Do CEO's attributes increase risk-taking? Empirical evidence from France

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Abstract

The current paper studies how CEO attributes could influence corporate risk-taking. We examine the effects of CEO demographic attributes and CEO position's attributes on financial and strategic risk-taking. This study is drawn on non-financial firms listed on the SBF120[3] index, between 2001 and 2013. It provides the following results.

First, long-tenured CEOs are prone to decrease the total risk and the leverage ratio. Second, despite the many CEOs have political connections; they are not prone to engage in risky decisions not serving the business' interests. Third, when their age increases, CEOs are likely to rely on debt to fund internal growth. Moreover, Business and science-educated CEOs behave differently in terms of risk-taking. Finally, we show that CEOs' attributes have less influential effects in family firms than in non-family firms.

Keywords: CEO's attributes, financial risk-taking, leverage, liquidity, innovation.

JEL Classification Codes: G30, O30, O31, M21.

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[3] The SBF120 index consists of the 120 largest capitalizations listed on the French Stock Exchange market (SBF: Société des Bourses Françaises).

Introduction

The active role of CEOs on how they define and shape the firm' strategies and how they could influence the firm interaction with the environment and uncertainties have been discussed in many studies (see among others, Lee et al., 2016; Tin et al., 2015; Helft, 2014; Brown and Sarma, 2007; Hambrick, 2007; Bertrand and Schoar, 2003; Pearce and Zahra, 1991). Specifically, many studies have focused on how CEOs could influence risk-taking (see among others Faccio et al., 2016; Farag and Malling, 2016; Lee et al., 2016; Tin et al., 2015; Wei and Ling, 2015; Helft, 2014, Chikh and Filbien, 2011; Tang et al., 2011; Brown and Sarma, 2007; Finkelstein, 1992). For instance, Francis and Smith (1995) argue that powerful CEOs[4] tend to better accept changes in developed countries than in developing ones. In developed countries, CEOs are prone to invest more in risky projects. Miles and Cameron (1982) study the association between powerful CEOs and diversification while Lu and Wang (2017) explain that CEOs' power is significantly determined by their risk preferences: if they are risk-averse (respectively risk-taker), they usually prefer routine and conventional (respectively risky and innovative) projects. Sunder et al. (2017) underline that CEOs, who implement successful innovations, have specific qualities: they are effective, open to new ideas and inclined to invest in R&D activities.

These studies provide evidence that CEO could influence risk-taking. However, very few studies have focused on the influence of CEO attributes on the firm risk-taking. In fact, a large brand of studies on CEO's attributes analyzes how CEO's compensation package (stock options and other long-term incentives) could influence the choice of firms' activities (see

[4]Finkelstein (1992) define powerful CEOs as CEOs who have the capacity to achieve their will. The CEO's power could be strengthened in different ways. Specifically, when they have a past board membership experience, a good image in the marketplace and an extensive address book. They are also empowered in dual structures.

among others Bouslah et al., 2018; Rekker et al., 2014; Cai et al., 2011; and Mohoney and Thorn, 2006). Recently, Farag and Mallin (2016) have focused on the influence of CEO demographic attributes on corporate risk-taking in Chinese IPOs. They provide evidence that younger, short-tenured and high-educated CEOs and CEOs who were board members are more prone to take risky decisions. They find that female CEOs are not risk-averse. Also, Li et al. (2017) provide evidence that the presence of CEO incentive schemes, in Chinese SMEs, increases innovation effort (R&D expenditure) and innovation performance (new product sales) while CEO education level, professional background and political connection increase only the firm's innovation effort.

Unlike previous studies, we discuss the influence of CEOs- demographic attributes, specifically their academic and professional backgrounds, their political connections, on both financial and strategic risk-taking. In fact, most studies dealing with risk-taking prefer to examine either financial risk-taking or strategic risk-taking. However, they are closely related (March and Shapira, 1987). For instance, high growth opportunities are positively associated with lower risks (Lipson et al., 2009; Berk et al., 1999) while innovation projects display a high level of uncertainty in terms of outcomes (Bhagat and Welch, 1995).

This is the first study, to the best of our knowledge, to address the question of the influence of CEO traits on financial and strategic risk-taking in a European country, namely in France.

In fact, analyzing this issue in France is relevant for at least three reasons.

First, French firms display a highly concentrated ownership. Most often, there is one ultimate owner who is the majority shareholder and who may adopt an opportunistic behavior at the expense of minority shareholders which may increase risk taking in several ways (La Porta et al. 1999, 2002).

Second, the pool of top managers and policy makers, in France, has graduated from prestigious and selective institutions called *Grandes Ecoles*, such as *Ecole Polytechnique* (X)[5], *Ecole Nationale d'Administration* (ENA)[6] and SciencesPo[7] (see Ferreira et al., 2020; Bertrand et al., 2018; Zenou et al., 2017; Dudouet and Joly, 2010). Accordingly, we could expect less heterogeneous CEO profiles as they could belong to the same networks and display quite similar traits. However, the introduction of the New Economics Regulation NRE[8] Law in May 2001, to enhance transparency and the firm's adoption of more ethical and socially responsible activities, seems to have minor effects on top management. Specifically, to comply with the NRE law, CEO cannot be anymore the chair of the board. However, ten years later, almost 70% of the firm-year observations in the SBF120 show a CEO-chair structure between 2001 and 2013. Also, the endorsement of the Copé-Zimmermann law[9], commonly known as the French gender quota law, in 2011, puts a pressure on listed firms to increase diversity in top management positions. Despite the increasing number of female directors appointed to boardrooms, less than 0.3% of SBF120 CEOs are women between 2001 and 2013 (Loukil et al., 2019). Accordingly, it interesting to raise the following question: why many firms are taking the risk of not complying with the law?

Finally, family firms are typical in France (La Porta et al. 1999 and 2002). Almost two thirds of the firms are family-controlled businesses (Nekhili et al., 2016; Boubaker and Labégorre, 2008 Sraer et al., 2007, Faccio and Lang, 2002). Basco and Calabrò (2017) argue that the board composition in family firms particularly in dual structure, matters in corporate risk-taking (Cuadrado-Ballesteros et al. 2015; Gnan et al. 2015; Kuo and Hung 2012; García-Ramos and García-Olalla 2011; Anderson and Reeb, 2004). Hence, it's interesting to examine

[5] https://www.polytechnique.edu/en
[6] https://www.ena.fr/eng/ENGLISH
[7] https://www.sciencespo.fr/en/home
[8] https://www.legifrance.gouv.fr/loda/id/JORFTEXT000000223114/2021-01-08/
[9] https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000023487662&categorieLien=id

the influence of the CEO profile on the decision making process, specifically on risky decisions.

This research is drawn on a sample of non-financial firms listed on the SBF120 index between 2001 and 2013. It provides the following results.

First, old CEOs are likely to rely on debt to fund firm's activities and they do not influence growth and innovation activities. One explanation could be that in France old CEOs have long tenures (almost 8 years), they have become very familiar with the day-to-day operations and know how to handle risky activities. Another explanation could be that they are entrenched and avoid risky and challenging decisions.

Second, despite that many CEOs have political connections; they are not prone to engage in risky decisions that do not serve the business' interests.

Third, volatility of stock returns and leverage ratio are diminished in the presence of long-tenured CEOs. Indeed, long-tenured CEOs bear less board pressure and are not challenged by the directors' expectations (Luo et al., 2013), specifically when they had been board members themselves. Unlike short-tenured CEOs, they have a good reputation in the marketplace and are more likely to have friendship with board members. Most often, they adopt a conventional and conservative leadership that does not drive major changes, which decreases the volatility of stock returns and debt funding.

Moreover, CEOs who have business, management and law degrees decrease the total risk and increase the growth rate of assets. This result is in line with Hambrick and Mason (1984) arguing that management and business programs attract more risk-averse and conformist students. Their business competences, specifically on finance and on accounting areas help them to better handle risks and achieve a better financial performance (Maraghni and Nekhili, 2014; Nekhili and Gatfaoui, 2013, Gendron and Bedard, 2006). Science-educated CEOs have

no significant association with corporate risk-taking but they decrease liquidity risks through the increase of cash availability.

Finally, we show that CEOs' attributes are less influential on risk-taking in family firms than in non-family firms.

The paper is structured in the following. Section (1) presents the literature review and the hypotheses. The data and methodology are provided in section (2). Section (3) discusses the model and the results. The robustness of our results is tested in Section (4). The last section concludes the paper.

1. Literature Review and hypotheses

Many theories support that CEO's traits, are psychological and social factors that could influence the corporate strategy and performance (Farag and Mallin, 2016; Orens and Reheul, 2013). For instance, in upper echelons theory, manager's decisions are likely to be shaped by their values and social and psychological characteristics as they have a bounded rationality. For instance, some CEOs' demographic have effects on corporate cash holding (Orens and Reheul 2013), takeover decisions (Li and Tang 2010), R&D spending (Barker and Mueller 2002), financial disclosure (Bamber et al., 2010) and corporate risk-taking (Farag and Mallin, 2016).

In resource dependence theory, the corporate's environment could be valuable in terms of new resources (Pfeffer and Salancik, 1978). For instance, Tang et al. (2015) provide evidence that hiring politically connected directors, in China, has a positive effect on firm valuation. Government-related business is positively associated with the number of politically connected directors (Farag and Mallin, 2016). Faccio et al., (2016) and Farag and Mallin (2016) show

that hiring CEOs with different demographic traits could add new perspectives and bring more resources to the business.

1.1. CEO demographic attributes

Several studies have focused on CEO profile[10]. It is highly argued that CEO's age has a significant influence on CEO's decisions (Amran et al., 2014; Jackling and Johl, 2009). In fact, old CEOs are usually more conservative (Hambrick and Mason, 1984) and adopt more conventional and common management styles. They take, therefore, less aggressive decisions than younger CEOs who are less skillful and have short professional experience (Bertrand and Schoar, 2003). Graham et al. (2013), Brockmann and Simmonds (1997) and Carlsson and Karlsson (1970) show that young CEOs are more risk tolerant than older ones: the growth rate of assets increases (Serfling, 2014). They have to build their careers and reputation in the CEO's marketplace. In the same vein, Farag and Mallin (2016) show a negative and significant association between CEO's age and financial risk-taking in Chinese IPOs. In the light of these arguments, we expect a negative association between CEO age and risk-taking.

Hypothesis 1: The CEO's age is negatively associated with risk-taking.

Education is another key cognitive factor that could influence CEO's decisions. For instance, highly-educated CEOs could better understand complex decisions and absorb new ideas and technology (Kuo et al. 2018; Li et al., 2017; Farag and Mallin, 2016; Barker and Mueller, 2002). Accordingly, post-graduated CEOs could have preferences for innovative projects (see among others Lewis et al., 2014; Slater and Dixon-Fowler, 2010; Ghoshal, 2005).

Regarding the type of the academic background, Farag and Mallin (2016) show a negative but non-significant association between the CEO academic degree and financial risk-taking.

[10] We tried to test the effect of female CEOs on risk-taking but there are only 1.35% women CEOs in our sample, the estimation of the model was globally non-significant.

Science-educated CEOs, such as CEOs with Science and Engineering degrees have better skills when they have to take risky decisions (Tyler and Steensma, 1998). They could increase the probability of accepting and introducing new changes. Turning to management and business-educated CEOs, they have business competences, specifically on finance and accounting areas. They are appointed to CEO position because they are more skillful to achieve a better financial performance and to handle risks (Maraghni and Nekhili, 2014; Nekhili and Gatfaoui, 2013, Gendron and Bedard, 2006).

We could argue that CEOs who have science or engineering degrees are more likely to be risk-tolerant while CEOs with business or corporate law degrees prefer less risky and more profitable activities.

Accordingly, we state:

Hypothesis 2: CEOs education has an influence on risk-taking.

Furthermore, CEO's ownership could influence the firm's risk-taking. On the one hand, it is highly argued that there is a positive association between managers' ownership and their power (see among others Bathala, 1996, Weisbach, 1988). Francis and Smith (1995), Baysinger et al (1991) and Hill and Snell (1989) find that managerial ownership has a positive association with risky decisions, such as investing in innovative activities (Francis and Smith, 1995). In strategic decisions, CEO's ownership could lead to an increase of the firm value (Lin et al. 2017, Benson et al. 2016; Balkin et al. 2000, Finkelstein and Boyd 1998; Goodstein and Boeker, 1991). On the other hand, CEOs owners are expected to behave like shareholders do and seek for investments that protect their own interests (Thornton, 2002; and Thornton and Ocasio, 1999). According to these arguments, we test the following:

Hypothesis 3: CEO's ownership decreases the firm's risk-taking.

Board membership experience could be a valuable prerequisite when board directors have to appoint a CEO. In this case, the CEO can better understand the board members' expectations. Orens and Reheul (2013), Anderson et al. (2011) and Koellinger (2008) argue that the CEOs

who were board members are more open-minded, more receptive to new ideas, have new and challenging perspectives and most often encourage risky decisions. We could argue that anterior board experience is positively associated with risk-taking.

Hypothesis 4: If the CEO has a board membership experience, risk-taking is more likely to increase.

CEO's political connections could be a part of the CEO social network and increase therefore the CEO power. In fact, these connections could facilitate access to better opportunities as argued in the resource dependence theory (Pfeffer and Salancik, 1978). These connections could be valuable in financing (Chen et al., 2014; Boubaker et al., 2012a; Faccio, 2006), lowering the cost of equity (Boubaker et al. 2012b), obtaining government contracts (Tahoun et al., 2014; Goldman et al., 2013), etc. Politically connected CEOs could use the firm's resources to firstly serve political goals (Bertrand et al., 2018) and could weaken the control functions of board under political pressure (Yu and Du, 2012). In governmental banks, Chen et al. (2018) provide significant evidence that politically-connected CEOs have increased the loan default rates and worsened operating performance, after the subprime crises. They show also that CEOs take risks by relaxing lending standards to envoy private benefits. However, in Chinese IPOs, Farag and Mallin (2016) show a negative and significant relationship between political connections and systematic risk. Unlike Farag and Mallin, Li et al. (2017) show that politically connected CEOs could increase innovation effort.

We argue, therefore, that politically connected CEOs could take risky decisions.

Hypothesis 5: CEO's political connections are positively associated with risk-taking.

1.2. Characteristics of the CEO position

Newly appointed CEOs are more concerned about the financial performance than old ones; they have to significantly improve the firm financial performance to be legitimate in the directors' eyes. This also, could favor their entrenchment and expand their tenure.

Accordingly, they could be tempted to choose risky and new alternatives. This makes them more receptive to new ideas. For example, in Chinese IPOs, short-tenured CEOs are positively associated with corporate risk-taking (Farag and Mallin, 2016). In the same vein, Hirshleifer (1993), and Miller (1991) argue that long-tenured CEOs could lose touch with the firm realities and its environment. They become less motivated to introduce new changes, and more entrenched to enjoy private benefits, usually associated with the prestige of the CEO position (Chen and Zheng, 2014; Aghion et al. 2013, Laeven and Levine, 2009). To keep their positions as long as possible, CEOs become less risk-tolerant and could marginalize risky projects such as R&D projects (Aghion et al. 2013).

Accordingly, we test the following hypothesis:

Hypothesis 6: The CEO's tenure level is negatively associated with risk-taking.

The duality structure gives the CEOs more influential and control effects over strategic decision-making (Sheikh, 2018). Being also the chair of the board, CEOs could actively shape the organizational development and firm's strategies such as in terms of R&D projects (Lin et al. 2011). According to Fahlenbrach (2009) and Finkelstein (1992) and Donaldson and Lorsch (1983), the CEO-Chair structure increases the CEO power in many areas over the decision making process. We state therefore the following:

Hypothesis 7: CEO duality increases risk-taking.

2. Data and Methodology

2.1. Sample

Our analysis is conducted on the non-financial firms listed on the SBF120 index between 2001 and 2013. The final total sample consists of 85 firms and 841 firm-year observations. Financial data are provided by FactSet-IODS, Bloomberg and Eikon, while governance and

ownership structure data are hand-collected from annual reports and provided by Governance-IODS[11]. Innovation data are provided by SIES surveys conducted by the INSEE[12].[13]

2.2. Measures

Financial risk-taking measures

- SDR is the standard deviation of returns to measure the level of total risk.
- LEV is the book value of debt to total assets ratio.
- LIQ is the ratio of current assets (net of stocks) to current liabilities. It assesses the level of liquidity or cash in the firm. When the value ratio is lower than 1, the firm is facing liquidity problems, specifically with current obligations (see among others Bargeron et al., 2010; Claessens et al., 2000; Cohen et al., 1972).

CEO attributes

- AGE is the CEO age
- TENURE is the CEO tenure. It is given by the number of years since the executive has been appointed to the CEO position.
- EDU is a dummy variable equal to 1 is the CEO has a Master, MBA or PhD degree.
- SEDU is a dummy variable equal to 1 is the CEO has a Science or an Engineering degree.
- BEDU is a dummy variable equal to 1 is the CEO has either a Business, or Management, or Corporate law education.
- DUAL is a dummy variable equal to 1 if there is a CEO-Chair structure.
- FOUND is a dummy variable equal to 1 if the CEO is the business founder.
- CEO-OWN is the CEO share of capital.

[11] This data access was funded by CTE-Gestion, University of Montpellier.
[12] Project Governance and Innovation in France GOUINFR, (SIES data, INSEE2016).
[13] This work is supported by a public grant overseen by the French National Research Agency (ANR) as part of the « Investissements d'avenir » program, specifically Governance and Innovation in France GOUINFR, 2016 (reference : ANR-10-EQPX-17 – Centre d'accès sécurisé aux données – CASD).

- POL is a dummy variable equal to 1 if the CEO has a French Political connection.
- BEXP is a dummy variable equal to 1 if the CEO has a board membership experience.

Board characteristics and ownership structure

- BSIZE is the number of directors in the boardrooms.
- PIND is the percentage of independent directors in the boardroom
- PFD is the percentage of female directors.
- S-OWN is the State's share of capital.
- INS-OWN is the institutional investors' share of capital.
- F-OWN is the family's share of capital.

Control variables

- ROA is the return on asset ratio.
- FAGE is the firm age.
- TA is the total assets.
- CF is the cash-flows to total assets ratio.
- USL is dummy variable equal to 1 if the firm is listed in US markets and 0 otherwise.

2.3. Descriptive statistics

Tableau (1) Sample composition

Industry Sector	Percentage
Industrials	25.51%
Basic Materials	5.96%
Financial	11.68%
Health Care	6.79%
Consumer Goods	28.25%
Technology	9.89%
Oil and Gaz	3%
Utilities	9.30%
Total	100%

Descriptive statistics on CEO profile are presented in table 2. They show that the CEO is on average 56 years old. More than 38 % of CEOs have French political connections and 91 % have a board membership experience. They are highly educated (more than 85%). Business-educated CEOs represent 48 %. The average CEO tenure is almost 8 years. Despite the NRE law (2001) recommending the separation between the control and the management functions, 69.26 % of CEOs are also the board chair. Only 13.6% of CEOs are business founders, however. Regarding the CEO ownership, it significantly varies between 0 and 81% while the average CEO ownership is too small (1.31%). Turning to the board characteristics shows that half of the directors are independent (48%) and only 11.67% of them are women.

Correlation matrix in table (3) shows the most significant correlations: some coefficients exceed 0.5. However, there are no multicollinearity issues as the VIF values do not exceed 2.

Table (2) Descriptive statistics

Panel A. Descriptive statistics of quantitative variables

Variable	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
Risk-taking						
SDR	1.991	1.066	0	7.571	1.146	6.597
LEV	30.627	31.627	0	680	10.369	184.847
LIQ	.951	1.029	.036	16.263	9.649	123.020
GROW	11.648	34.512	0	733.307	11.946	206.721
R&D	.002	.01765	0	.339	14.418	241.678
CEO attributes						
CEO-OWN	1.308	8.188	0	80.92	7.615	64.007
AGE	55.901	6.885	26	76	-.246	3.520
TENURE	8.376	8.882	0	47	1.621	5.561
Firm Characteristics						
TA	18705.67	34257.56	50.56	250919	3.755	19.925
CF	.333	1.291	0	16.691	7.945	78.845
FAGE	67.514	60.113	1	348	1.507	6.205
F-OWN	9.811	18.177	0	80.48	1.880	5.442
INS-OWN	19.810	21.035	0	87.5	1.013	3.011
S-OWN	3.089	12.109	0	89.2	4.992	29.807
PFD	11.668	11.142	0	50	.732	2.717
BSIZE	11.830	3.779	3	24	.075	2.696
PIND	48.459	20.723	0	100	.072	2.858

ROA	3.696	6.775	-47.200	46.74	-1.528	17.037

Panel B. Descriptive statistics of qualitative variables: table of frequencies

Dummy Variables		Percentage
POL	0	61,79%
	1	38,21%
BEXP	0	9,45%
	1	90,55%
EDU	0	14.75%
	1	85.25%
SEDU	0	47.25%
	1	52.75%
BEDU	0	52.44%
	1	47.56%
FOUND	0	86,4%
	1	13,6%
DUAL	0	30.74%
	1	69.26%

1. Model and Results

We estimate the following models using panel-corrected standard error (PCSE) methods for linear cross-sectional time series models where the parameters are estimated by OLS:

$$RT_{i,t} = \delta + \sum \beta_{i,t} * \text{CEO Attributes} + \sum \alpha_{i,t} * \text{Firms characteristics} + \text{Dummy sector}_i + \\ + \text{Dummy Year}_t + \epsilon_{i,t} \quad (1)$$

where $RT_{i,t}$ is a proxy for corporate risk-taking of the firm i, at the year t, among the following measures: SDR, LEV, and LIQ. CEO-Attributes involves the CEO demographic attributes and the CEO position's characteristics. The firm's characteristics consist of the governance characteristics and the financial control variables.

Estimates are provided in table (4). Unlike Chen et al. (2018) and Farag and Mallin (2018), we show that political connected CEOs have non-significant effect on corporate risk-taking. One explanation could be that politically connected CEOs are not likely to take advantage of their positions to take risky-decisions that do not serve the business interests (panel B in table 2). We notice, however, that Chen et al. (2018) study is drawn on a global data of government

bank CEOs during post crisis period (2007-2009) while Farag and Mallin (2018) have analyzed non-financial IPOs in China, where CEOs are most often appointed by the Chinese government. Accordingly, we reject H5. Unlike Farag and Mallin (2016), Bebber and Fabbri (2012), Lin et al. (2011), and Thomas et al. (1991), we find that post-graduated CEOs decrease non-significantly stock returns' volatility. EDU coefficients are non-significant in all regressions. This result could be in line with Daellebech et al. (1999) who did not find any significant association between post-graduated CEOs and strategic risk-taking (the level of R&D spending). We notice that the percentage of highly-educated CEOs in our sample is 85.25% (table 2, panel B) where almost 50% of them are business -educated while the remaining 50 % have science degrees. In fact, our results provide evidence that science and business-educated CEOs behave differently in terms of corporate risk-taking. For instance, CEOs who have science or engineering degrees have most often positive influence on all areas of risk-taking. This influence is significant, however, only in LIQ regression. This implies that they are prone to take decisions that increase the level of cash to reduce the risk of not being able to meet their current obligations, namely liquidity risks. Focusing on business and management-graduated CEOs, results show that they significantly decrease the standard deviation of returns (BEDU coefficient is significant in SDR regression, at the 1% level). Indeed, it is widely argued that business-educated CEOs have more specific knowledge on finance and accounting areas. They are therefore more skillful in handling and reducing risks (Maraghni and Nekhili, 2014; Nekhili and Gatfaoui, 2013; Gendron and Bedard, 2006). They are likely to drive the firm to marginalize risky investments such as R&D opportunities. In the light of the previous results, we reject H2.

Table (3) Pairwise Correlation Matrix

*, and ** significant respectively at the 5%, and 1% levels. p-values are between ( ).

	LIQ	LEV	TA	ROA	CEO-OWN	AGE	FOUND	POL
LIQ	1.0000							
LEV	-0.1641***	1.0000						
	(0.0002)							
TA	-0.3900***	0.2761***	1.0000					
	(0.0000)	(0.0000)						
ROA	0.1575***	-0.3136***	-0.0861*	1.0000				
	(0.0004)	(0.0000)	(0.0551)					
CEO-OWN	0.2231***	-0.1215***	-0.2958***	-0.1707***	1.0000			
	(0.0000)	(0.0067)	(0.0000)	(0.0001)				
AGE	-0.0798*	0.0912**	0.2011*	-0.0080	-0.0554	1.0000		
	(0.0755)	(0.0422)	(0.0000)	(0.8588)	(0.2177)			
FOUND	-0.0859*	0.0304	-0.0112	-0.0744*	0.0549	-0.0468	1.0000	
	(0.0557)	(0.4987)	(0.8041)	(0.0978)	(0.2218)	(0.2973)		
POL	-0.2198***	0.0628	0.4120****	-0.0422	-0.0559	0.0459	0.0919*	1.0000
	(0.0000)	(0.1621)	(0.0000)	(0.3482)	(0.2133)	(0.3068)	(0.0405)	
BEXP	-0.0813*	0.0143	0.0845*	-0.0167	-0.4537***	0.1863***	0.0369	-0.0780*
	(0.0702)	(0.7500)	(0.0597)	(0.7106)	(0.0000)	(0.0000)	(0.4115)	(0.0822)
TENURE	0.1072**	-0.1268***	-0.2276***	0.0205	0.3213***	0.2774***	0.3453***	-0.0419
	(0.0168)	(0.0046)	(0.0000)	(0.6478)	(0.0000)	(0.0000)	(0.0000)	(0.3508)
DUAL	-0.0191	-0.0034	0.0608	-0.1409***	0.0661	-0.0173	0.1298**	0.1232***
	(0.6702)	(0.9389)	(0.1759)	(0.0016)	(0.1410)	(0.7011)	(0.0037)	(0.0060)
SEDU	-0.0030	0.0694	0.1947***	-0.1840***	-0.0220	0.0885**	-0.1907***	0.0025
	(0.9463)	(0.1224)	(0.0000)	(0.0000)	(0.6251)	(0.0486)	(0.0000)	(0.9562)
EDU	0.0051	0.0830*	0.0282	-0.0203	-0.1109**	-0.0338	-0.3724***	-0.0090

Table (4) Estimation Results

*, **, *** significant respectively at the 10%, 5%, and 1% levels.

	SDR	LnLEV	LnLIQ
LnCEO-OWN	0.0250	-0.0455	0.0263**
AGE	0.00800	0.0364***	0.000250
TENURE	-0.0141**	-0.0288**	0.00162
EDU	-0.171	0.0626	-0.0328
SEDU	-0.00776	0.247	0.0990**
BEDU	-0.229**	-0.0535	0.0202
POL	-0.000549	0.0477	-0.0240
BEXP	-0.203	-1.203**	-0.0516
FOUND	0.117	0.908***	-0.121
DUAL	0.143	-0.246	0.113**
PFD	-0.00535	-0.00245	-0.00107
PIND	0.00351	0.00136	0.00372***
BSIZE	-0.0349**	0.0394	0.00781
LnS-OWN	-0.00764	-0.0292	-0.0195*
LnF-OWN	-0.00427	0.00224	-0.00703
LnINS-OWN	-0.0134	0.0232	-0.00465
USL	0.134	-0.0227	0.236***
LnTA	-0.160***	0.286***	-0.137***
ROA	-0.0418***	0.00257	0.00302
FAGE	-0.000343	0.00106	0.000868*
LnCF	-0.0149	0.0120	-0.00770
Industry-effect	Yes	Yes	Yes
Year-effect	Yes	Yes	Yes
Constant	4.196***	-1.818	0.682**
R^2	0.328	0.172	0.234

Unlike Farag and Mallin (2016), our results put forward a positive association between CEO's age and financial risk-taking proxies, but old CEOs are more likely to increase significantly only the leverage ratio LEV (AGE coefficient is significant at the 1% level). Then, we cannot accept H1. One explanation could be that, in our sample, CEOs are middle aged (55 years old on average, panel A, table 2). This is consistent with Yim (2013)'s study showing no significant impact of CEO's age on company's growth and capital expenditures.

Besides, table (4) shows controversial associations between the CEO ownership and financial risk-taking. However, CEO-owners are more concerned about liquidity risks (the cash ratio is positively and significantly associated with the CEO's share of capital). The other

associations are non-significant. One explanation could be that CEO-Owners behave like conventional shareholders who do not prefer risky decisions that could them to face difficulties on meeting their current obligations: their main objective is to protect their wealth (Thornton, 2002; and Thornton and Ocasio, 1999). We, therefore, reject H3.

Furthermore, being in the past a board member leads CEOs to not rely on debt to fund growth of assets: leverage ratio significantly decreases. Consequently, H4 cannot be accepted. Unlike Farag and Mallin (2016) who show a positive association between CEO's board experience and financial risk-taking, CEO candidates in our sample have been most often board members (almost 91% , panel B, table 2). They have better knowledge of the board and the company culture, specifically if they are long-tenured CEO (8 years, panel A, table 2). In fact Thomas et al. (1991) and Chaganti and Sambharya (1987) provide evidence that long-tenured CEOs may be more prone to prefer stability and efficiency in the businesses they run. They could be therefore less willing to challenge the company and get involved in risky decisions, specifically funding decisions.

In the same line, we show that long-tenured CEOs are not prone to increase total risk and leverage ratio. These results are significant at the 5% level. In fact, long tenure leads CEOs to be less risk-tolerant and to adopt a less transformational and challenging decisions (Aghion et al., 2013). They are not challenged by the need to gain the legitimacy in the eyes of the board members: they are not as concerned as short-tenured CEOs who want to expand their tenures. They need more time to be familiar with the businesses they run (Farag and Mallin, 2016). As CEO's tenure has no significant association with liquidity risks, we reject H6.

Unlike Farag and Mallin (2016), when we analyze the influence of dual structure on corporate risk-taking, we find that most often DUAL coefficient is positive but it is significant only in LIQ regression (at the 5 % level). This highlights the positive influence of duality structure on decreasing liquidity risks as cash ratio significantly increases. Hypothesis H7 is not accepted.

This result could be explained by the high percentage of CEOs who are also board chairs (almost 70%, panel B, table 2) or had a past board experience (almost 91%). They have better knowledge of board members expectations. Duality empowers CEOs and helps them to get entrenched and to enjoy more private benefits and control. They may be less motivated to make risky decisions (see among others Chen and Zheng, 2014; and Laeven and Levine, 2009)

Table (4) shows also that CEOs who are the founder of the business, have positive and significant association only with the leverage ratio. In fact, CEO-founders are more concerned about the business growth and stability: they may adopt a more conservative and routine leadership to escape risky decisions, specifically funding decisions. They prefer to rely on debt to fund investment activities.

Turning to the board characteristics, the percentage of female directors is negatively associated with all proxies for corporate risk-taking. However, all the associations are not significant which is not consistent with the large consensus in the literature arguing that women are risk-averse (Faccio et al., 2016; Crosen and Gneezy, 2009; Jianakoplos and Bernasek, 1998, and Sunden and Surette, 1998). Unlike Loukil and Yousfi (2016) conducted on an emerging market, female directors have negative but non-significant effect on liquidity ratio. In fact, the current study is conducted on a developed country where shareholders are more open to debt funding.

Surprisingly, unlike Jiraporn and Lee (2018) who find that independent directors could alleviate excessive risk-taking by reducing total risk and idiosyncratic risk, we find non-significant association between the PIND and the stock return volatility. In fact, it is commonly argued that independent directors could bring new connections with the external environment which reduces uncertainty (Farag and Mallin, 2016; Hillman et al., 2000). Only liquidity risk is significantly diminished (PIND coefficient is positive and significant at the

1% level in LIQ regression). One explanation could be that independent directors are likely to supervise the business current obligations to ensure business stability: their decisions could decrease liquidity risks, by increasing cash ratio. They suffer a lack of information specifically regarding the day-to-day operations (Adams et al., 2010). Their decisions could be strongly influenced by the opinions and desires of managers (De Villiers et al., 2011; Donnelly et al., 2008; and Adams and Ferreira, 2007).

Finally, we find a positive and significant relationship between US listing and cash ratio. In fact, in order to be listed on US markets, firms need to comply with restrictive accounting and financial requirements and have strong pressure to decrease liquidity risks.

2. Robustness tests

2.1. Strategic risk-taking

To check the robustness of the previous findings, we study, in the following, strategic risk-taking, also labelled as managerial risk-taking. In fact, it is highly argued that strategic risk-taking and financial risk-taking are closely related (March and Shapira, 1987).

Specifically, we consider the following proxies for risk-taking:

- GROW is the annual growth rate of total assets. In fact, higher growth rate is positively associated with lower risks (Lipson et al., 2009). In fact, as growth options are riskier than internal growth of the current assets, firms may be tempted to make capital investments to lower their total risk (Berk et al., 1999).
- R&D is the ratio of R&D expenses to total assets. In comparison with capital investments, innovation projects display a high level of uncertainty in terms of outcomes (Bhagat and Welch, 1995).

Table (5) Estimation Results using GROWTH and R&D proxies for risk-taking

*, **, *** significant respectively at the 10%, 5%, and 1% levels.

	LnGROW	LnR&D
LnCEO-OWN	0.0447	0.0889
AGE	0.0107	-0.0184
TENURE	-0.00407	0.0294
EDU	0.165	0.304
SEDU	0.147	0.175
BEDU	0.268*	0.154
POL	-0.0159	-0.0225
BEXP	-0.356	1.059*
FOUND	0.188	-0.170
DUAL	0.0748	0.137
PFD	-0.0173***	-0.0353***
PIND	-0.00295	0.00754
BSIZE	0.00950	0.0201
LnS-OWN	-0.0194	-0.0612
LnF-OWN	0.00726	-0.00375
LnINS-OWN	0.00664	-0.0355
USL	-0.299**	0.608*
LnTA	-0.00642	-0.0977
ROA	0.0274**	0.0271*
FAGE	-0.00207*	-2.56e-05
LnCF	0.0513*	-0.0619
Industry-effect	Yes	Yes
Year-effect	Yes	Yes
Constant	2.341***	-11.74***
R^2	0.158	0.373

Table (5) shows that most of the CEO's attributes have non-significant associations with strategic risk-taking. However, there are some interesting results. For instance, there is a positive and significant association between business-educated CEOs and growth ratio. This is in line with the argument that the CEOs who have management degrees have better abilities and skills to increase the financial performance and the growth rate of assets.

Another interesting result is that CEOs who had board experience are more likely to raise more equity on R&D projects, as they are likely to decrease the leverage ratio. Board members in innovative firms would prefer CEOs who have past board experience to foster their innovation potential. This is in line with Orens and Reheul (2013), Anderson et al. (2011) and Koellinger (2008), who argue that CEOs who have been board members are open to new ideas. They significantly increase R&D expenditures.

We notice also that women directors have negative and significant association with GROW and R&D measures: PFD coefficients are significant at the 1% level. This shows that women are likely to be less willing to increase investments and decrease the growth of assets., specifically on innovative projects.

Finally, firms listed on US markets are likely to prefer innovative projects at the expense of less risky investments that increase the growth rate of assets. One explanation could be that US markets are very competitive; firms need to foster their innovative potential. Another explanation is that French firms listed on US markets are implemented on innovative sectors.

2.2. Family versus Non-family firms

We test the robustness of our findings in family and non-family firms. A family firm is a firm where (1) the founder or a member of the founder's family is a blockholder of the company and (2) the blockholder has at least 20% of the voting rights (Sraer et al., 2007). Our family subsample represents 16 % of our initial sample: it consists of 19 firms and 121 year-observations. [14]

Table 6 presents mean and proportion difference tests between family and non-family firms. Statistics indicate that non-family firms take more financial and strategic risks than family ones. Indeed, family members are more conservative and prone to take investment and financing decisions that protect their wealth. Specifically, family-controlled firms display on average lower leverage and cash ratios and are likely to invest less on innovative projects than non-family.

Table (6) Mean and proportion difference tests between Non-Family and Family Firms

*, **, *** significant respectively at the 10%, 5%, and 1% levels.

[14] Unlike our study, Nekhili et al. (2016), Boubaker and Labégorre (2008), Sraer et al. (2007), and Faccio and Lang (2002) who find larger percentage of family controlled businesses, they consider larger and different samples such as privately and publicly held firms.

	NON-FAMILY	FAMILY	Difference
SRD	2.212	1.651	0.561***
LEV	31.53	28.662	2.868**
LIQ	1.002	0.841	0.161***
GROW	11.657	11.625	0.032
RD	0.002	0.0012	0.0008*
CEO-OWN	0.683	2.842	-2.159***
AGE	56.016	55.619	0.397
TENURE	8.366	8.401	-0.035
EDU	0.453	0.504	-0.051*
SEDU	0.547	0.479	0.068**
BEDU	0.453	0.504	-0.051*
POL	0.374	0.408	-0.034
BEXP	0.895	0.953	-0.058***
FOUND	0.077	0.344	-0.267***
DUAL	0.726	0.634	0.092***

Regarding CEO attributes, CEOs of family firms hold large share of capital. Furthermore, the presence of CEO-founders, post-graduated and business-educated CEOs is more frequent in family firms. We notice also that in family-controlled firms, CEOs have had, a past board experience. However, in non-family firms, the presence of science-educated CEOs in dual structure is more frequent.

Estimates show that most of the previous results are robust in non-family firms[15]. However, in family-controlled businesses, significant estimates show different results (table 7). For instance, science-educated CEOs could raise liquidity issues specifically, in the short term, to invest in risky opportunities such as R&D projects. Also, political connected CEOs seem to be more concerned about liquidity risks: the cash ratio significantly increases. Finally, CEO founders in family controlled-businesses are prone to invest in less risky investments that increase the growth of assets. They have a non-significant association with other proxies for risk-taking, specifically R&D projects. This shows that the CEO profile is less influential in family businesses over the decision-making process. In fact, control variables such as the

[15] More details on estimates on non-family controlled firms are available upon request.

board size, the financial performance (ROA) and the ownership structure are likely to better explain corporate risk-taking.

Table (7) Estimates in Family Firms

*, **, *** significant respectively at the 10%, 5%, and 1% levels.

	SDR	LnLEV	LnLIQ	LnGROW	LnR&D
LnCEO-OWN	0.0147	0.0312	-0.0240**	-0.0500	0.0614
AGE	-0.0366	-0.0211	0.00557	0.0597	-0.0149
TENURE	0.0342	0.0300	-0.00695	-0.0118	0.00485
EDU	0.233	0.775	0.00299	0.195	-1.078
SEDU	-0.252	0.403	-0.178*	0.638	1.700*
BEDU	-0.139	-0.506	0.00534	0.770	-0.0951
POL	0.466	-0.101	0.254***	-0.670	-1.093
BEXP	-0.161	-0.213	0.260	-0.0244	-0.0366
FOUND	-0.460	0.492	0.0546	1.713*	1.309
DUAL	-0.467	-0.653	-0.0886	-0.515	-0.278
PFD	0.00541	0.00809	0.00133	-0.0338**	-0.0740**
PIND	-0.000319	0.0239	0.00244	0.0343**	-0.0106
BSIZE	-0.157***	0.0359	0.0261	-0.201**	0.113
LnS-OWN	0.170***	-0.00392	0.00114	-0.0597	-0.220
LnF-OWN	0.395	-0.0288	-0.0552	0.340	-4.089*
LnINS-OWN	-0.0371**	-0.100*	0.00336	0.0519**	-0.0323
USL	1.483	-0.429	-0.218	1.356	-3.351
LnTA	-0.133	0.409	-0.0845*	0.230	0.697
ROA	-0.0261**	-0.0128	0.00244	0.113***	0.0320
FAGE	-0.00335	-0.00373	0.00712***	-0.0173**	0.0155
LnCF	0.0733*	-0.00261	-0.0129	0.119*	-0.107
Industry-effect	Yes	Yes	Yes	Yes	Yes
Year-effect	Yes	Yes	Yes	Yes	Yes
Constant	4.414	-2.452	0.493	-5.483	6.009
R^2	0.443	0.326	0.869	0.489	0.474
Number of firms	18	19	19	18	19

Conclusion

The current paper intends to provide a comprehensive study on how CEO's attributes could influence financial and management risk-taking.

It shows that CEO owners are more concerned about liquidity risks: they increase the cash ratio to face short term liabilities. Moreover, business-educated CEOs increase less risky

investment that increase the growth of assets while CEOs who have science and engineering degrees' increase liquidity ratio. When the CEO has a board membership experience, he or she is prone to decrease the debt ratio. In line with Luo et al. (2013), we find that long-tenured CEOs do not need to gain the legitimacy of the board members to expand their tenures. Unlike short-tenured CEOs, they have a good reputation in the marketplace and are not challenged: they prefer to net take risks. Most often, they adopt a conventional and conservative leadership which decreases the volatility of stock returns and debt funding. Besides, we show that CEOs' attributes are less influential on risk-taking in family firms than in non-family firms.

This study contributes to the debate on how cognitive governance and top management psychological and cognitive traits could shape investments decisions, in terms of risk preferences. The academic and professional backgrounds of the CEOs are likely to influence risk-taking on day-to-day operations and long terms investments (such as innovation projects).

For future research, it would be interesting to focus on the board composition and organization as CEOs are nominated by board members: directors' traits are also psychological and cognitive factors that could shape the business culture and the decision-making process.

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