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Behavioral agency research and theory: a review and research agenda

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Abstract

The behavioral agency theory verifies the relationship between company executives, CEOs, and managers, and their decision-making within the firm. The mechanisms of governance and the forms of remuneration are instruments that monitor internal members avoiding risks that potentially harm the organization's valuation. This article highlights the importance of the behavioral agency theory both for firms that trust their decision-making process to an agent and for the behavior of this agent. Both aspects are subject to concerns that usually lead to recommendations to establish or improve the executives' compensation plans. Through bibliometric research analyzing 107 articles, it was possible to verify that executives' performance compensation, according to agency theory, is the most used mechanism to stimulate executives to make decisions toward the company's growth and best performance. This study's theoretical and empirical contribution point to the need for future research on this topic since understanding the agent's behavior is strategic for companies to help the agent to act on its benefit while reducing the possibilities of inadequate and harmful behavior.

Keywords: Behavioral agency theory. Executive risk-taking. Corporate governance. Bibliometric research.

Pesquisa e teoria da agência comportamental: uma revisão e agenda de pesquisa

Resumo

A teoria da agência comportamental verifica a relação entre os executivos, CEOs e gerentes da empresa e suas decisões dentro da empresa. Os mecanismos de governança e as formas de remuneração passam a ser monitores dos membros internos quanto à experiência do conselho de administração para evitar desvalorizações. Este artigo destaca a importância da teoria da agência comportamental tanto para empresas que confiam em seu processo de tomada de decisão a um agente quanto para o comportamento desse agente. Ambos os aspectos estão sujeitos a preocupações que geralmente levam a recomendações para estabelecer ou melhorar os planos de remuneração dos executivos. Por meio de uma pesquisa bibliométrica que analisou 107 artigos, foi possível verificar que a remuneração por desempenho dos executivos, segundo a teoria da agência, é o mecanismo mais utilizado para estimular os executivos a tomar decisões sobre o crescimento e o melhor desempenho da empresa. A contribuição teórica e empírica deste estudo aponta para a necessidade de pesquisas futuras sobre esse tema, uma vez que a compreensão do comportamento do agente é estratégica para que as empresas ajudem o agente a atuar em benefício dela enquanto reduzem as possibilidades de comportamentos inadequados e prejudiciais.

Palavras-chave: Teoria da agência comportamental. Risco executivo. Governança corporativa. Pesquisa bibliométrica.

Investigación y teoría de la agencia comportamental: una revisión de la literatura

Resumen

La teoría de la agencia comportamental verifica la relación entre los ejecutivos de la empresa, los directores ejecutivos y los gerentes, y su toma de decisiones dentro de la empresa. Los mecanismos de gobierno y las formas de remuneración se convierten en monitores de los miembros internos con respecto a la experiencia de la junta directiva para evitar la subvaloración. Este artículo destaca la importancia de la teoría de la agencia de comportamiento tanto para las empresas que confían su proceso de toma de decisiones a un agente como para el comportamiento de este agente. Ambos aspectos están sujetos a preocupaciones que generalmente llevan a recomendaciones para establecer o mejorar los planes de remuneración de los ejecutivos. A través de una investigación bibliométrica que analiza 107 artículos, fue posible verificar que la remuneración de desempeño de los ejecutivos, según la teoría de la agencia, es el mecanismo más utilizado para estimular a los ejecutivos a tomar decisiones sobre el crecimiento y el mejor desempeño de la compañía. La contribución teórica y empírica de este estudio apunta a la necesidad de futuras investigaciones sobre este tema, ya que entender el comportamiento del agente es estratégico para que las empresas ayuden al agente a actuar en su beneficio, al tiempo que reducen las posibilidades de comportamiento inadecuado y perjudicial.

Palabras clave: Teoría de la agencia comportamental. Asunción de riesgos ejecutivos. Gobierno corporativo. Bibliométrico.

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INTRODUCTION

The behavioral agency addresses institutional pressures and corporate responses. More broadly, from the point of view of corporate governance, behavioral agency refers to conditions of corporate governance, involving the CEO, senior executives, managers, among others, which can reinforce organizational resilience or substantial compliance with institutional demands (BERRONE, CRUZ, GOMEZ-MEJIA et al., 2010). When a link is created between theory and practice, the behavioral agency identifies the assumptions that form the basis for the implementation of best practices, such as board behavior that identifies environmental conditions and considerations of the board of directors (MILLER-MILLESEN, 2003).

In this bibliometric study, we aim to understand the gaps in the behavioral agency theory. Usually, the models developed based on this theory combine elements of internal corporate governance and explore the difficulties in executive's risk-taking behavior. Executive risk-taking varies between different forms of monitoring, which can exhibit risky behaviors as well as risk-averse behaviors (WISEMAN and GOMEZ-MEJIA, 1998).

Also, the study observes how agents, within the principal-agent relationship, manage the risk inherent to their compensation package and the vulnerability of the agent to losses due to risk-taking (MARTIN, GOMEZ-MEJIA and WISEMAN, 2013). Behavioral agency theory addresses a better framework for theorizing executive salaries, yet it is an improved theory of agent behavior and an improved platform for making recommendations on executive salary planning (PEPPER and GORE, 2015). The cognitive abilities of the individual, the intention of their actions and the recognition of human and intellectual identity, allow the interaction between agents and monitoring mechanisms (CASTAÑEDA, 2009). In contrast, there is evidence that monitoring decreases agents' preference for acting honestly, as observed in their behavior. Monitored individuals were more likely to exhibit dishonest behavior compared to individuals who were not monitored (LAIRD and BAILEY, 2016). Above all, the evidence confirms that risk-taking is a combination of agency and behavioral agency perspectives (BAIXAULI-SOLER, BELDA-RUIZ and SANCHEZ-MARIN, 2015).

The study identified 107 articles, which predominantly focus on family businesses. The articles answer questions about the CEO's compensation due to the agent's behavior, as a risk-taking business executive. Above all, the search for answers to this research problem takes into account the demand for performance by companies. The results contribute to the understanding of the field, which in most of the sociopolitical literature focuses on the behavior of the agents (CEO, senior management team, board members), rather than principles and interests, e.g., the case with family members who try to preserve socio-emotional wealth. Family owners have a permanent bond with the company, for this reason, they are more vulnerable to performing inappropriate behavior especially at the local level, in the business itself (BERRONE, CRUZ, GOMEZ-MEJIA et al., 2010).

The next section addresses the theory of behavioral agency. The following sections describe the methodological aspects, results, discussions, and conclusions of the study.

A REVIEW OF BEHAVIORAL AGENCY STUDIES

This work adopted a descriptive research approach through bibliometric analysis that provided an overview of the intellectual structure of the publications on behavioral agency theory. The analysis of the articles led to identifying significant structures and patterns in elements such as authorship, journals, research questions, theories, and geographic sample and findings.

Traditionally, the literature of business and management has a long history of research about agency theory and its impact on firms' performance (EISENHARDT, 1989). These studies assume agency theory draws on economic agents' rationality. The assumption is that, when facing a trade-off decision, the economic agents will decide, with unlimited rationality, for the decision that maximizes utility. These are the same assumptions accepted within economic and financial literature and are central pillars for widely known and accepted hypotheses, such as the efficient market hypothesis (EMH). When applied to business reality, agency theory discusses how agents' preferences overlap primary interests. The reasons for these overlaps are due to interest or information asymmetries, where the principal is always pursuing its self-interest and agents pursue the principal's and their interests when taking risks.

The idea of the asymmetries of interest and information between agent and principal, and sometimes between two or more principals, presents significant challenges for companies. Against this backdrop, Corporate Governance has been used to

mitigate agency problems. Many studies focused on the effectiveness of Corporate Governance on reducing asymmetries, and others on how Corporate Governance improvement influences the better performance of firms (PANDA and LEEPSA, 2017). However, as the agency theory was initially used to understand economic agents as rational decision-makers, corporate governance mechanisms took the same route. Executive remuneration, boards, internal controls, and the remaining classical corporate governance mechanisms (AGUILERA, DESENDER, BEDNAR et al., 2015), assume rationality and, therefore, were developed through this intuition. However, agents are not rational one hundred percent of the time, and this variance could be influenced more by their behavior than initially thought.

While economic literature and even business and management literature started dealing with behavior and bounded rationality between 1950 and 1960, agency theory was formally developed in 1976, with Jensen and Mackling (1976). At that time, little attention was given to the implications of behavior. However, it is essential to note that we are not assuming that all decisions are behavioral. This article is about the need for the academia to better understand how behavior influences the existence and intensity of asymmetries, and, even more important, how we could adapt the existing mechanisms of corporate governance to take into account behavioral problems derived from asymmetries. With this in mind, bibliometric research offers a holistic approach to behavioral agency theory in order to highlight trends and gaps.

The first paper published on the subject was by Blair and Placone (1988), who sought to identify the existence of traditional behavior of preferential expenditure by mutual associations as opposed to associations in the savings and loan industry. They found evidence that the mutual form of organization is inherently prone to preferential spending behavior. The results also confirmed that increasing concentration in a market does not generally encourage preference behavior over expenditure.

The most recent article is by Evert, Sears, Martin et al. (2018). The research looks at how family ownership and family involvement affect the probability of initial entry of firms into the international market. It is found that family ownership and involvement reduce the likelihood of initial international entry, and act as interactive substitutes in this movement.

Between 1988 and 2018, many studies were conducted about behavioral agency theory. In management, Wiseman and Gomez-Mejia's (1998) publication on the Academy of Management Review focused on executives' risk-taking behavior. Since then, the field seems to be heading to aspects such as top team remuneration and correlated aspects. Also, family businesses appear as a promising subsample due to a higher presence of behavioral aspects in comparison to non-family firms.

CEO compensation is a powerful lever in driving the CEO's risk behavior. The influence of stock-based compensation on CEO risk-taking is more subtle and sophisticated than conventional pay models assume (DEVERS, MC NAMARA, WISEMAN et al., 2008). Academic literature often prescribes the awarding of actions to CEOs to align the destinies of agents and directors (DEVERS, WISEMAN and HOLMES, 2007). However, this compensation practice may have unintended consequences. Sanders (2003) has shown that ownership of stocks leads to conservative decisions, as executives try to protect their assets from financial risk.

Traditionally, compensation risk has been captured through measures categorizing different types of payment into fixed and variable forms, based on broad definitions of each type of remuneration. The actual payment risk is the threat of loss, not just uncertainty. CEOs who realize that their contract will be terminated are more likely to engage in higher risks than those CEOs who perceive a lower chance of termination. In sum, the marginal influence of employment risk on risk behavior increases with increasing employment risk. This finding confirms the behavioral agency view that agents are likely to be at risk when anticipating losses of their wealth (LARRAZA-KINTANA WISEMAN, GOMEZ-MEJIA et al., 2007).

The traditional agency theory previously predicted that agents should take more risks in response to prospective wealth (MARTIN, GOMEZ-MEJIA and WISEMAN, 2013). While the agency theory focuses on the implications for the firm of costs arising from the principal-agent relationship, using efficiency as the primary evaluation criterion, the behavioral agency theory focuses on the relationship between agency costs and performance, using efficiency and effectiveness. The agency theory assumes that agents are rational, risk-averse, and income-seeking and that there is no non-pecuniary agent motivation. The behavioral agency theory proposes a more sophisticated model in which agents are rational regarding loss, risk, and uncertainty. Moreover, agency theory assumes a linear relationship between remuneration and motivation, whereas behavioral agency theory proposes a more sophisticated function that is affected by loss aversion, risk, and uncertainty (PEPPER and GORE, 2015).

Unlike the logic of agency theory, high-powered incentives are not an efficient and effective way of motivating agents. It is not possible to build an incentive contract for an agent or define performance measures that incorporate all the current objectives of the principal and are flexible enough to deal with all possible exogenous shocks that may occur during the performance cycle (PEPPER and GORE, 2015).

While CEOs may prioritize compensation and wish to act differently from the interest of the board of directors, payment of long-term stock options and incentives is only granted to achieve the long-term goals set by the board. The board rewards CEOs with higher social capital and with more significant proportions of contingency payment (FRALICH and FAN, 2015). Not every share-based payment is the same, nor are its effects consistent over time. Various stock-based compensation elements have distinct incentives, which change as the values of these stocks grow, and their characteristics of acquisition change. CEOs are motivated to increase the value of options that cannot be exercised and that, as the value of these options grows, invest more in risky strategic actions that can further increase their value (DEVERS, MC NAMARA, WISEMAN et al., 2008). CEOs take significant risks early in the life of their stock options when current wealth is low and prospective wealth estimates are likely to be high. The possibility of growth in the wealth of stock options weighs more than any risk of loss (MARTIN, GOMEZ-MEJIA and WISEMAN, 2013).

METHOD

The quantitative bibliographic study has received different terms in the literature. This is a 'bibliometric' study, a term often credited to Pritchard (1969, p. 348) that refers to "the application of mathematical and statistical methods to books and other means of communication." Van Leeuwen (2004, p. 374) offers a modern definition, saying that it is "the field of science that deals with the development and application of quantitative measures and indicators for science and technology, based on bibliographical information." The term 'bibliometric' is used by the largest body of literature available, due to its implementation and presence in academic databases. This study uses the term precisely because of the provision of behavioral agency theory, studied in social sciences.

This study analyzes national and international scientific production on the subject of agency behavior. The following two research terms were studied: "Behavioral agency" and "Behavior agency." The inclusion of these research terms derived from the reading of numerous articles, and only those that explicitly mentioned the two words were used. Although the terms' meaning may overlap, they are not necessarily synonymous.

This research included two databases related to literature and social science: "Scopus" and "Web of Science." The survey included articles and review articles on the subjects and therefore examined every possible year. In summary, Box 1 presents the general characteristics of the bibliometric research and thus allows other researchers to replicate the study. When entering the query for the search terms, a total of 161 articles were retrieved. Using Excel software, records were organized and selected according to the following filters: duplicate records, journal articles, search words in abstracts, title, keywords or references, and relevance to the subject of the study. Through these procedures, 107 relevant articles were selected.

Box 1
Characteristics of the bibliometric research

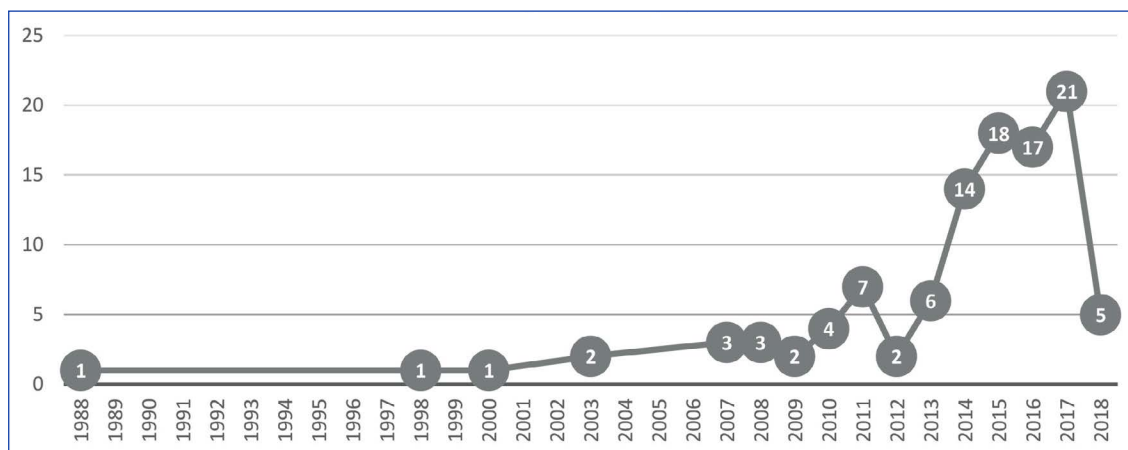
Search words	"Behavioral agency" ou "Behavior agency"
Development date	Fevereiro de 2018
Databases	Web of Science (WOS) Scopus
Search filter	1960-2018(Fevereiro) Scopus 1986-2018(Fevereiro) WOS Only on title, abstract, keywords and references Only article and review

Source: Elaborated by the authors.

ANALYSIS AND FINDINGS

This research began by describing the characteristics of the data set of 107 articles. There has been a clear upward trend in the number of publications in behavioral agency around 2011, which was followed by a second outbreak in 2014. However, more than 50% of articles were published in the last three years between 2015 and 2018 (Feb). Figure 1 shows the historical evolution of the records of publications on the behavioral agency. The years not presented in the figure did not record publications.

Figure 1
Number of publications per year



Source: Elaborated by the authors.

Box 2 shows articles categorized by featured journals that presented two or more articles on Behavioral Agency. There are six journals classified according to the criteria described. The Strategic Management Journal had the most articles with eleven publications, representing more than 10% of the total publications on the subject. The journal with the second most publications was the Journal of Business Research, with eight publications (around 8% of the total).

Box 2

Journals that published more articles on behavioral agency

Publications	Journal
11	Strategic Management Journal
8	Journal of Business Research
6	Academy of Management Journal Journal of Management
5	Journal of Family Business Strategy Journal of Management Studies
4	Entrepreneurship Theory and Practice Journal of Product Innovation Management
3	Family Business Review Management Research- The Journal of the Iberoamerican Academy of Management Organization Science Review of Managerial Science

Source: Elaborated by the authors.

Note. The table includes only journals that published two or more articles on the theme.

The author with more publications on Behavior Agency was Gomez-Mejia with 14 publications (Box 3). The second was Wiseman, with 07 articles. Another point worth mentioning is the sum of publications among the ten most published authors (55 articles), which corresponds to more than 51% of the total publications on the subject.

Box 3

Top 10 most published authors researching behavioral agency

Publicações	Autor
14	Gomez-Mejia, L. R.
7	Wiseman, R. M.
6	Martin, G.
5	Cruz, C.
4	Hoskisson, R. E.
4	Larrazza-Kintana, M.
4	Lim, E. N. K.
4	Miller, D.
4	Pennar, A.
3	Berrone, P.

Source: Elaborated by the authors.

The results reveal the studies' theoretical and multidisciplinary diversity. The most used theory was the Agency Theory (Box 4), present in more than 25% of the studies. The second was the theory of family firm; the third was the behavioral agency model, followed by the socio-emotional wealth. Together these theories were present in 92% of the selected articles.

Box 4

The most cited theories in research on behavioral agency

#	Aparições	Theory
1	27	Agency Theory
2	26	Theory of Family Firm
3	24	Behavioral Agency Model
4	22	Socio-Emotional Wealth (SEW)
5	16	Behavioral Agency Theory
6	8	Family Business
7	7	Corporate Governance
8		Prospect Theory
9		Risk Taking
10	6	Executive compensation
11		Investment in R&D
12	5	Behavioral Decision Theory
13		Firm Risk Taking (firm, strategic, agent)
14		Upper Echelons Theory
15	4	Behavioral Theory of the Firm
16		R&D intensity
17	3	Board (configuration, control, perspective)
18		Financial Performance
19		Mergers and Acquisitions (M&A)
20		Top Management Team
21	2	Agency cost
22		Behavioral Agency Perspectives
23		CEO Power Perspective
24		CEO Succession
25		Decision-making and Behavior
26		Firm Performance
27		Institutional Theory
28		R&D Spending
29		Stewardship Theory
30		Transaction Cost Economics (TCE)

Source: Elaborated by the authors.

Note. The table includes only theories found in two or more articles.

Regarding the classification of the studies (Table 1), the majority of them adopted an empirical approach (80.37%), i.e., 86 articles used data collected in the field or secondarily research on behavioral agency.

Table 1

Classification of the studies

Type	Amount	%
Empirical	86	80.37
Theoretical	20	18.69
Experiment	1	0.93
Total	107	100

Source: Elaborated by the authors.

The methodology used in the articles analyzed was observed (Table 2) and classified as quantitative; theoretical essay; literature review; case study; quali-quantitative; experiment. The quantitative research was the most used, with 81 articles, representing more than 75% of the sample. The theoretical essays counted 14 articles (13% of the studies).

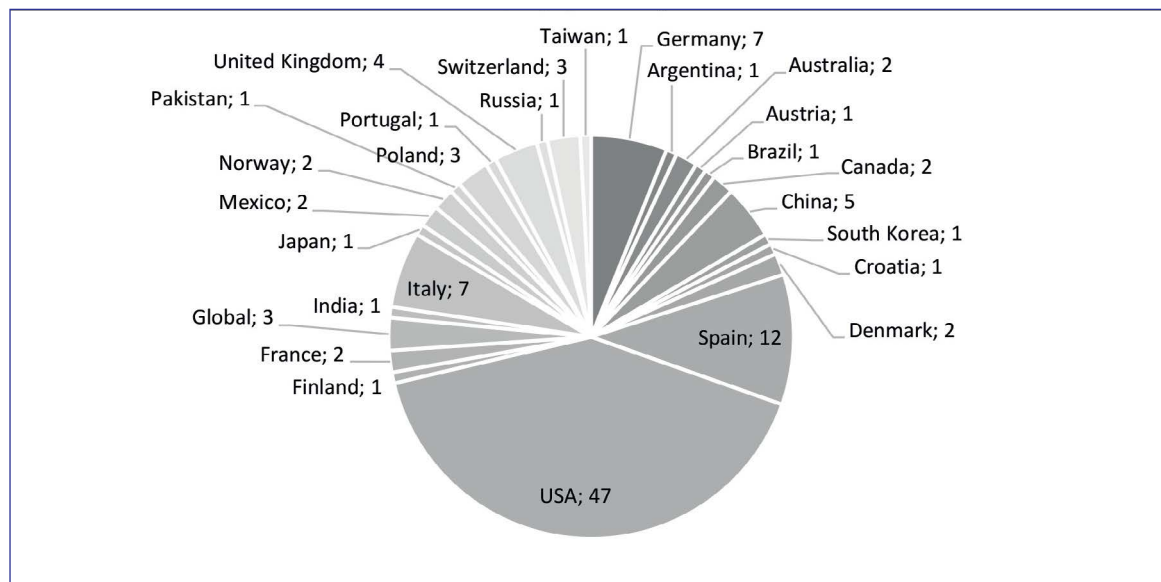
Table 2
Methodology used in articles

Type	Amount	%
Quantitative	81	75.70
Theoretical essay	14	13.08
Literature review	5	4.67
Case study	4	3.74
Quali-Quantitative (QQ)	2	1.87
Experiment	1	0.93
Total	107	100

Source: Elaborated by the authors.

When analyzing the geographic origin of the 86 (80.37%) articles adopting an empirical methodology, it is observed the presence of 27 countries (Figure 2). In addition, three articles used a global sample, involving all countries. The classification shows how many times the countries were mentioned in the articles, highlighting the high number of articles referring to the US (47). Other countries mentioned many times were Spain (12), and Germany (7) and Italy (7). Therefore, countries that were not often subject to research on this topic represent opportunities for future research.

Figure 2
Geographic sample



Source: Elaborated by the authors.

Box 5 identifies the 30 most influential or most cited articles in our sample. We present the research question and the research gaps for each article presented. An analysis of citations was completed to identify the roles that had the most significant impact on the field, as assessed by the frequency of citations (TAHAL and MEYER, 1999). The seminal work of Wiseman and Gomez-Mejia (1998) - The Managerial Risk Management Behavior Model - with their thoughts on internal corporate governance with problems framing to explain the risks of executive behavior is the most cited (454 citations). A series of articles discusses family businesses, non-family businesses, besides comparing and measuring the results between the two groups (BERRONE, CRUZ, GOMEZ-MEJIA et al., 2010; CHRISMAN and PATEL, 2012; LE BRETON-MILLER, MILLER and LESTER, 2011; PATEL and CHRISMAN, 2014; KOTLAR, DE MASSIS, FRATTINI et al., 2013; LEITTERSTORF and RAU, 2014). We can also observe a significant number of studies on the risks of opportunism of the CEO and the concern of companies to compensate the CEO for the agency problem and especially for performance (MILLER, LE BRETON-MILLER, MINICHILLI et al., 2014).

Box 5
Most cited documents in Behavioral Agency

#	Reference	# cit.	Research focus	Research Gaps
1	Wiseman and Gomez-Mejia (1998)	454	How does one give a model of the executive risk-taking behavioral agency by combining elements of internal corporate governance with problem framing to explain executive risk-taking behavior?	Extensions and refinements provide a stimulus to extend corporate governance research and more broadly agency-based governance visions.
2	Berrone, Cruz, Gomez-Mejia et al. (2010)	313	Compares the environmental performance of family and nonfamily public corporations.	Look at the response of households controlled by households to more refined institutional pressures. Property configurations that restrict or promote socio-emotional and wealth-oriented goals; the probability of divergence may depend on the type of shareholders.
3	Chrisman and Patel (2012)	205	Do family firms usually invest less in R&D than nonfamily firms?	The performance gap between family-owned companies led by founders, as opposed to successors, caused by differences in their capabilities and caused by differences in their goals. Variables as intentions of transgenerational control combined with the variables of the solitary-founder, family founder and family business.
4	Li and Tang (2010)	165	The impact of CEO hubris on firm risk-taking and the moderating effect of managerial discretion on this relationship in the Chinese context.	Future research in different contexts based on deep contextualization and cross-cultural studies. Attempts to develop direct measures of subjective perceptions of CEOs about the company's risk decisions. The relationship of an executive's job demand, with the CEO's arrogance and the company's risk-taking.
5	Miller-Millesen (2013)	123	What is the behavior of the boards of non-profits? What are the basic attributes and specific processes?	Examine the degree to which non-profit boards perform qualitatively different functions as they mature or develop; The degree to which each theory explains the behavior of the nonprofit council; The implications of institutional pressures to conform; The practical implications of the theory-based model presented in this review.
6	Arthurs, Hoskisson, Busenitz et al. (2008)	109	The ties between investment banks and institutional investors may be more salient for investment banks than the shorter-term agency relationship with a focal firm to market its IPO and thus may lead to increased underpricing.	Address survivability concerning governance and changes in board composition over time.

Continue

#	Reference	# cit.	Research focus	Research Gaps
7	Le Breton-Miller, Miller and Lester (2011)	97	Family business owners and managers will act as farsighted stewards of their companies, investing generously in the business to enhance value for all stakeholders or the major family owners, in catering to family self-interest, will underinvest in the firm, avoid risk, and extract resources.	Examine the conduct implications of different governance arrangements, extend to the realm of smaller family businesses as the intimate and personal nature of such companies may make them ideal venues for stewardship.
8	Devers, Mc Namara, Wiseman et al. (2008)	88	Equity-based compensation elements increase or decrease executive risk propensity and, in turn, strategic risk taking?	Control for factors that can moderate CEO influence on company strategy. Examine whether restricted stock affects CEO risk behavior differently. Explore how other board actions interact with share-based compensation to influence CEO risk behaviors.
9	Vos, Yeh, Carter et al. (2007)	86	Does the SME financial behavior demonstrates substantial financial contentment, or 'happiness'?	Future SME researchers should consider their underlying research paradigm, increasing owner involvement. Testing the presumption of reality connected with happiness as a byproduct.
10	Larrazza-Kintana Wiseman, Gomez-Mejia et al. (2007)	76	What is the influence of various forms of risk-bearing created within the compensation contract on perceived risk-taking?	Replicate our findings with methods for collecting data, since we can see that people may have a limited ability to remember past events.
11	Pukall and Calabro (2014)	60	What is the integrative theoretical model, the concept of socioemotional wealth with the revised model of Uppsala?	How do the overall degree of SEW endowment and the specific dimensions of this increasing endowment influence the process of family firm internationalization? How do different family ownership structures influence the overall degree of SEW endowment and its influence on the process of family firm internationalization?
12	Almeida, Campello and Weisbach (2011)	55	In imperfect capital markets, factors related to a firm's ability to smooth investment financing over time are relevant to capital budget decisions?	Examine the liquidity of the assets used in investments by firms undergoing substantial changes in leverage. Quantify the magnitude of investment distortions inside firms for economic growth and welfare.
13	Patel and Chrisman (2014)	54	The behavioral agency model suggests that family firms invest less in R&D than nonfamily firms to protect their socioemotional wealth. However, how do family firms make R&D investments?	Look for the differences in socio-emotional wealth between family businesses and the resulting impact on risk. Consider the use of scale-based measures to directly assess the socio-emotional wealth and strategic intentions of family businesses.
14	Sanders and Carpenter (2003)	54	How are stock repurchase programs used to help top managers appease shareholders?	To what extent is the signal relayed through a stock repurchase announcement a reliable indicator of future cash flow improvement or overall success? Do firms routinely reap above-average returns from their executed open market repurchases? Examine whether there are ways to distinguish signals.

Continue

#	Reference	# cit.	Research focus	Research Gaps
15	Gomez-Mejia, Campbell, Martin et al. (2014)	46	What drives discretion in financial reporting in firms in which there is no separation between ownership and control and in which the presence of a controlling owner limits managerial discretion?	Examine whether family owners are more or less likely to manipulate earnings or provide additional information if they are particularly concerned about the maintenance of social ties and/or assuring a positive legacy for the family. Explore how changes in the relevance of control maintenance and image preservation as the main reference points of the firm affect the financial reporting decisions of family principals. Examine the different financial reporting implications of managerial entrenchment between family and non-family firms.
16	Martin, Gomez-Mejia and Wiseman (2013)	46	The anticipation of prospective wealth attenuates the negative effect of accumulated current equity wealth upon CEO strategic risk taking?	Look for measures that directly capture risk management strategies beyond the availability of hedging with put options. Examine the behavioral effects of different hedging strategies.
17	Kotlar, De Massis, Frattini et al. (2013)	44	How does the involvement of a controlling family affect decisions in technology and innovation management and specifically external technology acquisition?	Taking a cross-country perspective. Measure family goals and further extend the understanding of the link between family involvement and family goals consistently with a more different view of family firms.
18	Wu and Tu (2007)	41	What is the relationship between CEO stock option pay and a firm's R&D spending?	Compare whether the findings of this study apply to innovation output. Examine how CEO option pay and other governance structures interact with each other to influence the R&D investment.
19	Block, Miller, Jaskiewicz et al. (2013)	37	What is the economic and technological importance of innovations in family and founder firms?	Search for a period after 2003. Research the degree of science harvesting by family and founder firms.
20	Miller, Le Breton-Miller, Minichilli et al. (2014)	33	Which conditions of ownership and leadership promote superior performance among non-family CEOs of family firms?	Replicate the findings in other countries and firm types, and show additional institutional or cultural conditions that affect the relationship between governance structures and performance in family firms.
21	Blair and Placone (1988)	32	What is the result of tests for the existence of traditional expense-preference behavior by mutual as opposed to stock savings & loan associations?	Identify the source of the highest personnel costs estimated for smaller stock associations. Find out if there are relatively high-priced staff in these offices or if the offices have better carpets and furniture (expense preference).
22	Villena, Gomez-Mejia and Revilla (2009)	29	What human resource factors induce supply chain executives (SCEs) to make decisions that foster or hinder supply chain integration?	Analyze the extent to which Supply Chain Executives, unlike other senior executives, can influence their firms' stock prices. Examining the conditions when mutual dependence, power imbalance, and information asymmetries among supply chain partners increase the Supply Chain Executives risk bearing. Future research might develop multiple-item scales.

Continue

#	Reference	# cit.	Research focus	Research Gaps
23	Capezio, Shields and O'Donnell (2011)	26	Are the board's structural independence and the application of results-based incentive plans by boards necessary conditions for the performance of the CEO's compensation performance?	Address a broader range of performance criteria: results-based and behavioral; financial and non-financial; based on multiple stakeholders, as well as focused on the shareholder.
24	Lim, Lubatkin and Wiseman (2010)	26	Under what specific conditions of ownership are family-owned privately owned businesses more likely to be involved in risks?	A complete theoretical model may necessitate the consideration of environmental and individual factors.
25	Carney, Van Essen, Gedajlovic et al. (2015)	23	What are the strategic choices and performance results of privately held family businesses?	Apply theories that are alert to the moderating effects of institutional contexts and the mediating effects of strategic differences among family firms functioning at different stages of their organizational life cycle.
26	Kraiczy, Hack and Kellermanns (2015)	22	How does the organizational context of family businesses interact with the CEO's risk-taking propensity to affect the innovative capacity of the new product portfolio?	Apply the analysis to different industry sectors and geographic regions. Use longitudinal research drawing.
27	Leitterstorf and Rau (2014)	22	Are Family firms willing to sacrifice economic gains in order to preserve their noneconomic utility?	Future research should apply to more active capital markets such as the United States and different institutional settings such as Asia.
28	Kotlar, Fang, De Massis et al. (2014)	21	Do family managers form distinct benchmarks that capture the vendor's bargaining power? Moreover, what are they used for?	Use other sampling frames, other industrial sectors, and in countries other than Spain.
29	Pepper and Gore (2015)	20	What are the micro-foundations of agency theory, especially about executive compensation, based on agent behavior?	Develop behavioral agency theory, in testing it empirically, and in identifying other implications for business practice.
30	Zona (2012)	18	What was the innovation investment during the major economic downturn of 2008–2009? Moreover, how, during global crises, does the board of directors affect the CEO's proclivity to invest by leveraging performance management devices?	Explore the role of other organizational factors in shaping executives' risk preferences at the top. Examine how other organizational factors influence the CEO/ board relations in the context of the behavioral agency model and the role of other organizational factors in shaping CEO risk preferences and investment during an economic downturn.

Source: Elaborated by the authors.

CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Bibliometric methods reveal a great potential for the quantitative confirmation of subjectively derived categories in published assessments, as well as they explore the research scenario and contribute to identifying categories. It was observed that most articles focus on family businesses, motivated by the study of large family businesses. When the case under analysis was related to smaller family enterprises, the intimate and personal nature of such companies was considered an asset to study the administration based on the behavior agency (LE BRETON-MILLER, MILLER and LESTER, 2011). This section presents the conclusions of the exercise of literature review and proposes a list of gaps in the current understanding as well as a research agenda to address those gaps.

Behavioral agency theory provides a better framework for theorizing executive pay, an improved theory of agent behavior, and an improved platform for making recommendations about planning executive compensation plans (PEPPER and GORE,

2015). Boards chaired by non-executives and dominated by non-executive directors are as likely to adopt CEO's mandated payment performance as executive-dominated boards (CAPEZIO, SHIELDS and O'DONNELL, 2011). These mechanisms reward the long-term benefits of social capital accumulated by CEOs through higher proportions of contingency payment (FRALICH and FAN, 2015; PEPPER and GORE, 2014). The board as a monitor instrument should always specify the criteria for the analysis of expectations and agents' decision. The theory about behavioral logic is composed of a set of specific rules; their simplicity does not imply that their formulation is not always based on realistic elements of human behavior (CASTAÑEDA, 2009). On the other hand, when external mechanisms are rigorous, such as activist shareholders, the threat of an acquisition, or zealous securities analysts, top managers are more likely to engage in financial misbehavior (SHI, CONNELLY and HOSKISSON, 2017).

The risk of employment and the variability in remuneration lead to greater risk-taking, but the risk of falling and the intrinsic value of stock options correspond to lower risk-taking (LARRAZA-KINTANA, WISEMAN, GOMEZ-MEJIA et al., 2007). CEO-based compensation significantly influences strategic risk. Capital wealth creates risk, leading to less risk-taking (DEVERS, MC NAMARA, WISEMAN et al., 2008; MARTIN, GOMEZ-MEJIA and WISEMAN, 2013). Lim (2017) attributes current wealth to providing risk reduction as CEOs seek to protect their options, but future wealth increases risk-taking due to a longer option payoff horizon. Stock options may not have their intended effects on anxious executives, as the risk-averse tendencies of these executives can offset the incentive properties of the options (MANNOR, WOWAK, BARTKUS et al., 2016). While managers can identify many solutions through their detection capabilities, solutions depend on their risk preferences as a result of their framing as gain, neutral, or a loss (SOMSING and BELBALY, 2017). It is still found that agency disputes between controlling shareholders and minority shareholders arise when the dispersion of ownership decreases. This still affects the adoption of Enterprise Risk Management (ERM). However, when the property is more dispersed, the company places more focus on ERM projects (MAFROLLA, MATOZZA and EUGENIO, 2016).

Results from studies on the US' restaurant industry prompted overconfident CEOs (despite having stock-based compensation) to take more strategically risky investments. Replicated studies in other industries or countries could provide a broader understanding of how share-based compensation influences strategic risk-taking (SEO and SHARMA, 2018). Companies in economies with less developed markets will not only take different amounts of investment but will also take safer and short-term projects, leading to lower profits (ALMEIDA, CAMPELLO and WEISBACH, 2011). Despite the findings of Ang, Cole e Lin (2000) that alert that agency costs are higher when non-managers manage the business, it is possible to focus on the results by Vos and Roulston (2008), who argue that increasing owner involvement increases profitability and does not present financial frustration. Also, there is financial satisfaction in the structure of the analysis of SME financing decisions, as shown in the study by Berger and Udell (1998). Finally, it is still necessary to further research the behavioral processes leading to strategic decisions regarding innovation, comparing family and non-family firms (KOTLAR, DE MASSIS, FRATTINI et al., 2013).

Regarding the investments on innovation, the risk-perception of the CEO about the levels of company effectiveness is positively related to R&D performance, based on the acceptance of the invention and in the citation of subsequent patents originating from patents registered by the company (MARTIN, WASHBURN, MAKRI et al., 2015). Another issue in terms of investment is slack resources. The positive impact of paying CEOs' stock options on R&D spending, is more prominent when the CEOs' payment of options are off-balance (WU and TU, 2007). Against unfavorable events, in order to alleviate the risk aversion that commonly affects executives, the higher the volume of resources, the more investment in innovation during a global crisis (ZONA, 2012). For CEOs who hold the wealth of current and future options, the probability of bankruptcy weakens and increases risk-taking. The negative deviations from the agent, while the slack facilitates risk-taking in the context of positive deviation.

It is possible to visualize several research using theory of the family firm (Box 4 and Box 5), and there is a subtler understanding of the heterogeneity of family control over key strategic actions (EVERT, SEARS, MARTIN et al., 2018). Still, family companies pay less attention to the adoption of ERM (MAFROLLA, MATOZZA and EUGENIO, 2016). Non-family members may also accept nepotist practices when they perceive a genuine concern for the well-being of the family that owns them (FIRFIRAY, CRUZ, NEACSU et al., 2018). The presence of the family on the board also outweighs the benefits of having selected equilibrium succession mechanisms, be it a greater emphasis on socioemotional wealth or less effective

succession mechanisms (MINICHILLI, NORDQVIST, CORBETTA et al., 2014). Finally, executives in family businesses are necessary because of their influence on risk exposure and financial performance. The behavioral agency brings the family's desire to maintain socio-emotional wealth, as well as to ensure the performance and survival of businesses (MIRALLES-MARCELO, MIRALLES-QUIRÓS and LISBOA, 2014). Also, family owners can be influenced by the potential of gaining socio-economic wealth by investing in R&D (GOMEZ-MEJIA, CAMPBELL, MARTIN et al., 2014).

Unethical behavior, agency problems, CEO compensation, and risk change, are some of the side effects of shareholder wealth maximization (SWM) (YAHANPATH and JOSEPH, 2011). Future studies will contribute to determining motivation, especially relating to agency problems. Some other mechanisms to mitigate these problems need empirical research, such as hiring altruistic individuals at the expense of personal interests; specifying in a restricted way the activities of the employees; emphasizing incentive mechanisms based on inputs and intrinsic incentives; and invest in non-intrusive monitoring mechanisms (RIVERA-SANTOS, RUFÍN and WASSMER, 2017). It is also suggested that the combination of the proposition in understanding whether and how the dimensions of socio-emotional wealth (SEW) affect the decision-making of family firms, and this affects the performance of firms, with elements of existing organizational theories that are based on the economy, such as resource-based view, transactional cost, and property rights (DE CASTRO, CRESPI-CLADERA and AGUILERA, 2016). Another interesting research is the distribution of gender within the high management level. Baixauli-Soler, Belda-Ruiz and Sanchez-Marin (2015), isolate the female gender and find that where there is a female representation, there is a more conservative behavior compared to other contexts.

Finally, bibliometric methods do not replace extensive reading and synthesis. Bibliometrics can reliably link publications, authors or journals, and produce tables, maps, and graphs of published research, but it is up to the researcher and their knowledge of the field to interpret the findings, which is the hardest part.

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