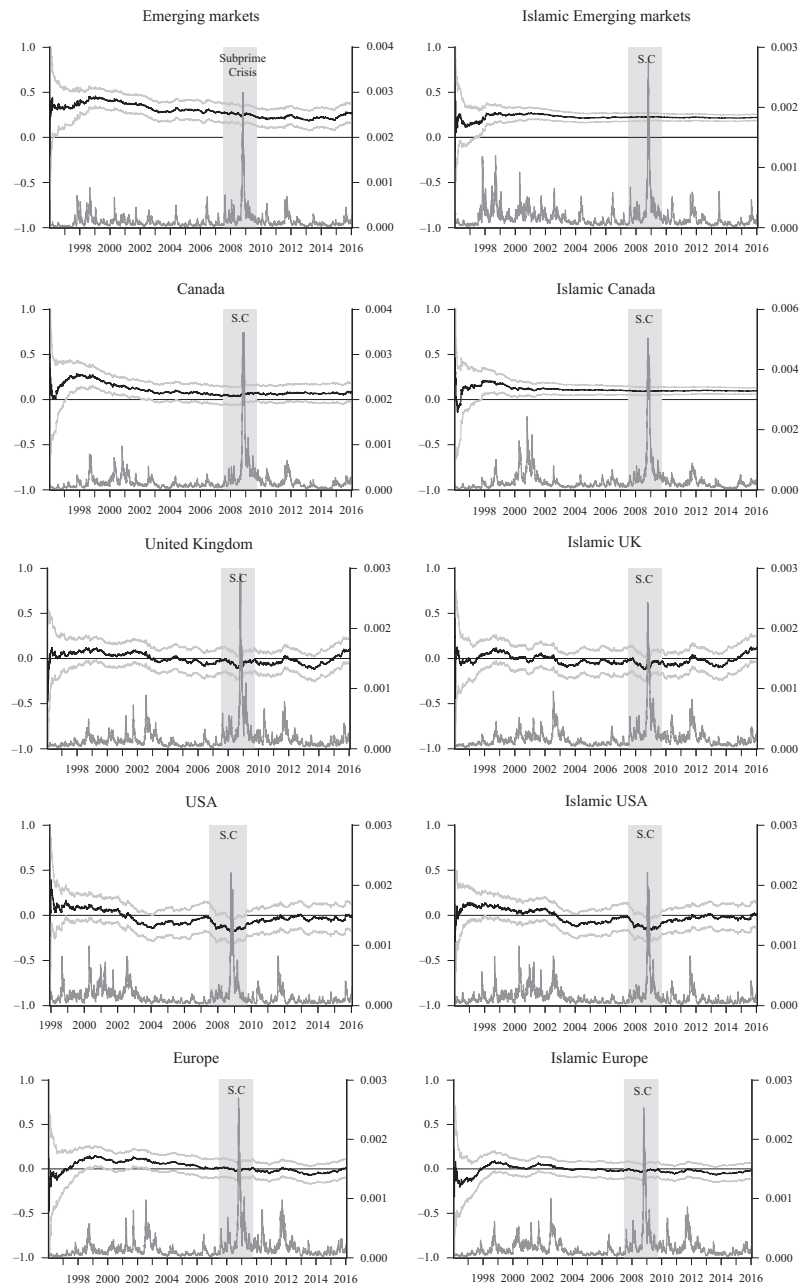


Figure 1. Evolving efficiency and volatility in conventional and Islamic stock markets, time-varying predictability index with 95% confidence intervals

(continued)

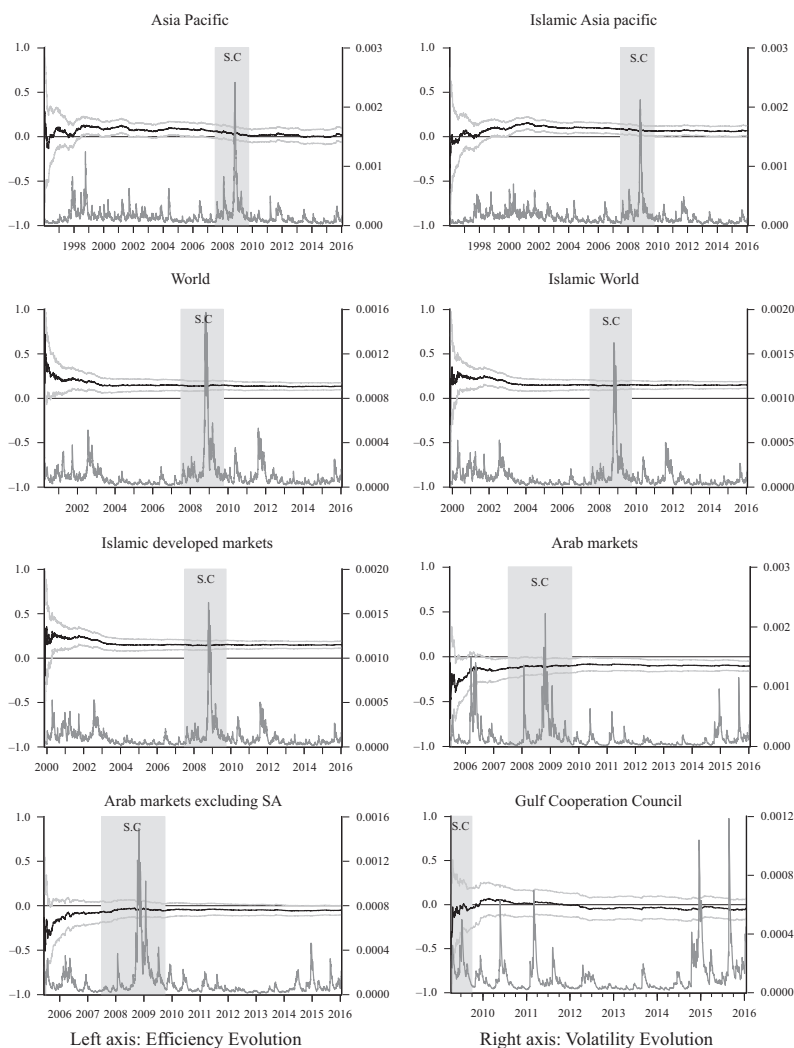


Figure 1.

Islamic context compared to the conventional one. Indeed, we note that the average coefficient of the time-varying predictability is consistently lower in the case of Islamic stock markets than in case of conventional stock markets. So, we conclude that Islamic stock markets are relatively more efficient than their conventional counterparts.

Finally, regarding the global significance of the two coefficients ($\beta_{i,t}^{(0)}$ and $\beta_{i,t}^{(1)}$), we find out a relative stability through time given the lower estimated values of variance issued from the state equations (Equation 7). Moreover, it seems that the GARCH (1,1) model performs well to enlighten variations of the conventional and Islamic stock returns since it detects the leptokurtic behavior and the conditional heteroscedasticity in the returns. Indeed, parameters of the conditional variance equation are positive, statistically significant at the 1 percent level and then satisfy conditions of theoretical stability ($\alpha_i^{(0)} > 0, \alpha_i^{(1)} \geq 0$ et $\alpha_i^{(2)} \geq 0$).

Table V.
Empirical results of
Bai and Perron's
(1998, 2003) test,
number and date of
structural breaks
($\epsilon = 0.05$)

	Arab markets 4	Arab markets excluding SA 5	GCC 4	Canada 7	UK 6	USA 10	Europe 8	Asia pacific 9	World 8
Emerging markets 6	January 21, 2008	January 3, 2007	January 3, 2007	February 25, 2003	April 29, 2003	April 14, 2003	April 17, 2003	April 17, 2003	April 30, 2003
July 25, 2007	August 25, 2009	August 7, 2008	August 7, 2008	April 2, 2003	July 26, 2007	June 5, 2003	June 25, 2003	January 18, 2008	July 25, 2003
September 13, 2007	November 13, 2011	March 12, 2010	March 12, 2010	November 9, 2007	October 15, 2007	September 12, 2003	January 18, 2008	February 22, 2008	July 26, 2007
March 25, 2008	June 13, 2014	October 17, 2011	June 13, 2014	December 26, 2007	February 5, 2008	July 24, 2007	July 11, 2008	September 11, 2008	October 12, 2007
February 16, 2009		May 19, 2014		July 11, 2008	October 27, 2009	September 18, 2007	September 12, 2008	December 25, 2008	December 4, 2008
October 26, 2009				February 10, 2010	August 8, 2012	June 3, 2008	January 16, 2009	January 1, 2009	May 18, 2009
January 24, 2012				August 10, 2012		December 4, 2008	June 11, 2010	June 14, 2010	October 27, 2009
						June 17, 2009	September 12, 2012	August 12, 2010	January 27, 2012
						October 23, 2009	September 13, 2013	September 13, 2013	
						January 25, 2012			

(continued)

Islamic stock markets

Islamic emerging markets 7	Islamic developed markets 4	Islamic Canada 5	Islamic UK 6	Islamic USA 8	Islamic Europe 6	Islamic Asia Pacific 6	Islamic world 7
May 13, 2003 July 25, 2007	April 15, 2003 July 26, 2007	April 2, 2003 February 11, 2007	April 18, 2003 July 16, 2007	April 4, 2003 August 18, 2003	April 18, 2003 July 26, 2007	May 2, 2003 August 22, 2003	April 15, 2003 August 22, 2003
September 12, 2007	October 27, 2009	November 12, 2007	September 13, 2007	July 24, 2007	September 13, 2007	July 27, 2007	July 26, 2007
December 25, 2007	January 27, 2012	December 18, 2007	January 1, 2008	September 18, 2007	January 1, 2008	October 26, 2007	September 12, 2007
February 5, 2008	August 14, 2012	August 14, 2012	October 27, 2009	January 11, 2008	October 27, 2009	October 28, 2009	December 3, 2007
October 27, 2009			August 10, 2012	April 2, 2009	August 9, 2012	January 30, 2012	October 27, 2009
August 8, 2012				October 23, 2009 January 25, 2012			October 27, 2012

Notes: This table reports the structural breaks identified in the volatility series of various conventional and Islamic stock markets generated from the standard GARCH model. We sequentially test the hypothesis of l breaks vs $l+1$ breaks, employing the Sup FT (1+1/ l) statics

Table V.

In order to test the hypothesis of weak efficiency before and after the last subprime crisis and around financial instability periods, it seems important to report the evolution of the time-varying predictability indices with 95% confidence intervals, while taking into account volatility dynamics. The analysis of predictability index is based on the following reasoning: the hypothesis of weak efficiency is verified if the evolution is not significantly different from zero. A negative effect of a financial fragility/crisis on the efficiency is explained by the increase of return predictability level during or just after an increase in volatility. Even though the market was not efficient before the volatility shock, the negative effect results in a decline of the efficiency degree in the period which follows the volatility shock. Figure 1 shows the evolution of both time-varying predictability indices with 95% confidence intervals and the volatility dynamics.

From Figure 1, we make some general comments for all stock markets and specific comments inside groups that are identified based on the degree of efficiency. First, as noted by Zalewska-Mitura and Hall (1999), at start, observations arising from the application of the Kalman filter are too volatile. Second, we make out three groups of markets according to their degrees of informational efficiency. The first group includes three conventional stock markets (UK, USA and GCC) and two Islamic stock markets (Islamic UK and Islamic USA), describe efficiency over the entire period of study. Indeed, the zero line is located within the estimated confidence interval which leads to accept the null hypothesis of efficiency. The second group contains markets which are characterized by the inefficiency on several sub-periods at the beginning and the middle of the period, but gradually converge toward efficiency at the end, since the associated autocorrelation coefficients decline steadily over time, and are very close to zero. This group includes four conventional stock markets (Canada, Europe, Asia Pacific and the index of Arab markets excluding KSA) and three Islamic markets (Islamic Canada, Islamic Europe and Islamic Asia Pacific). The third and last group that is controversy to the previous groups, involving six markets, including three conventional (emerging markets, world and Arab markets) and three Islamic (Islamic Emerging markets, Islamic World and Islamic developed markets). These markets show absolute inefficiency for the entire period or efficiency for short period at start but prove an increasing inefficiency later.

Moreover, we can notice that the degree of efficiency varies from one market to another, which leads us to suppose that specific attributes of each market, such as the liquidity and development level may explain the different degree of efficiency between markets. This fact is also mentioned by Arouri and Nguyen (2010) and Fontaine and Nguyen (2006). Indeed, the lack of liquidity slows down the incorporation of available information in the stock price and in then delays the convergence process to efficiency.

At last, we note that numerous changes in the trend of the time-varying predictability are realized at time of financial crisis and at the financial fragility periods where one can notice a weakening of the informational efficiency degree on both conventional and Islamic markets. To summarize, we deduce that the weak efficiency hypothesis is relatively verified in the Islamic context than in the conventional one. But it varies from one market to another depending on the specific characteristics of each market. Additionally, we conclude that Islamic markets are not fully immunized against the effects of financial crises and the strong financial fragilities.

Generally, our findings are in line with those of Hassan (2004), Albaity and Ahmad (2008), Atta (2000) and Hussein and Omran (2005) who found that the Dow Jones Islamic index is more risky and more efficient than the conventional counterpart. However, our results contrast with those of Guyot (2011) and El khamlichi *et al.* (2014) who found that Islamic indices from the Dow Jones family present the same level of efficiency than conventional indices.

5.2 Discussions

During the last two decades, Islamic markets attracted much attention of national and international investors due to their specific character which comply with *Shariah* principles. Indeed, funding arrangements specifically based on the mechanism of *murabaha* and *musharakah* are supposed to encourage economic development through the success of committed projects (Bala and Zaha, 2009). These markets are held, more than conventional markets, to be more performing (in terms of volatility more efficiency) able to effectively and healthily finance economic growth, but also especially able to correct speculative bubbles. This is, unfortunately, not always check because of the disjunction of most of the stock markets.

According to our empirical analysis, it has been identified initially that Islamic markets are more volatile than their conventional counterparts. Indeed, in a global analysis context of risk tolerance and without taking into consideration the concept of profitability, relatively risk averse investor is not interested in depositing funds on these markets. This seems paradoxical on at least two ways: first, the screening criterion applied during the selection process of the Islamic equity indexes should exclude a portion of the riskiest companies as having high interest ratios. Furthermore, the use of conventional return measures does not allow concluding to a significant difference of performance between Islamic and conventional stock indexes. Indeed, Islamic stock indexes benefiting by an additional return linked to a higher risk of under-diversification than conventional indices. In our view, the high volatility of Islamic indices and the presence of a strong interdependence between conventional and Islamic markets, on the one hand, and among Islamic markets, on the other hand, in times of financial fragility, reduced investor interest to Islamic equities.

In addition and with reference to our empirical analysis of the informational efficiency, results show that Islamic stock markets are more efficient than their conventional counterparts in term of weak efficiency. Therefore, we can conclude that regulators of these markets have relatively succeeded in establishing a favorable investment environment since the informational efficiency will eventually enhance the market operational efficiencies and liquidity on these markets. The final outcome is undoubtedly the strengthening of a sustainable economic growth. However, the efficiency degree of these markets varies over time, especially in times of financial crisis and financial fragility. So, the regulators of these markets must always think about pushing the convergence to efficiency, they should consider the initial conditions of the domestic markets and keep the supervision of these conditions over time and especially during the high financial fragility and crisis periods. According to Nguyen (2008) and Fontaine and Nguyen (2006), market conditions include, among others, the quality and reliability of information flows, the financial market infrastructure and the sophistication of investors. A good control of this factor helps to significantly reduce the asymmetries that can benefit the informed agents and which involve the manipulation and the loss of investors' confidence. To enhance the sophistication of investors, training on the characteristics of financial instruments and on the relationship between risk and return, as well as portfolio management are needed. This will reduce the benefits of insiders and professional investors. In addition, the implementation of regulations in favor of ownership and the protection of minor investors are also desirable to establish the trust of market participants and prevent the losses due to fraud and manipulation.

In summary, it should be noted that investors should enjoy benefit offered by Islamic stock markets in terms of informational efficiency. Indeed, from the diversification perspective, an institutional investor should consider the possibility of allocating a proportion of its assets to Islamic equities. This helps to strengthen investment on these

markets and the development of economic growth. However, it is desirable to favor certain additional measures in a preventive perspective against financial instability risks in order to avoid the high volatility level on these markets.

6. Conclusion

Risk and informational efficiency are two concepts of particular importance, reflecting the effectiveness of investment decisions on equity markets. Recently, the finance literature has focused on the analysis of the performance of conventional equity indices in comparison with their Islamic counterparts.

This paper joins the literature to explore the degree of performance associated with both conventional and Islamic markets through a measure of both conditional volatility and informational efficiency across these markets. Furthermore, we sought to analyze the interdependencies between conventional and Islamic markets during the high financial fragility and the last subprime crisis periods.

The empirical strategy is, first, to measure the conditional volatility of all conventional and Islamic markets and analyze its evolution over time. To do this, we adopted a standard GARCH specification, which has always proved a higher pertinence to measure volatility, especially for high-frequency data. Then, to examine the interdependence in terms of volatility we used the Bai-Perron's (1998, 2003) structural breaks test. This test is of great importance in so far as it allows determining the high financial fragility periods. Finally, we focused on modeling the weak efficiency while taking into account the dynamics of stock markets. Indeed, the weak efficiency has been considered as evolving over time unlike traditional methods.

Empirical results show that Islamic stock markets are more volatile than their conventional counterparts. Indeed, over the period of study, Islamic Indices exhibit greater degree of risk compared to conventional indices. It seems that Islamic Indices benefit from an additional return linked to a higher risk of under-diversification than the conventional indices. Likewise, we reached to a strong interdependence between markets within each type of index and also between the conventional and Islamic stock markets, especially during the subprime crisis. This shows that the crisis effects are quite transmissible between both stock markets and that even Islamic stock markets are not fully immunized against those effects. Finally, the empirical results show that past returns do not help predict future returns on both conventional and Islamic stock markets. Likewise, we notice that, the efficiency degree varies from one market to another, which leads us to believe that the specific characteristics of each market, including the liquidity and the development level may explain the difference in the level of efficiency between markets.

As regards of the comparison between conventional and Islamic stock markets in terms of efficiency, we note that the weak efficiency hypothesis is well verified in the Islamic context than in the conventional context. So, we can conclude that Islamic stock markets are relatively more efficient in terms of informational efficiency than their conventional counterparts. Moreover, due to the existence of deteriorating changes in the time-varying predictability index of all Islamic stock markets in times of financial crisis, we can conclude that Islamic markets are not fully immunized against effects of financial crisis and the strong financial fragilities.

To conclude, our results suggest that the behavior of DJIM indices do not robustly differ from their conventional counterparts, with indices outperforming their conventional competitors in terms of informational efficiency while others are less effective in term of volatility level. As demonstrated that Islamic stock markets are vulnerable to global financial shocks, it is important that policy makers should take preventive measures in order to minimize the effects of crisis and ensure the stability of Islamic stock markets during economic and financial uncertainty periods. Our empirical results point out that

the general belief that the Islamic financial markets are immune from the negative impact of financial shocks because of its nature without interest is flawed. For which it is important that stakeholders, policy makers and even academics and *Sharias* researchers must work together to endow Islamic financial markets with appropriate techniques and tools in order to mitigate the impact of financial shocks on Islamic markets. The results of this study highlight the urgency of these initiatives. Indeed, prudent risk management and best financial practices are relevant and crucial for both Islamic and conventional financial markets.

Notes

1. For the sake of concision, the test results are not reported here, but they are available under request addressed to the corresponding author.
2. In Monte Carlo experiments, Bai and Perron (2006) find that the method of Bai and Perron (1998) is powerful enough to detect structural breaks.
3. For a comprehensive review of theoretical and empirical evidence on market efficiency, interested readers are invited to consult the works of Fama (1970, 1998), Dimson and Moussavian (1998) and Lim and Brooks (2010).
4. The optimization is carried out in GAUSS using the BFGS algorithm (Broyden, Fletcher, Goldfarb and Shanno).

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Leader Machiavellianism and follower silence

The mediating role of relational identification and the moderating role of psychological distance

Leader Machiavellianism and follower silence

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Abstract

Purpose – Drawing on the social exchange theory, the purpose of this paper is to examine the relationship between leader Machiavellianism and employee's quiescent silence. Specifically, the authors take a relational approach by introducing employee's relational identification as the mediator. The moderating role of psychological distance in the relationship between leader Machiavellianism and quiescent silence is also considered.

Design/methodology/approach – Data were collected from nine universities in Turkey. The sample included 793 randomly chosen faculty members along with their department chairs. Hierarchical multiple regression analysis was conducted to test the proposed model.

Findings – The results of this study supported the positive effect of leader Machiavellianism on employee's quiescent silence as well as the mediating effect of employee's relational identification. Moreover, when the level of psychological distance is low, the relationship between leader Machiavellianism and quiescent silence is strong, whereas the effect is weak when the level of psychological distance is high.

Practical implications – The findings of this study suggest that educational administrators in the higher education should be sensitive in treating their subordinates, as it will lead to positive interpersonal relationship, which, in turn, will reduce workplace silence. Moreover, they should pay more attention to the buffering role of psychological distance for those subordinates with high distrust and showing silence.

Originality/value – This study contributes to the literature on organizational silence by revealing the relational mechanism between leader Machiavellianism and employee quiescent silence. The paper also offers a practical assistance to employees in the higher education and their leaders interested in building trust, increasing leader–employee relationship and reducing workplace silence.

Keywords Psychological distance, Relational identification, Leader Machiavellianism, Quiescent silence

Paper type Research paper

1. Introduction

Employee silence is pervasive in modern organizations and has become an critical issue to organization management (Dyne *et al.*, 2003; Pinder and Harlos, 2001). Employee silence refers to the intentional withholding of information, opinions, suggestions or concerns about potentially important organizational issues (Dyne *et al.*, 2003; Pinder and Harlos, 2001; Wang and Hsieh, 2013). Employee silence reduces organizational commitment, increases corruption (Ashforth and Anand, 2003), impedes innovation at the workplace (Argyris and Schon, 1978) and causes



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absenteeism, turnover and other undesired behaviors (Carla, 1996). Individuals, who intentionally restrict themselves from communication, suffer from stress and physiological problems (Dedahanov and Rhee, 2015). Employee silence is a dysfunctional behavior for organizations and, as a result, an understanding of the factors that contribute to employee silence has become an important issue in organization management because severely negative organizational consequences can result when managers ignore these factors.

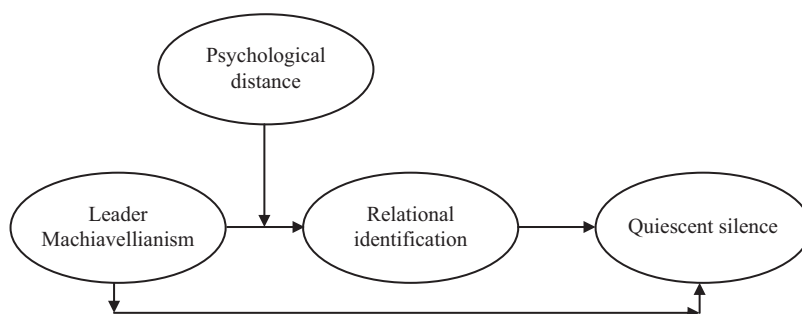
Employee silence is affected by the leader's traits, behaviors and attitudes (Brinsfield, 2013). As a personality trait, Machiavellianism refers to the tendency to manipulate and deceive others in social situations for personal gain (Christie and Geis, 1970). Previous research has shown that leader's Machiavellianism has been linked to organizational deviance and various specific unethical and exploitative behaviors such as tendencies to cheat, lack of workplace integrity and even white-collar crime (O'Boyle *et al.*, 2012). When followers perceive their leaders to be Machiavellian, they are more likely to experience psychological strain, pressure and depression in the workplace, as well as develop negative follower attitudes such as cynicism, turnover intention, low job satisfaction, low commitment and silence (Dahling *et al.*, 2009). In this study, we focus on the process by which leader Machiavellianism affects significant follower outcomes such as employee silence and relational identification. Yet, despite Machiavellianism's long-standing presence in the leadership literature, related research in broad management and applied psychology literature is still in its infancy. To date, no study, to our knowledge, has contributed to an understanding of how leader Machiavellianism relates to employees' quiescent silence, despite the fact that leadership is one of the most influential predictors of employee silence (Brinsfield, 2013; Erkutlu and Chafra, 2018); thus, the first goal of this study is to address this very untapped issue.

In addition, this study investigates psychological distance as the boundary condition for relational identification, i.e. the quiescent silence relationship. Prior researchers have emphasized that leadership and psychological distance significantly influence employee voice behavior (e.g. Milliken and Lam, 2009; Morrison and Rothman, 2009), yet scholars have not considered the interactive effects of leadership trait and psychological distance on silence; i.e. relate to how leadership and organizational members are able to reduce organizational silence (Walumbwa and Schaubroeck, 2009).

The present research is intended to contribute to the existing literature in several ways. First, our research seeks to fill the knowledge gap pertaining to the link between leader Machiavellianism and quiescent silence. Previous research has demonstrated that leadership is one of the most influential factors affecting organizational silence. Therefore, this paper is designed to be one of the first studies to consider the link between leader Machiavellianism and employees' quiescent silence. Second, determining how relational identification decreases employees' quiescent silence has received little empirical attention in the organizational silence-related literature (Umphress *et al.*, 2010). The present study uses social exchange theory as the core theoretical focus and takes a step further to identify the mediating effect of relational identification on the Machiavellianism–silence link. The findings could advance our understanding of the processes by which leader Machiavellianism influences organizational silence. Third, this study contributes to the literature by investigating how leader Machiavellianism enhances followers' quiescent silence via relational identification, which, in turn, accounts for the moderating effect of the psychological distance. Finally, our study adopts a cross-level design and uses a multisource data collection enabling us to provide more robust and meaningful outcomes. Figure 1 summarizes the theoretical model that guided this study.

To test our theoretical model, we selected a context (universities) where employee silence is considered significant. Educational quality has emerged as a major concern in higher education (Sallis, 2014). Proposed strategies for improving educational quality underscore the need for universities to learn from, and prevent the recurrence of errors. In turn, this

Figure 1.
Proposed moderated-
mediation model



requires faculty members in universities to candidly speak up with their opinions and concerns about the problems that their organizations face (Akin and Ulusoy, 2016). Such communication is essential for analyzing the root causes of educational and organizational problems and implementing corrective actions. Yet, even encouraging faculty members to speak up is seen as an essential strategy for improving educational quality, the tendency of faculty members to remain silent about educational and organizational problems observed at work is seen as contributing to errors. For these reasons, the ongoing communication of faculty members on issues affecting the quality of education represents an appropriate context for studying employee silence. Moreover, the relatively hierarchical nature of higher education, where numerous groups (faculty members, administrative staff, technicians, students, etc.) interact to provide optimal service quality, provides a suitable environment to study employee silence since hierarchical organizational structures tend to reinforce workplace silence (Akin and Ulusoy, 2016). Hence, by investigating employee silence in the domain of higher education, we study communicative behaviors pertaining to a critical and an important aspect of a faculty member's work.

2. Literature review and hypotheses

2.1 *Leader Machiavellianism and employee quiescent silence*

Employee silence, the intentional withholding of information, opinions, suggestions or concerns about potentially important organizational issues, is a multidimensional construct (Brinsfield, 2013; Milliken *et al.*, 2003). Brinsfield (2013) and Milliken *et al.* (2003) have suggested that it can be classified into four categories according to reason(s) behind intentional information withholding: acquiescent silence (a disengaged behavior stimulated by resignation), quiescent silence (a self-protective behavior stimulated by fear that the consequences of speaking up could be personally unpleasant), prosocial silence (withholding work-related ideas, information or opinions with the goal of benefiting other people or organization – based on altruism or cooperative motives) and opportunistic silence (information withholding based on opportunism). Acquiescent silence and quiescent silence are often dysfunctional to organizations because they have the potential of interfering with organizational change (Brinsfield, 2013) and suppressing the improvement of organizational performance (Dyne *et al.*, 2003; Tangirala and Ramanujam, 2008). In this study, we focused our attention on quiescent silence because we were mainly interested in the types of employee silence that are of negative consequence to organizations. Prosocial silence, based on altruism or cooperative motives and aiming at benefiting others (Dyne *et al.*, 2003), or opportunistic silence, based on withholding work-related ideas, information or opinions with the goal of achieving an advantage for oneself, were not included in this study because it is often not harmful to organizations.

In order to understand the negative consequences of leader Machiavellianism, it is useful to consider the components that underlie Machiavellians' behavior. The construct of Machiavellianism is named after the Italian Renaissance Diplomat Niccolo Machiavelli who described in his thesis the ideal yet unethical behavior of royalty to successfully achieve their goals. It was not until the work of Christie and Geis (1970) that Machiavellianism was introduced as a psychological construct. According to these authors, Machiavellianism describes an individual who is a master manipulator, someone who uses aggressive tactics, acts amorally and has an untrusting, negative and cynical view of the world. Due to its manipulative and amoral side, Machiavellianism is usually described in a negative light and has attracted attention in work on organizational behavior (e.g. Belschak *et al.*, 2018; Dahling *et al.*, 2009) as well as business ethics (e.g. Schepers, 2003). People with high Machiavellianism are convincing liars and manipulators, less sensitive to ethical issues and are found in any type of organization, even charitable organizations (Schepers, 2003).

While research on Machiavellianism is still scarce, interesting findings have emerged as to the impact of leader Machiavellianism on others. In fact, Machiavellian leaders have been found to be adaptable to situations, yet detached from their employees' interpersonal concerns. These leaders focus on organizational politics and seek to control employees (Dahling *et al.*, 2009). Studies also show that, generally, Machiavellian leaders rely on deceptive strategies and lie in social relationships (e.g. Geis and Moon, 1981; Gunnthorsdottir *et al.*, 2002). They possess strong persuasive powers in such a way that they can influence others as to run counter to organizational goals and individuals' own pro-social values (Gunnthorsdottir *et al.*, 2002). Machiavellians show a strong goal focus and a lack of feelings of guilt and emotional concerns regarding how to achieve these goals (Christie and Geis, 1970).

Because Machiavellians view the world negatively and ascribe bad intentions to others (Christie and Geis, 1970), employees of Machiavellian leaders find it hard to trust in their leaders. Gunnthorsdottir *et al.* (2002) found that, as a result of their low trust in relationship partners, employees were significantly less likely to reciprocate during a bargaining game and were the least likely to extend trust first. Such lack of trust worsens when working with a Machiavellianism leader whose employees perceive him/her as being manipulative, deceitful and exploitative than when working with a non-Machiavellianism leader. In particular, the gap between employees' expectations of what they want (e.g. being in control and having the freedom to act the way they want) and what they receive from their Machiavellianism leader (tight monitoring, a wary and distrusting leader) may be too disparate for the development of a trusting or healthy relationship. Thus, we predict that Machiavellianism employees trust leader Machiavellianism significantly less than non-leader Machiavellianism. Trust is an essential component in maintaining a healthy social exchange relationship with others (Blau, 1964). It can increase information sharing and cooperation (Solomon and Flores, 2001), relate to performance (Dirks, 2000) and reduce job stress (Vigoda-Gadot and Talmud, 2010).

Scholars suggest that Machiavellian leadership shapes follower behaviors through social exchange processes (Belschak *et al.*, 2018). Social exchange theory proposes that the norms of reciprocity or perceived obligation to return favors undergird many social relationships (Blau, 1964). According to social exchange theory, when followers perceive a leader as caring and concerned for their well-being, they feel obliged to reciprocate that leader's support (Erkutlu and Chafra, 2017). On the contrary, when a leader is motivated to manipulate others in order to accomplish his/her own goals or is perceived to be more abusive (Belschak *et al.*, 2018), more manipulative (Dahling *et al.*, 2009) and less sympathetic (Rauthmann, 2012) by his/her followers, subordinates see the exchange relationship as imbalanced or exploited. This leads to psychological strain affecting followers' work attitudes and enhances retaliatory behavior (e.g. deviance, O'Boyle *et al.*, 2012) as well as reduced work effort (Dahling *et al.*, 2009). Building on these ideas, Belschak *et al.* (2018) suggested that Machiavellianism leaders

engender feelings of distrust and injustice in their followers, and create an organizational environment where followers are more likely to reciprocate with detrimental organizational outcomes including increased emotional exhaustion and silence.

Moreover, distrust in the leader is negatively associated with the self-efficacy of employees (Yang and Mossholder, 2010). In other words, the higher the distrust in the leader, the lower there will be self-efficacy of individuals to make difference in the organization. Therefore, we believe that employees, with higher levels of distrust, tend to have lower levels of self-efficacy preventing them to share their concerns and make difference in their organization whereas individuals, with lower levels of distrust, are more likely to have higher levels of self-efficacy to make change with their suggestions and remain defensively silent. Hence, we propose the following hypothesis:

- H1.* The perception of leader's Machiavellianism is positively related to employee's quiescent silence.

2.2 The mediating role of relational identification

Identity is the core of an individual's psychological self-concept and development. Employee identification with the leader is a follower's relational self-based on close relations with the leader, which is different from a follower's collective self (referred to as social identity) based on the group or organization membership and identification (Kark *et al.*, 2003). Identification with leader usually represents identification in two different ways: one evokes a subordinate's self-concept in the recognition that he or she shares similar values with the leader, the other gives rise to a subordinate's desire to change his or her self-concept so that his or her values and beliefs become more similar to that of the leader (Pratt, 1998). Priming subordinates' relational self-concepts is crucial for leaders to achieve their effects on the subordinates (Kark *et al.*, 2003).

The extent to which a follower will identify with the leader depends on the attractiveness or desirability of this relationship. The more positive the evaluation of the relationship with the leader, the more likely the employee will identify with the leader by including this relationship in his or her definition of self.

Leaders are known to influence follower behavior in part by shaping follower identities (Lord *et al.*, 1999). Lord *et al.* (1999, p. 167) suggested that "leaders can profoundly influence subordinates' self-concepts, and thereby influence follower behavior and other social processes." We have argued that higher leader Machiavellianism will be associated with lower relational identification with the leader. The latter helps to explain why followers of a leader with high Machiavellianism are less likely to speak up to their leaders. Sluss and Ashforth (2007) argue that with stronger relational identification comes social attraction, interpersonal connection, a feeling of belongingness and openness to influence from the admired and respected identification target (the leader in this case). Followers of a Machiavellian leader, whom they do not identify with, are reluctant to meet that leader's performance expectations. Followers, who do not identify with their Machiavellian leader, feel less comfortable speaking up to that leader about problems due to their perceptions that speaking up is not safe.

When employees perceive that there is unfairness in their interacting process with the leader, or their leader manipulates them in order to accomplish his/her own goals, they lose their belief, in respect and pride in the organization; thereby will be less stimulated to identify with the organization and the leader. This, in turn, halts them to exhibit discretionary (e.g. cooperative) behaviors. Relational identification has been shown to strengthen employees' identification with their organization (Sluss and Ashforth, 2007). This sense of identification encourages employees to consider organizational problems as their own and to realize that their voice on organizational problems will be taken seriously. Consequently, relational identification can motivate employees to break the silence.

We propose that relational identification will mediate the relationships between leader Machiavellianism and employee's quiescent silence. Since Machiavellian leaders are less likely to show respect for subordinates, provide them with sufficient information and allow them to voice their concerns, subordinates tend to perceive low relational identification with the leader. Indeed, Zagenczyk *et al.* (2013) found a negative effect of leader Machiavellianism on subordinates' perceptions of identification with the leader. In addition, research has shown that perceptions of low relational identification in a social exchange mean that subordinates do not reciprocate supervisory trust (Wu *et al.*, 2012). In fact, when subordinates perceive less relational identification in their interactions with their supervisors, they are more willing to withhold relevant ideas, information or opinions as a form of self-protection. Therefore, leader Machiavellianism may increase quiescent silence through its effect on perceived relational identification.

However, we expect a partial rather than a full mediation of perceptions of relational identification in the leader Machiavellianism–quiescent silence relationship. This is because leader Machiavellianism could increase quiescent silence through mechanisms other than relational identification. In fact, leader Machiavellianism may increase employees' anxiety and sense of uncertainty because leaders' punitive behavior is out of employees' personal control and is often unpredictable. Feelings of anxiety and uncertainty have been shown to be associated with high levels of employee silence (Kenworthy and Jones, 2009). Hence, leader Machiavellianism may engender employees' quiescent silence through alternative mediators. Taken together, we propose the following hypothesis:

- H2.* The positive relationship between leader's Machiavellianism and employee's quiescent silence is mediated by relational identification, such that (a) the greater the leader's Machiavellianism, the lower the relational identification; and (b) the less relational identification, the less employee quiescent silence will be.

2.3 The moderating role of psychological distance

Psychological distance encompasses the "psychological effects of actual and perceived differences between the supervisor and subordinate" (Napier and Ferris, 1993, pp. 328-329), including demographic distance, power distance, perceived similarity and values similarity. Empirically, followers have been shown to hold leader psychological proximity as highly beneficial for the receipt of "sensitive and individually-tailored building communication" (Yagil, 1998, p. 172). Yagil (1998) further argued that a socially and physically close leader was better able to serve as a role model of effective workplace behaviors, in addition to being increasingly approachable. Conversely, when the psychological distance between leaders and followers is reduced, a leader's influence and respect may be diminished when followers are more capable of observing perceived leader weaknesses (Odle, 2014). It has also been discussed that proximity to a leader may allow followers to view their superior as more human and fallible, increasing self-identification and trust (Odle, 2014). The way in which trust develops within the supervisor–subordinate relationship is moderated by distance because "the leader's honesty, reliability, and trustworthiness can be directly manifested by the leader and assessed by close followers" (Torres and Bligh, 2012).

Napier and Ferris (1993) suggested that less psychological distance is associated with higher subordinate performance, higher satisfaction and decreased withdrawal. Increased psychological distance has been shown to negatively affect the quality of manager–subordinate relations (Story and Barbuto, 2011) as well as inhibit self-identification and trust development. Bass (1990) noted that distance, generally, has a negative effect on the quality of the supervisor–subordinate exchange and reduces the leader's influence because of the reduced richness of information transmission. Previous research has indicated that leader-member exchange quality is greatly reduced in environments of increased psychological distance (Erkutlu and Chafra, 2016; Odle, 2014).

The process of maintaining social stability through informal social consensus – known as social exchange (Blau, 1964) – provides a basis for orderly, productive and predictable social systems to thrive. Of considerable importance is the norm of reciprocity, which requires individuals to help (and not harm) individuals who help them (He *et al.*, 2017). Studies of social exchange suggest that individuals who are unwilling to engage in reciprocal exchange prevent the establishment of mutually beneficial and supportive relationships and are likely to become targets of corrective actions, such as silence (Erkutlu and Chafra, 2016; He *et al.*, 2017). We argue that high psychological distance between leader and followers are viewed as a threat to relationship or group functioning because such behavior weakens rather than strengthens social exchange relationships. These leaders are likely to be viewed as social liabilities in the workplace and are targeted for exclusionary actions. Thus, we expect target psychological distance to be positively related to employees' silence.

We expect that psychological distance influences the link between leader Machiavellianism and quiescent silence. The effect of leader Machiavellianism on quiescent silence styles becomes stronger as the psychological distance increases. Given that supervisors are considered the agents of the organization, their treatment of subordinates as well as their psychological distance with subordinates can influence employees' perception of relational identification (Yoon, 2017). When employees have low psychological distance with their immediate supervisor, thus enjoying discretion, support, autonomy and developmental opportunities, they perceive that they are treated with dignity in their interpersonal interactions, such as spoken to politely, without improper remarks or prejudicial statements. On the other hand, when employees have high psychological distance with their immediate supervisor, they may doubt whether they can trust and build a long-term relationship with their leaders as well as perceive low fairness *vis-à-vis* the interpersonal treatment. Therefore, psychological distance should complement the effects of Machiavellian personality on relational identification. Hence, we hypothesize the following:

- H3.* Leader Machiavellianism influences employee quiescent silence through its relationship with relational identification, and the indirect effect will be stronger when the leader–follower psychological distance is strong rather than when it is weak.

Combining *H1–H3*, we propose a moderated mediation model, shown in Figure 1, to test the relationship between followers' perceptions of leader Machiavellianism and quiescent silence; the model incorporates relational identification as a mediator and leader–follower psychological distance as a moderator.

3. Methods

3.1 Participants

This study's population consisted of faculty members in Turkish universities. The sample of this study included 793 faculty members along with their superiors (department chairs) from 9 universities in Turkey. These universities were randomly selected from a list of 206 universities in the country (The Council of Higher Education Turkey, 2018).

This study was completed in May–June 2018. A cluster random-sampling method was used to select the sample. In this sampling method, first, all the universities in Turkey were stratified into seven strata according to their geographic regions. Then, universities in each stratum were proportionally selected by a cluster random sampling; faculty members working at the selected universities comprised the study sample. A research team consisting of three research assistants visited the universities in this study and received approvals from the deans of economics and administrative sciences, fine arts, science and literature, engineering and education faculties to distribute the questionnaires. Participants were told that the study was designed to collect information on the faculty

members' quiescent silence levels and perceptions of their department chairs' Machiavellianism in the higher education workforce. They were given confidentially assurances and told that participation was voluntary. The questionnaires were collected immediately.

A randomly selected group of faculty members from randomly selected departments completed the quiescent silence, relational identification and psychological distance scales (76–100 faculty members per university, totaling 793 out of 900 participants). Faculty members' department chairs completed the leader Machiavellianism scale (18–25 department chairs per university, totaling 180). Department chairs reports of leader Machiavellianism were used instead of faculty members' reports in order to avoid same-source bias. In total, 46 percent of the faculty members were female with an average age of 35.12 years whereas 63 percent of the department chairs were male with an average age of 42.23 years. The response rate turned out to be 88.11 percent.

3.2 Measures

Leader Machiavellianism. This study employed 16 items from the Machiavellianism Personality Scale developed by Dahling *et al.* (2009) to evaluate the leader's level of Machiavellianism. Participants rated items on a seven-point Likert scale (1 = strongly disagree; 7 = strongly agree). Sample items include "My department chair is willing to be unethical if he/she believes it will help him/her succeed" and "My department chair enjoys having control over other people." The scale's reliability was 0.80.

Quiescent silence. It was measured by using five-item quiescent silence scale developed by Parker *et al.* (2009). Sample items include "I would not want to hurt my career" and "I would not want to be as difficult or rude." All items were measured on a seven-point scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). Cronbach's α turned out to be 0.93.

Follower relational identification with the leader. It was measured using the 10-item measurement of identification with the leader developed and validated by Walumbwa and Hartnell (2011). The participants indicated the extent to which they agreed or disagreed with the ten statements about relational identification with the leader, with 1 indicating "strongly disagree" and 7 "strongly agree". Cronbach's alpha for this scale was 0.83.

Psychological distance. It was measured by using three-item psychological distance scale developed by Napier and Ferris (1993). The statement, "Think about your department chair and how similar he or she is to you, and then respond with your agreement to the following items" preceded the three items: "I feel very similar to my department chair," "My department chair and I share much in common" and "My department chair isn't that different from me." Items loaded onto a single factor with acceptable reliability. All items were measured on a seven-point scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). The Cronbach's α for this measure turned out to be 0.91.

Control variables. The demographic factors, age and gender, found to be significantly related to employee silence (Wang and Hsieh, 2013), were controlled. Age was measured in years whereas gender was measured as a dichotomous variable coded as 1 for male and 0 for female.

4. Results

4.1 Preliminary analysis

Prior to testing the hypothesized relationships, we first conducted confirmatory factor analyses (CFAs) of the proposed model using the AMOS software package (Arbuckle, 2006) to ensure construct distinctiveness among the study's variables. Results showed that the hypothesized four-factor model of leader Machiavellianism, relational identification, psychological distance and quiescent silence, $\chi^2 = 2,498.23$, $df = 931$; RMSEA = 0.07, CFI = 0.95 and IFI = 0.95, yielded a better fit to the data than any other models including a one-factor model (i.e. combining all four

study variables), $\chi^2 = 8,693.45$, $df = 949$; $RMSEA = 0.019$; $CFI = 0.50$ and $TLI = 0.50$. These CFA results also provide support for the distinctiveness of the four study variables for subsequent analyses. The poor fit of the measurement model, with a single underlying latent variable, indicates that common method bias, or single-source bias, is not a major concern with our data. Moreover, an explorative factor analysis, enabling us to investigate whether or not one single factor accounts for the majority of the variance in the variables, shows that the first unrotated factor accounts for 18 percent of the variance. Thus, with no factor explaining the majority of the variance, the Harman single-factor test also suggests that common method bias is not a major concern (Podsakoff and Organ, 1986).

Table I shows factor loadings for each scale item, which can be used to assess the measurement model. The matrix shows that all coefficients are greater than 0.6. The factor coefficients presented in Table I indicate homogeneity within scales. Evidence of acceptable validity is also provided in Table I, which shows the average variance extracted (AVE), or average squared loading, for each latent variable. To confirm acceptable validity, each construct should have an AVE greater than 0.5 (Chin, 1998).

Construct	No. of items	Cronbach's α	Variable	Standardized factor loadings	CR (<i>t</i> -value)	AVE	Composite reliability
Leader Machiavellianism	16	0.80	LM1	0.79	–	0.53	0.83
			LM2	0.80	14.03***		
			LM3	0.83	16.30***		
			LM4	0.88	14.23***		
			LM5	0.80	15.19***		
			LM6	0.90	16.01***		
			LM7	0.75	14.09***		
			LM8	0.77	15.33***		
			LM9	0.83	14.74***		
			LM10	0.85	14.09***		
			LM11	0.82	13.91***		
			LM12	0.90	13.76***		
			LM13	0.78	14.15***		
			LM14	0.76	14.91***		
			LM15	0.81	14.30***		
			Quiescent silence	5	0.93		
QS1	0.90	–					
QS2	0.86	16.23***					
QS3	0.81	16.06***					
QS4	0.86	15.36***					
Relational identification	10	0.83	QS5	0.83	15.76***	0.59	0.84
			RI1	0.77	–		
			RI2	0.80	14.69***		
			RI3	0.86	14.89***		
			RI4	0.83	14.95***		
			RI5	0.82	14.62***		
			RI6	0.81	14.23***		
			RI7	0.79	14.36***		
			RI8	0.80	14.06***		
			RI9	0.77	13.95***		
Psychological distance	3	0.91	RI10	0.78	14.13***	0.69	0.93
			PD1	0.86	–		
			PD2	0.84	17.76***		
			PD3	0.83	17.23***		

Notes: $n = 793$. *** $p < 0.001$

Table I. Coefficients for the four-factor measurement model

The means, standard deviations and intercorrelations of all the variables are presented in Table II. The correlations of most of the variables were in the expected direction. The control variables were not significantly correlated with the dependent variable (quiescent silence). Furthermore, all the measures showed a high level of internal reliability.

4.2 Hypothesis tests

Our hypotheses were tested in two interlinked steps. First, a hierarchical regression analysis was conducted to use the simple mediation model (*H1* and *H2*) of Baron and Kenny (1986). As several methodologists (Hayes and Preacher, 2010; Preacher and Hayes, 2004) have recently recommended a bootstrap approach to obtain confidence intervals (CIs), we also tested the mediation hypothesis using a bootstrapping test and the Sobel test. Second, the overall moderated mediation hypothesis was tested empirically using an SPSS macro designed by Preacher *et al.* (2007). Through these procedures, we demonstrated that the strength of the hypothesized mediating (indirect) effect of relational identification on the relationship between leader Machiavellianism and quiescent silence is conditional on the value of the moderator (i.e. psychological distance).

Consistent with *H1*, leader Machiavellianism showed a positive relationship with quiescent silence ($\beta = 0.32, p < 0.001$). *H2* posited that relational identification mediates the relationship between leader Machiavellianism and quiescent silence. To test our hypothesis regarding the mediating role of relational identification, we adopted the approach suggested by Baron and Kenny (1986). The Baron and Kenny approach was selected because it is a well-established approach (despite its statistical limitations, e.g. LeBreton *et al.*, 2009) to mediation analysis and has been used across a number of recent studies within the management literature (Cokley *et al.*, 2018; Gkorezis *et al.*, 2014; Gkorezis and Bellou, 2016; Farzaneh *et al.*, 2014; Thompson *et al.*, 2017). This mediation test has several important features. First, the independent variable should be significantly related to the dependent variable. Second, the independent variable should have a significant relationship with the mediator. Finally, the mediator should be significantly related to the dependent variables with the independent variables included in the equation. If the first three conditions hold, at least partial mediation is present. If the independent variables have non-significant beta weights in the third step, complete mediation is present.

The result of the test for *H1* satisfied the first condition of mediation. Next, the result of the test for the significant relationship between leader Machiavellianism and relational identification satisfied the second mediating effect criterion ($\beta = -0.33, p < 0.001$). To test the third criterion, we regressed the dependent variable on the mediating variable, controlling for leader Machiavellianism. As reported, relational identification was significant ($\beta = -0.30, p < 0.001$), reducing the coefficient of the effect of leader Machiavellianism on quiescent silence ($\beta = 0.06, ns$). Therefore, the result of the mediation analysis suggests that the effect of leader Machiavellianism on employee quiescent silence is fully mediated by employees' relational identification.

Table II.
Means, standard deviations and correlations of studied variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
(1) Age (year)	35.12	1.23					
(2) Gender	0.46	0.54	0.03				
(3) Leader Machiavellianism	3.66	0.86	0.04	-0.03			
(4) Relational identification	3.25	0.79	0.03	0.03	-0.35***		
(5) Psychological distance	3.43	0.81	0.06	0.06	0.22**	-0.26**	
(6) Quiescent silence	3.09	0.71	-0.07	-0.04	0.33***	-0.31***	0.34***

Notes: *n* = 793. ***p* < 0.01; ****p* < 0.001

Following the procedure used by Hayes and Preacher (2010), we then tested the significance of the indirect effects using the Sobel test and bootstrapping. The formal two-tailed significance test (assuming a normal distribution) demonstrated that the indirect effect was significant (Sobel $z = 2.33$, $p = 0.02$). The bootstrapping results confirmed the Sobel test. Specifically, we estimated 95% bias-corrected CIs for indirect effects by bootstrapping 10,000 samples. Shrout and Bolger (2002) suggested that, if 0 is not in the CI, the researcher can be confident that the indirect effect is different from 0. In this study, the CI is from -0.12 to -0.02 , excluding 0 in the CI, suggesting that the indirect effect is statistically significant in our model. Thus, *H2* was supported.

H3 predicted that the indirect effect of relational identification between leader Machiavellianism and quiescent silence would be weakened by low leader–follower psychological distance. The results indicate that the interaction term between leader Machiavellianism and leader–follower psychological distance on relational identification is significant ($\beta = 0.25$, $p < 0.01$). To confirm the direction of this interaction effect, we applied conventional procedures for plotting simple slopes (see Figure 2) at one standard deviation above and below the mean of the leader–follower psychological distance measure. As expected, the slope of the relationship between leader Machiavellianism and relational identification was strong for employees who assessed leader–follower psychological distance as high (simple slope = -0.29 , $t = 3.39$, $p < 0.001$), whereas the slope was weak for employees who assessed leader–follower psychological distance as low (simple slope = -0.01 , $t = -0.09$, $p = ns$).

Next, to examine the conditional indirect effect of leader Machiavellianism on quiescent silence (through relational identification) at two values of leader–follower psychological distance, we used an SPSS macro developed by Preacher *et al.* (2007). Following their recommendation, we set high and low levels of leader–follower psychological distance at one standard deviation above and below the mean score of leader–follower psychological distance. As expected, the indirect effect of leader Machiavellianism on quiescent silence via relational identification was conditional upon the level of leader–follower psychological distance. The indirect effect was stronger (0.07) and significant at a high level of leader–follower psychological distance (CI ranging from -0.12 to -0.02 and not crossing 0) but was weaker (-0.00) and insignificant at a low level of leader–follower psychological distance (CI ranging from -0.04 to 0.02 , crossing 0). Thus, *H3* was supported (Tables III–V).

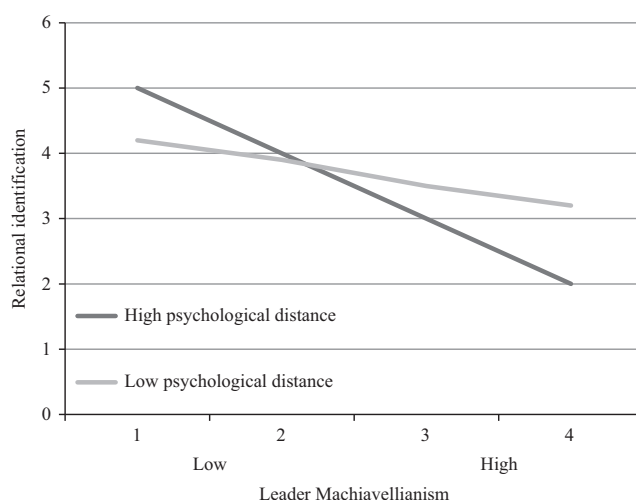


Figure 2. Interaction of leader Machiavellianism and psychological distance on relational identification

Table III.
Regression analysis
for testing mediation

Variables	Relational identification		Quiescent silence		
	Model 1	Model 2	Model 1	Model 2	Model 3
Age	0.03	0.02	-0.06	-0.05	-0.02
Gender	0.02	0.01	-0.03	-0.02	-0.01
Leader Machiavellianism		-0.33***		0.32***	0.06
Relational identification					-0.30***
Overall <i>F</i>	0.61	3.69***	0.33	2.09**	3.89***
<i>R</i> ²	0.04	0.13	0.02	0.05	0.06
ΔF		11.19***		7.19**	6.21**
ΔR^2		0.04		0.03	0.02

Notes: ***p* < 0.01; ****p* < 0.001

Table IV.
Hierarchical
regression results for
moderated mediation

Variables	Relational identification				Quiescent silence				
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4	Model 5
Age	0.03	0.02	0.02	0.01	-0.06	-0.05	-0.04	-0.02	-0.01
Gender	0.02	0.01	0.01	0.01	-0.03	-0.02	-0.02	-0.01	-0.01
Leader Machiavellianism (LM)		-0.33***	-0.28**	-0.15*		0.32***	0.30***	0.26**	0.05
Psychological distance (PD)			-0.24**	-0.20**			0.32***	0.30***	0.26**
LMxPD				0.19**				0.27**	0.25**
Relational identification									-0.29**
Overall <i>F</i>	0.61	3.69***	4.19***	5.66***	0.33	2.09**	2.71**	3.66***	4.15***
<i>R</i> ²	0.04	0.13	0.16	0.18	0.02	0.03	0.03	0.05	0.07
ΔF		11.19***	2.89*	1.69		7.19**	7.83**	8.12***	8.66***
ΔR^2		0.04	0.03	0.02		0.03	0.02	0.01	0.01

Notes: **p* < 0.05; ***p* < 0.01; ****p* < 0.001

Table V.
Moderated mediation
results for quiescent
silence across levels of
psychological distance

Moderator	Level	Quiescent silence		SE	LL 95% CI	UL 95% CI
		Conditional indirect effect				
Psychological distance	High (0.97)		0.07	0.03	-0.12	-0.02
	Low (-0.97)		0.00	0.01	-0.04	0.02

Notes: LL, lower limit; CI, confidence interval; UL, upper limit

5. Discussion

We explored and tested the positive relationship between leader's (department chairs) Machiavellianism and followers' (faculty members) quiescent silence of universities in Turkey. Data from our sample supported our initial hypotheses. Results showed that leader's Machiavellianism is positively associated with followers' silence and negatively associated with relational identification. Furthermore, relational identification provided an explanation of the relationship between leader's Machiavellianism and quiescent silence. In addition, leader-follower psychological distance effectively buffered the negative relationship between relational identification and quiescent silence.

5.1 Theoretical contribution

This study extends the research on Machiavellianism in organizations by adding a substantive mediator to explicate how leader's Machiavellianism engenders employees' quiescent silence.

In doing so, this study provides the insight that relational identification is a key psychological conduit through which leaders, with high Machiavellianism, motivate employees to withhold relevant ideas, information or opinions as a form of self-protection, based on fear. In addition, relational identification may be a causal mechanism that is relatively general across various types of behavioral choices such as organizational cynicism or citizenship behaviors that deteriorate or improve organizational effectiveness. By considering relational identification as a proximal psychological pathway influencing employees' behavioral choices, this study facilitates future research seeking interventions that might prove effective in ultimately reducing workplace silence.

Moreover, this study linked two conventionally independent research areas, leader's Machiavellianism and employee silence, thereby opening up new avenues for enriching the development of each field. Among the many negative consequences of leader's Machiavellianism to an organization, employee silence is the most serious. Employees who experience their leaders as being high in Machiavellianism perceive that their leaders act selfishly, manipulate and exploit others to achieve their long-term goals, as well as neither emotionally is attached to their subordinates nor concerned with the effects their behaviors have on other people (Rauthmann, 2012). Those leadership characteristics are clearly associated with difficulties in interpersonal relationships, which, in turn, lead to low trust in leader, relational identification and high quiescent silence. This finding places leader Machiavellianism as one important precedent to employee workplace silence.

Another key contribution of this study rests on the role of relational identification as a mediator of the link between leader Machiavellianism and employee silence. Traditionally, the positive effects of relational identification have been limited to trust in supervisor, organizational commitment and satisfaction (Carmeli *et al.*, 2011). We have now expanded this to include the employee silence.

Given the call of broadening the criterion domain to include the interpersonal antecedents of employee silence (e.g. Xu *et al.*, 2015), this study adds to literature through the examination of the moderating role of psychological distance.

One noteworthy finding of this research is the moderated mediation model that applied social exchange theory (Blau, 1964) to define the mediation path. This model provided a theoretical framework on how an independent variable (such as leader Machiavellianism) may affect the dependent variable (quiescent silence) through the mediator (relational identification). As for the moderator, psychological distance moderated the mediating effect of relational identification on the indirect relationship between leader Machiavellianism and employee silence. High levels of psychological distance increased the mediating effect of relational identification.

5.2 Managerial implication and conclusion

The findings of this study are consistent with the previous research results (Belschak *et al.*, 2018; Gunnthorsdottir *et al.*, 2002) that leader Machiavellianism has negative employee outcomes such as low job satisfaction and commitment as well as high organizational cynicism, turnover intention and workplace silence. This study has important implications for higher education management. The results highlight the importance of leader Machiavellianism, as it is positively related to employee silence. Leaders with high Machiavellianism are prone to exploit others, have lower quality relationships and take shortcuts or behave in unethical ways (Belschak *et al.*, 2018). In terms of implications for organizations, these findings point to the importance of reinforcing an ethical context as well as to the significance of leader selection. Specifically, in order to ensure that Machiavellian leaders do not thrive in organizations, it is important to maintain an ethical context. If the context is unethical, or interpersonally ineffective, behaviors will likely turn out to be more salient and evaluated more negatively by coworkers (Erkutlu and Chafra, 2018). Thus, it is

unlikely that Machiavellian leaders will be successful in advancing in a highly ethical context (Ruiz-Palomino *et al.*, 2013).

The findings of this study suggest that relational identification acts as a link between leader's Machiavellianism and employee silence. Generally, employees consider managers who behave in a disrespectful and abusive manner as a burden. However, employees do not always react or speak up to their manager, even if (s)he behaves abusively (Burris, 2012). Employees, who perceive high relational identification, feel that they have been treated with dignity and respect, have trust in their leader and tend to show less negative consequences when confronted with a Machiavellian leader. Indeed, relational identification seems to work as a mediator on followers' negative reactions to Machiavellian leadership. Therefore, organizations should provide additional support and resource-based interventions to buffer abused employees' experience of low relational identification. For example, organizations could provide psychological consultation services to those victims and listen to their voice. Furthermore, employers could implement employee health progress program to detect the health status of their employees from time to time. Moreover, organizations could pay attention to leaders' Machiavellianism due to their detrimental effects. This is relevant not only when filling leader positions but also when dealing with existing leaders in the organization. In fact, existing leaders should be made aware of the effect their personality may have on their employees as well as receive training on effective leadership styles (e.g. transformational leadership) to cope with the potential negative effects of Machiavellianism in the workplace.

Given the goal of reducing the number of stresses in the workplace, acknowledging that a state of perceived leader Machiavellianism is stressful is a starting point for the design of preventative interventions. For instance, if perceived Machiavellian leadership is recognized as a factor creating low relational identification, human resources experts might include supportive leadership styles such as transformational, ethical or authentic leadership behaviors in curricula for management training programs. With respect to the goal of improved management of existing low level of employee identification with the leader, the characterization of leader Machiavellianism as a factor of low relational identification may benefit counseling and employee assistance initiatives. For instance, these programs may help employees recognize situations that lead to the perceptions of Machiavellian leadership behaviors as a contributing factor in their experience of low employee identification with the organization and the leader. As such, employees may be able to learn how to cope with their feelings of the perceived Machiavellianism.

Our research showed that high psychological distance increases the negative effect of leader's Machiavellianism on relational identification. Managers should pay more attention to the buffering role of psychological distance especially for those employees with low relational identification and showing workplace silence. For managers, this study shows that organizations, whose priority is to reduce silence, should design a workplace in which employees and their supervisors have an opportunity to work toward establishing common values. The presence of low psychological distance provides a fertile ground to create a more engaged workforce. This, in turn, reduces the likelihood that employees choose activities conflicting with the interests of their organization. A culture that embraces supportive leadership such as ethical, transformational or authentic leadership may be instrumental in this respect because supportive leaders tend to align followers' interests effectively with those of the organization (Stone *et al.*, 2004). Conversely, organizations should be aware that when there is a high psychological distance between manager and his/her subordinates, the resulting lack of communication and control, as well as uncertainty might prompt subordinates to pursue activities that meet their personal interests only, even if these activities may harm their employing organization. At a more general level, top management should stimulate their employee base, across hierarchical ranks, to move away

from viewing their personal goal setting through a self-interested lens. Instead, they should encourage employees to see themselves and supervisors as “partners” who share a set of common values and interests, with the ultimate objective of helping the organization meet its goals.

5.3 Limitations and future research

One limitation of our study is that our sample was only drawn from universities in Turkey, thus external validity is a concern. Another limitation arises from the cross-sectional data, as no causal relationships can be established without longitudinal studies. Furthermore, the use of a self-rating scale could also hold social-desirability bias as participants have a tendency to give socially desirable responses instead of choosing responses that are reflective of their true feelings.

Future research can be conducted to address the limitations pertaining to this study. We call for continuing empirical research on the relationship between leader Machiavellianism and follower silence based on samples from universities that operate in other economies. As consensus can only be reached by accumulating evidence from a more representative mix of samples, we offer the current findings as a basis for further research. It would be even more meaningful to conduct longitudinal studies to examine how the changes in leader Machiavellianism affect workplace silence. Moreover, future leader Machiavellianism research might benefit from focusing on the role of context in reducing or exacerbating the impact of such leadership styles on work outcomes. In line with Johns' (2006) admonition on the importance of acknowledging and integrating the influence of context in research, we argue that situational factors such as perceived organizational politics or organizational culture may exert an important effect on employee behavior. Finally, yet importantly, future research can be conducted by using structural equation modeling (SEM) to test the relationship among the variables in this study in a single analysis instead of testing separate regression analyses. There are over a dozen methods of mediation and moderation analysis, most of them testing the statistical significance of a sequence of linear regression models (Baron and Kenny, 1986). By using SEM, simultaneous examination of direct and indirect relationships among constructs represented by multiple items can be conducted. Researchers have advocated the use of SEM techniques for assessing mediation (e.g. Preacher and Hayes, 2004) and empirically demonstrated their superiority over regression procedures (Iacobucci *et al.*, 2007). Some SEM software packages now offer indirect effect tests using one of the above approaches for determining significance. Moreover, the SEM analysis approach provides model fit information about consistency of the hypothesized mediational model to the data. Since measurement error is a potential concern in mediation testing because of attenuation of relationships, approaches addressing this issue gain acceptance and popularity. SEM approach, in this regard, answers this need by removing measurement error from the estimation of the relationships among the variables.

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Appendix

- (1) Machiavellian Personality Scale (Dahling *et al.*, 2009):
- My department chair believes that lying is necessary to maintain a competitive advantage over others.
 - The only good reason to talk to others is to get information that my department chair can use to his/her benefit.
 - My department chair is willing to be unethical if he/she believes it will help him/her succeed.
 - My department chair is willing to sabotage the efforts of other people if they threaten his/her own goals.
 - My department chair would cheat if there was a low chance of getting caught.
 - My department chair likes to give the orders in interpersonal situations.
 - My department chair enjoys having control over other people.
 - My department chair enjoys being able to control the situation.
 - Status is a good sign of success in life.
 - Accumulating wealth is an important goal for him/her.
 - My department chair wants to be rich and powerful someday.
 - People are only motivated by personal gain.
 - My department chair dislikes committing to groups because he/she doesn't trust others.
 - Team members backstab each other all the time to get ahead.
 - If my department chair shows any weakness at work, other people will take advantage of it.
 - Other people are always planning ways to take advantage of the situation at my expense.

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- (2) Quiescent silence (Parker *et al.*, 2009):
 - I would not want to hurt my career.
 - I would not want to damage my reputation.
 - I would not want to hurt my position in the team.
 - I would not want to be seen as difficult or rude.
 - I would not want to damage my relationship with others.
 - (3) Relational identification (Walumbwa and Hartnell, 2011):
 - When someone criticizes my department chair, it feels like an insult to me.
 - I am interested in what others think about my department chair.
 - When I talk about my department chair, I usually say “we” rather than “him or her.”
 - I share the success of my department chair.
 - I have a sense of partnership with my department chair.
 - I am proud to tell others I work with this department chair.
 - I praise my department chair when speaking with friends.
 - I have a mutually beneficial relationship with my department chair.
 - I respect the views and suggestions of my department chair.
 - The values of my department chair are consistent to my own.
 - (4) Psychological distance (Napier and Ferris, 1993):
 - I feel very similar to my department chair.
 - My department chair and I share much in common.
 - My department chair is not that different from me.

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