



**AGENCY THEORY: A STUDY ABOUT SCIENTIFIC RESEARCH IN BRAZILIAN JOURNALS**

**TEORIA DA AGÊNCIA: UM ESTUDO DA PRODUÇÃO CIENTÍFICA NOS PERIÓDICOS BRASILEIROS**

**TEORÍA DE LA AGENCIA: INVESTIGACIÓN SOBRE LA PRODUCCIÓN CIENTÍFICA EN REVISTAS CIENTÍFICAS BRASILEÑAS**

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**ABSTRACT**

The aim of this research is to identify and analyze the recent Brazilian research about agency theory. It is a descriptive research using the quantitative approach, in which bibliometric methodology was applied. An analysis was conducted about the social structural formation of scientific knowledge in this field and social network analysis was used to check the social formation of this knowledge field. Our data was composed of 74 papers published in 26 Brazilian journals in the management and accounting field, published between 2002 and 2015. It was found that the scientific production about agency theory is not concentrated, given that the researcher with more publications on agency theory has only four papers. Regarding the relational structure among Brazilian researchers, it was found a fragmented network that lacks cohesion. The findings demonstrate a research field that is still in a consolidation phase.

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**Keywords:** Agency theory; Bibliometric; Sociometric.

### RESUMO

O objetivo do presente estudo é identificar e analisar a produção científica brasileira recente sobre teoria da agência. Especificamente pretende-se realizar uma análise da formação estrutural social do conhecimento científico dessa área. Realizou-se uma pesquisa descritiva com abordagem quantitativa, a qual utilizou as estratégias de levantamento e de bibliometria. Ainda, utilizou-se da análise de redes sociais para verificar a formação social desse campo do conhecimento. A amostra foi composta por 74 artigos publicados em 26 periódicos da área de Administração, Ciência Contábil e Turismo, no período de 2002 a 2015. Verificou-se que a pesquisa realizada no Brasil sobre tal temática não se concentra em um grupo específico de pesquisadores, visto que o autor com maior número de publicações apresenta somente quatro publicações sobre o tema. Quanto à estrutura relacional entre os pesquisadores encontrou-se uma rede fragmentada e pouco coesa, demonstrando que o campo ainda está em fase de consolidação.

**Palavras-chave:** Teoria da agência; Bibliometria; Sociometria.

### RESUMEN

El objetivo de este artículo es identificar y analizar las recientes investigaciones brasileñas sobre teoría de la agencia. Se trata de una investigación descriptiva con el enfoque cuantitativo, en la que se aplicó la metodología de bibliometría. Se realizó también un análisis sobre la formación social estructural de los conocimientos científicos. Nuestros datos se componen de 74 artículos publicados en 26 revistas brasileñas en el campo de la administración y la contabilidad, publicados entre 2002 y 2015. Se encontró que la producción científica sobre teoría de la agencia no está concentrada, dado que el investigador con más publicaciones en la teoría de la agencia tiene sólo cuatro investigaciones. Acerca de la estructura relacional entre los investigadores brasileños, se encontró una red fragmentada que carece de cohesión. Los hallazgos demuestran un campo de investigación que todavía está en una fase de consolidación.

**Palabras clave:** Teoría de la agencia; Bibliometría; Sociometría.

### 1 INTRODUCTION

In the 1960s and 1970s, researchers had dedicated to accounting and management studies in a positivist approach (BERTOLUCCI; IUDÍCIBUS, 2012). Thereby, a focus on the contractual relationship between companies and their management was given by the agency theory.

Such theory attempts to describe the relationship between principal and agent in a logical way. This relationship is based on the agent's liability to perform a work for the principal in exchange for remuneration, in function of the work done for principal. In this context, there is the need to achieve a contract that can be used as an information and valuation system among the parts.

For this, it is necessary to understand companies as a set of formals and informal contracts, in order to force agents to make decisions that are congruent with the principal's interest. The goal of these contracts is to equilibrate different needs among people in a company because there are different interests between them.

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Lambert (2006) lists some reasons that create agency conflicts, such as effort and risk aversion by agents, information retention power, different time horizons about how the actual performance will affect target's achievement and, consequently, their future remuneration.

Agency theory often has been related to corporate governance, agents' remuneration policies, resource allocation decision, financial or nonfinancial incentives, moral hazard, organizational and power structure. The agency theory also has been related with how the information is given for external and internal users of financial information like financial reports, budget and performance evaluation.

Considering the relevance and expansion about agency theory research and following a trend of researchers, which has objectified the study about scientific production, the goal of this paper is to identify and analyze the recent Brazilian scientific production about agency theory.

It is sought to map the quantity of papers published per year and the evolution of papers published over the years about agency theory in Brazil, the number of authors per paper, who are the most productive authors. A social network analysis (SNA) was also conducted, which according to Silva et al. (2006) is a complementary instrument in order to study using bibliometric method. Rosa et al. (2010) said that the SNA enables to identify groups of researchers and universities and who are the main authors about any theme.

It is relevant to map Brazilian research and this study could help researchers to have more clear understanding of the field because it was traced a panorama of the last fourteen years of papers published on Brazilian's Journals.

## 2 CONCEPTUAL ASPECTS ABOUT AGENCY THEORY

According to Coase (1937), the firm works as a nexus of contracts in order to protect propriety's rights associated with agents, without which it would generate high transaction costs, i.e., costs for the firm to achieve its objectives. Williamson (1985) argues that this view opened up the possibility of studying organizations like institutional arrangements that govern the transactions, with formal contracts or even with informal contracts.

Jensen and Meckling (1976) show that the firm is simply a legal fiction that serves as a focus for a complex process in which the conflicting goals of individuals reach a balance with the context of contractual relations. Watts and Zimmermam (1986) complement stating that the firm is seen as a team of individuals with their own interests in which they recognize that their private wealth depends on the success of the firm in competition with other companies.

Thereby, Jensen and Meckling (1976) define an agency relationship like an agreement under which one or more people (principals) hire another person (agent) in order to execute, in his own name, a work that involves the delegation of some choice power for the agent. If both parties are utility maximizers and if there are different interests among theirs, the agent may take action following his own interests, thus creating the agency conflict (MEHRAN, 1995; YERMACK, 1995, 1997; O'REILLY III; MAIN, 2010).

Lambert (2006) claims that there are some reasons to the existence of agency conflicts: (i) agents have effort aversion; (ii) agents can divert resources for their private use; (iii) there are different horizons between principal and agent; and (iv) risk aversion on the part of the agent - it will take the least risky decision even though this is not the desire of the principal, safeguarding its position in the company.

As an immediate consequence of agency conflict, the principal does not get information easily as the agent, causing the information asymmetry. According to Akerlof (1970), it is market imperfection, which means that a group of people will have better information than another one.

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Lambert (2006) argued that communication is fundamental to the organization's success, but knowledge is power and most of the time people have incentives to hide or misrepresent information to achieve their targets more easily.

Whereas the information for the principal is originated by the agent, there is a possibility of information being distorted (HALL; MURPHY, 2002). In this way, the principal would have to monitor agents' behavior and encourage them in order to take decisions that would be in congruence with their goals. Jensen and Meckling (1976) claim that the principal may have guarantees concession costs or target bonus in order to optimize the agents' decision, in a principal point of view.

These costs are called agency costs and they can be seen in any hierarchy relationship, for example, shareholder-directors, shareholder-lender, CEO-manager, supervisor-employee, employee-employee. It is clear that a diversity of possible relationships in which agency theory could be applied. Such situation provides an evolution in the research about this knowledge for the accounting and management field. In this context, the accounting is an information system between principal and agent and it is used to measure performance and to define remuneration (LAMBERT, 2001).

### 3. BIBLIOMETRIC ANALYSIS AND SOCIAL NETWORK ANALYSIS

According to Balancieri (2004), bibliometric can be described as a quantitative aspect of study productions, dissemination, register and use of information. Macias-Chapula (1998) explains bibliometric as a methodology that cares with scientific production register and the dissemination and use of registered information.

Any contribution only is recognized after it is published, judged, criticized and grouped to the existing knowledge. Knowledge cycle will only be completed after research acceptance by pairs through papers published in scientific journals. For that reason, it is important to value a field or specific theme following the steps of several researchers' papers (SOUZA et al., 2008).

Guedes and Borschiver (2009) conducted a bibliographic review that was dedicated to the study of bibliometric laws and principles; it was evidenced three basic laws that guide bibliometric studies: Bradford's Law, Zipf's Law and Lokta's Law. Bradford Law relates with dispersion, i.e., when we dispose journals in a decreasing order of a specific theme, we can mark journals main group more inclined to it. Zipf Law describes the relationship between words in a text when the words that are more used are the indicative of the subject in a paper.

Lokta's Law deals with authors' relevance in a certain area. Lokta discovered that a large scientific literature proportion is produced by a small group of authors and, on another hand, a big number of authors have a small production. In the end, the production originating these two groups is equal in quantitative (ARAÚJO, 2006). Price (1965) had observed that a small group of authors and journals make a major influence in a specific field, and they are the ones who are the leaderships, most cited and have the most impact factor.

According to Wasserman and Faust (1994) network consists of one or more finite sets of authors and the relationship among them. Between various meanings of the network, some stand out: nodes and link system; a non-geographic community; a structure without borders; a system that looks like a tree or a spider net. Thereby, we conceptualize network as a set of autonomous participants, joining ideas and resources, around common values and interests.

Guimarães et al. (2009) relate that authors' pairs compute the relationships in the network, which is different from structure and positioning when all authors are considered. In this sense, Wasserman and Faust (1994) demonstrate some ways to identify structures and

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relationships in a network, the main ones being: a) network's size; b) network's density; c) components and d) centrality.

Size is a number of links between authors on the network. Density is a potential communication index between the parts of the network, making it possible to identify the amount and types of information that can be exchanged. Components are subgroups of authors totally linked between them. Centrality consists of the position of importance and valuation of a determined author in relation the other ones (GUIMARÃES et al., 2009).

Glänzel and Schubert (2004) argue that there are a lot of reasons to motivate collaboration between scientists, for example, lower communication and locomotion costs, to access new data bases, to create an intellectual exchange, etc. Katz (1992) studied the geographic position of research and scientific cooperation relation and he noticed a negative relationship between distance and cooperation.

Katz and Martin (1997) compared numbers of authors between theory and experimental works. They demonstrated that first one is produced with little co-authoring and the last one with higher co-authors numbers.

In accounting field, Espejo et al. (2009) studied the collaboration of institutional theory research from Brazil. They identified who are the main authors and universities that are working with this theme. They also identified a density field among authors and among national universities higher than density among Brazilians and foreign universities.

Cruz, Espejo and Costa (2010a) analyzed management accounting structure process between 2007 and 2009 from the scientific production about that field. In parallel, authors and universities relationship structures were mapped and the results show a fragment which has been formed by several components. Besides, a similar study by Cruz, Espejo, and Costa (2010b) show a fragmented network where there are strong ties and only some authors are responsible for a significant portion of papers. Rosa et al. (2010) analyzed the research about earnings management in Brazil through Network Analysis Method. They also discovered a fragmented field and a little cohesive network, where a small group of authors became a reference on the subject.

Dani, Dal Magro and Klann (2017) conducted a bibliometric research about earnings management through real activities. The sample consists of papers published in international accounting journals of the area that were available in Scopus database. Their findings show that among 50 papers, 27 seven were conducted in the United States. In addition, 37 of 50 papers presented no theory in theoretical construction but the agency theory was the most used in other ones (6 papers).

It is important to emphasize that studies about scientific production have favored comprehension of building scientific knowledge, not as individual construction but dipped in networks relationships. We argue about the importance of studies that want to analyze the collaboration structure between researchers.

#### 4. METHODOLOGY

This paper can be classified as descriptive when bibliographic survey bibliometric and social network analysis were used. Papers from 31 Brazilian Journals were considered. They were selected because they are the main ways of scientific management and accounting communication in Brazil. We analyzed papers published between 2002 and 2015. Despite being arbitrary, we believe to be a good longitudinal period to analyze.

Sixteen journals were chosen because, according to Frezatti and Borba (2010), they are "typically accounting". There are also "expanded journals" that accept accounting themes,

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but administration, economy etc too. Fifteen “expanded journals” were analyzed. The journals analyzed can be observed in Table 1.

**Table 1** – Journals analyzed

<b>Journal</b>	<b>Institution</b>
Revista de Administração	USP
Revista de Contabilidade e Finanças	FEA – USP
Revista de Administração Contemporânea	ANPAD
Revista de Administração de Empresas – RAE	FGV
Brazilian Business Review –BBR	FUCAPE
Contabilidade Vista & Revista	UFMG
Revista de Contabilidade e Organizações RCO	USP – RP
Revista Universo Contábil	FURB
Revista Brasileira de Gestão de Negócios – RBGN	FECAP
Revista Contemporânea de Contabilidade	UFSC
Revista Educação e Pesquisa em Contabilidade	CFC
RIC – Revista de Informação Contábil	UFPE
Interfaces	UFRN
ABCustos	ABC
Contabilidade, Gestão e Governança	UNB
Revista Brasileira de Contabilidade	CFC
Revista Contexto	UFRGS
Contextus – Revista Contemporânea de Economia e Gestão	UFC
Enfoque – Reflexão Contábil	UEM
Pensar Contábil	CRC – RJ
Revista Brasileira de Finanças – RBFIN	SBFIN
Revista Contabilidade e Informação	UNIJUI
Revista de Administração e Contabilidade – BASE	UNISINOS
Revista de Administração, Contabilidade e Economia – RACE	UNOESC
Revista de Contabilidade & Controladoria – RC&C	UFPR
Revista de Contabilidade da UFBA	UFBA
Revista de Contabilidade do Mestrado em Ciências Contábeis	UERJ
Revista Eletrônica	CRC – RS
Revista Sociedade, Contabilidade e Gestão – FACC	UFRJ
Revista Ambiente Contábil	UFRJ
Revista de Administração Pública – RAP	FGV

In the journals’ website, it was searched the words agency theory or agency in titles, abstract and key words in the papers. After that, the selected papers were read in order to know if those papers were really working with agency theory. There is a limitation in the research because papers could be working with agency theory and do not have the word agency in the title, abstract or key words.

The data was collected between August 15<sup>th</sup>, 2015 and September 10<sup>th</sup>, 2015. Papers about agency theory were not found in five journals. Seventh-four papers from twenty-six journals composed the final sample. Papers were compiled into a database using *Microsoft Excel*<sup>®</sup> where it was detailed what journal they are from, as well as the year, title, authors and co-authors, keywords and institution. Social network analysis was made using the software *UCINET*<sup>®</sup>.

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## 5 DATA ANALYSIS

## 5.1 Bibliometric analysis

In Table 2, it is possible to see the number of papers published journal by journal between 2002 and 2015.

**Table 2** – Papers published between 2002 and 2015

Journal	Year														Total
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
Revista de Administração	1		4	1	1	1		2			2				12
Revista de Contabilidade e Finanças		1			1			2	1	1		1	1		8
Revista de Administração de Empresas		1					3				1	1			6
Contabilidade Vista e Revista					1				1	1			1	1	5
Revista de Administração Contemporânea					1	1	1				1	1			5
Brazilian Business Review			1							1	1	1			4
Revista Universo Contábil											1	1	2		4
Enfoque-Reflexão Contábil													2	1	3
Revista de Administração Pública						1								2	3
Revista de Educação e Pesquisa em Contabilidade										1		1	1		3
Revista Brasileira de Contabilidade			1									1			2
Revista Contemporânea de Contabilidade								1					1		2
Revista Contexto			1										1		2
Revista Administração, Contabilidade e Economia											1			1	2
Revista de Contabilidade e Organizações						1	1								2
Abcustos						1									1
Contabilidade, Gestão e Governança											1				1
Interfaces							1								1
Pensar Contábil											1				1
Revista Ambiente Contábil														1	1
Revista Brasileira de Finanças											1				1
Revista Brasileira de Gestão de Negócios									1						1
Revista de Administração e Contabilidade														1	1
Revista de Cont. Mestrado em Ciências Contábeis													1		1
Revista de Informação Contábil							1								1
Revista Sociedade, Contabilidade e Gestão												1			1
<b>TOTAL</b>	<b>1</b>	<b>2</b>	<b>7</b>	<b>1</b>	<b>4</b>	<b>5</b>	<b>7</b>	<b>5</b>	<b>3</b>	<b>4</b>	<b>10</b>	<b>8</b>	<b>10</b>	<b>7</b>	<b>74</b>

*Revista de Administração - USP* has been the main journal in numbers of publications in Brazil about agency theory, it published almost 17% of the papers analyzed. Following it, there are *Revista de Contabilidade e Finanças da FEA – USP*, *Revista de Administração de Empresas RAE – FGV*, *Revista de Administração Contemporânea – ANPAD* and *Revista Contabilidade Vista & Revista*. Among journals that have published more papers about agency theory over the period established by the study, administration journals published more than the “typical-accounting” journals.

In average, it was published 5.29 papers per year, highlighting 2012 and 2014 with the higher number of publications (10 papers). According to Figure 1, there is a clear trend in publications mainly from 2012. We highlight period between 2012 and 2015 because in this period was published almost fifty percent of all papers in our sample.

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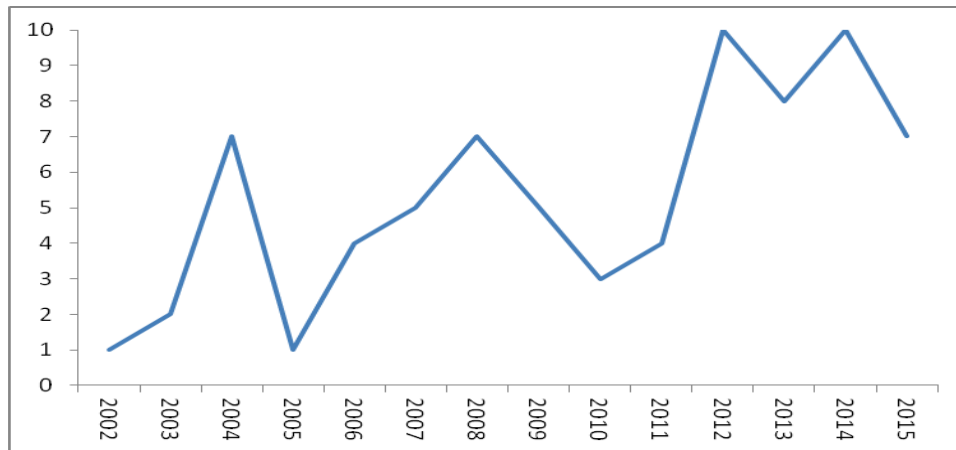


Figure 1 – Publication per year

One hundred, sixty-three researchers were authors or co-authors of seventh-four papers in the sample, which represent an average 2.2 authors per paper. Table 3 demonstrates the ones who are more productive and who had more relationship with other authors. Only twenty-three authors had had two or three publications, the other ones had only one publication. Due to this, Table 3 shows only the main authors.

Table 3 – Quantify of papers and ties per author

Author	Papers	Ties
NOSSA, V.	4	9
TEIXEIRA, A.J.C.	3	9
AMARAL, H.F.	3	6
FAMÁ, R.	3	6
MARTINS, O.S.	3	6
SILVEIRA, A.D.M.	3	6
SAITO, R.	3	4
LUSTOSA, P.R.B.	2	6
BARROS, L.A.B.C.	2	5
PAULO, E.	2	5
ALMEIDA, J.E.F.	2	4
ALMEIDA, M.A.	2	4
BAIRRAL, M.A.C.	2	4
KLANN, R.C.	2	4
SANTOS, J.F.	2	4
SILVA, R.L.M	2	4
SILVA, W.V.	2	4
SOUZA, A.	2	4
SARLO NETO, A.	2	3
DALMÁCIO, F.Z.	2	2
KLOECKNER, G.O.	2	2
MACHADO FILHO, C.A.P.	2	2
SCHIOZER, R.F.	2	2

NOSSA, V. was the author with more papers published and more number of ties. TEIXEIRA, A.J.C., AMARAL, H.F., FAMÁ, R., MARTINS, O.S., SILVEIRA, A.D.M. and SAITO, R. were highlighted authors in our research because they have three publications each one.



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It was observed that twenty-three authors were responsible for about 73% of the papers analyzed. This finding corroborates the Lotka Law because it seems a grand part of publications belong to a small group of authors.

In Table 4, it can be seen which institutions the publications are from. It was considered the authors' institution in the moment of the publication, considering that the author may have changed institution after publishing the article. Additionally, when authors and co-authors are of different institutions, it was considered one publication for each institution, but, when they are from the same institution, it was considered only one publication for each institution, independent of the number of authors and co-authors.

**Table 4** – Papers per institution

Institution	Papers	Ties
USP	17	11
FUCAPE	8	3
FGV/SP	7	9
USP/RP	5	5
UFMG	5	3
UFRGS	4	4
UFRJ	3	4
UFES	3	3
UNB	3	2
UFBA	3	2
UFPB	3	2
FURB	3	2
UFPE	3	2
UNISINOS	3	1
UFRN	3	0

Fifty-four institutions had papers published, but only fifteen had three or more papers published. University of São Paulo (USP) had more publications and more ties, followed by Fucape Business Scholl (FUCAPE) and Fundação Getúlio Vargas (FGV). Unlike the management and economics areas, where there have always been several doctoral programs in Brazil, USP was the only doctoral program in accounting until 2008. Other bibliometric studies in accounting also shown that USP got the first position in themes like earnings management (ROSA et al., 2010) and sustainability reporting (MORAIS et al., 2017).

We looked for authors who were more quoted in papers about Agency Theory in Brazil. It was found 2.202 authors cited in 74 papers. However, a big part of authors was quoted few times, while a small part was quoted many times. Therefore, Table 5 shows who the authors cited nine or more times.

**Table 5** – More cited authors

Author	Citations	Author	Citations
JENSEN, M.C.	97	LOPEZ-DE-SILANES, F.	15
MECKLING, W.H.	62	MURPHY, K.J.	15
LEAL, R.P.C.	33	VALADARES, S.M.	15
SHLEIFER, A.	30	MODIGLIANI, F.	14
FAMA, E.F.	29	MILLER, M.H.	13
SILVEIRA, A.D.M.	25	ROSS, S.A.	13
VISHNY, R.W.A.	24	EISENHARDT, K.M.	12
LA PORTA, R.	22	HENDRIKSEN, E.S.	12
PROCIANOY, J.L.	22	WATTS, R.L.	12
DEMSETZ, H.	20	STULZ, R.M.	11

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Author	Citations	Author	Citations
BERLE, A.A.	17	TERRA, P.R.S.	11
FAMÁ, R.	17	ZIMMERMAN, J.L.	11
MEANS, G.C.	17	BARROS, L.A.B.C.	10
LOPES, A.B.	16	HAIR JR., J.F.	9
MARTINEZ, A.L.	16	KAYO, E.K.	9
MYERS, S.C.	16	OKIMURA, R.T.	9
WILLIAMSON, O.E.	16	PAULO, E.	9
CARVALHAL-DA-SILVA, A.L.	15	SAITO, R.	9

The result is linked to Price (1965) and Lotka Law when a small set of authors have been making a larger influence in a specific knowledge field, showing who are the lead authors or those who are more influent.

Both first authors JENSEN, M.C. e MECKLING, W.H. are quoted in at least 84% of papers. Their paper “Theory of the firm: managerial behavior, agency costs, and ownership structure” is cited by 60 of the analyzed papers and it can be considered a classic about agency theory.

FAMA F.E.; SHLEIFER, A; LEAL, R.P.C.; VISHNY, R.W.; LA PORTA, R.; BERLE, A. A.; and, MEANS, G. C. also are cited by grand part of papers. The others citations were regularly and uniformly distributed but in a descending frequency. The major part of citations is non-Brazilian, but there are some Brazilians authors among the more cited, for example, LEAL, R.P, SILVEIRA, A.D.M. and FAMÁ, R.

The main keywords from those papers were also analyzed and in blocks. Such classification can be seen in Table 6.

**Table 6** – Most used keywords classification blocks

RANKING	BLOCKS OF KEYWORDS	FREQUENCY
1	AGENCY THEORY	41
2	GOVERNANCE	28
3	OWNERSHIP STRUCTURE	16
4	PERFORMANCE	13
5	INFORMATION ASYMMETRY	12
6	PUBLIC SECTOR	10
	EXECUTIVE COMPENSATION	10
	DIVIDENDS	10
	CONTROLLERSHIP AND MANAGEMENT	10
	METHODS	10
11	DISCLOSURE	8
12	EARNINGS MANAGEMENT	7
13	CAPITAL STRUCTURE	6
	KINDS OF COMPANIES	6
15	COOPERATIVES	5
	FINANCES	5
	COUNTRIES AND CONTINENTS	5
18	FIRM VALUE	4
	INDUSTRY	4
20	CAPITAL MARKETS	3
	TECHONOLGY AND INNOVATION	3
	AUDITING	3
	AGRICULTURE	3
	ACCOUNTING	3
	FINANCIAL INSTITUTIONS	3
	OTHERS	36
<b>TOTAL</b>		<b>264</b>

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Blocks of keywords classification were based on the proximity of themes, but in Appendix 1 it is showed in detail how it was made. Agency theory was the main block of keyword, followed by governance's block where researchers studied mainly corporate governance. Others classifications had only two or one paper working with, for example, Board of Directors, Minority, Conservatism, Social Corporate Responsibility, and Mergers.

Table 6 allows us to identify which ways Agency Theory is most used by Brazilian researchers. We highlight that a most of papers have handled about relationship and conflicts between directors and investors but Public Sector and Controllershship researchers have used Agency Theory too.

### 5.2 Social scientific collaboration structure on Agency Theory field

Japiassú and Marcondes (2001) argue that science is a category of knowledge formed by a group of intellectual acquisitions that intends to propose a rational and objective explanation of reality. Then, when someone analyzes intellectual union, it is possible to perceive social science features, which were built both by scientists and by the constraints imposed by society for its development (BORDIEU, 2004).

Given this context, in Table 7, it can be seen the descriptive statistics from relationships structure and we can understand network better and how knowledge is shared.

**Table 7** – Descriptive Statistics of relationship structure

	2002-2015
Papers	74
Authors	163
Ties	364
Average ties per author	2.23
Density	1.03%
Component	49
Authors from principal component	13
Average distance	3.39

This structure can be seen as a collaboration net where there are 364 ties, which means the relation of one author with another. The result demonstrates, an average of 2.23 ties, i.e., in average, authors have worked with two partners.

In order to compare other fields, it is important to highlight Newman (2001), which found in average 2.52 ties in Medicine field and Newman (2004), which found 18.1, 9.7 and 3.9 ties per author in Biology, Physic and Math, respectively. In Sociology field Moody (2004) found 1.88 ties per author. Agency theory matches Medicine and Sociology field, but it is a lot different from Biology, Physic, and Math.

It was found a low-density network, because only 1.03% possible ties were performed. Kogut and Walker (2001) argue that pulverized networks have benefits because higher density networks become more redundant. Additionally, Watts (1999) claims that there is an inverse relationship between the network's size and density, what can explain our found.

Cruz *et al.* (2010a) had found low-density networks (1.35%) in their study about management accounting. Rosa *et al.* (2010) researched networks about Earnings Management works and they found density of 5% possible ties. Cruz *et al.* (2010b) identified density around 0,6% in co-authorships network of USP Congress Controllershship and Accounting.

Fuchs (2002) claims that when scientific networks become deliberately fragmented, there may be evidence of ideological disputes, also spraying the common attention to space research and the information is going to be guided by the views, perspectives and political

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positions. Low-density networks have weak connections and low solidarity groups, hindering the flow of information.

It was found 49 components in this study, the most part formed by 2 researchers. The main component was composed of 13 researchers, or 7% of the entire network. Cruz *et al.* (2010a) identified main component with 20% of the researchers and Cruz *et al.* (2010b) found 26% of researchers in main component.

Average distance is the average number of individuals in the network by which an author must pass to get to any other one. In this study, it was verified an average distance of 3.39 steps in order to achieve any researcher in structural network. In Figure 2, it is possible to analyze the network structure in Agency Theory field in Brazil.

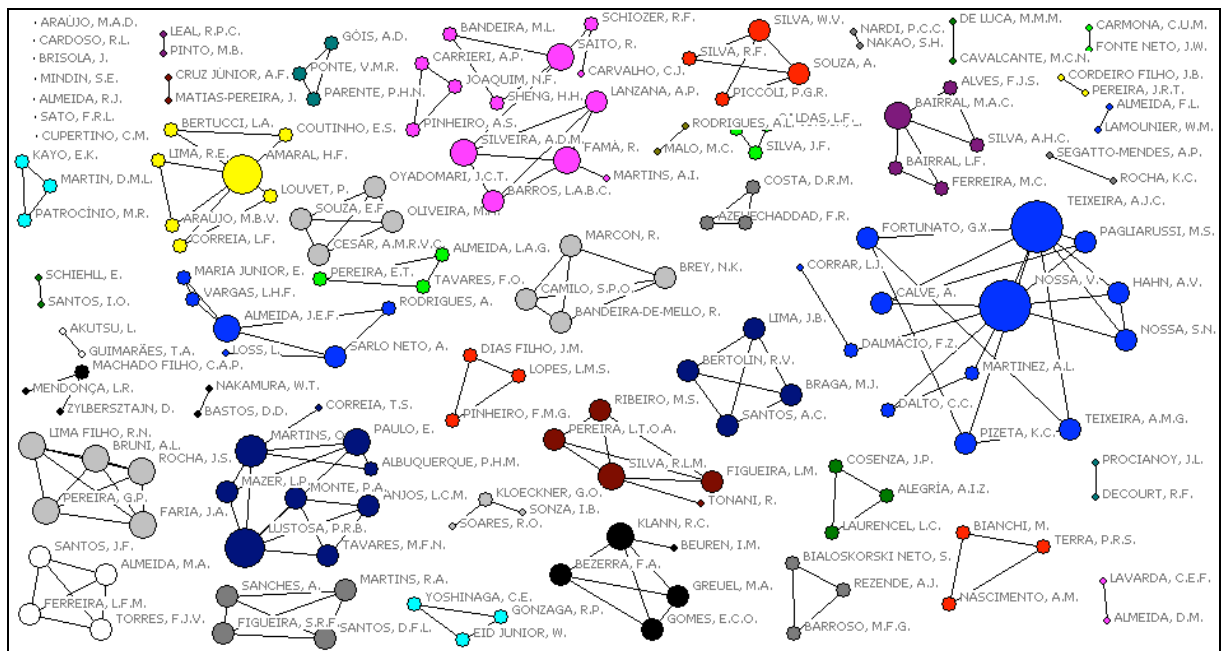


Figure 2 – Collaboration Network in Agency Theory field in Brazil

It can be noted a fragmented network with several components made up by few authors and seven authors that made their papers lonely. Such fact would difficult science communication. It is important to highlight that there are structural holes in the main component, according to Burt (2000), when specifically some authors make intermediation between two big groups.

In the three main components, it can be seen authors playing the bridge role between two groups. The biggest component has TEIXEIRA, A.J.C as a bridge. SAITO, R., SILVERA, A.D.M, and AMARAL, H.F. are also bridges in their components. Burt (2000) says that bridges authors have advantages because they have large and early information from other researchers group.

In order to map inter-institutional collaboration structure, it was made a net of institutions that had their researchers working together on any paper (Fig. 3). This kind of investigation allows identifying which institution has greater role in the social structure.



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studied in isolation. Thus, it is expected that in the future this network becomes more connected, which could contribute significantly to the scientific development of this field of scientific knowledge.

We also identified which are the main research's objects in Agency Theory in Brazil. Considering papers' keywords, we found heterogeneous topics being researched but we highlight Governance, Ownership Structure, Performance and Information Asymmetry.

This study has contributions for accounting and administration area. It makes an overview of researches that use the theory of agency by mapping who the main Brazilian authors, the main institutions and main journals that have worked with the subject in Brazil. The results have limitations because it was focused only in Brazil and the methodology for collecting papers may have failed when papers did not use the term agency in the title, keywords or abstract. The suggestion is to extend this research to international journals in future researches.

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## APENDIX 1 – Blocks of keywords

<b>AGENCY THEORY</b>	<b>41</b>	<b>DIVIDENDS</b>	<b>10</b>	<b>CAPITAL MARKETS</b>	<b>3</b>
Agency	2	Dividends	3	Capital markets	1
Agency theory	21	Dividend Clientele Hypothesis	1	Market efficiency	1
Agent	1	Return	1	Novo mercado	1
Agency costs	4	Payout	1	<b>TECHONOLGY AND INNOVATION</b>	<b>3</b>
Agency conflict	4	Dividend policy	4	Technology	1
Conflict of interest	2	<b>CONTROLLERSHIP AND MANAGEMENT</b>	<b>10</b>	Innovation	1
Agency issues	4	Controllership	2	Research and Development	1
Relationship of agent	1	Control	1	<b>AUDITING</b>	<b>3</b>
Principal-Agent approach	1	External control	2	Audit independence	1
Principal	1	Management accounting systems	1	Monitoring	1
<b>GOVERNANCE</b>	<b>28</b>	Management process	1	Non-audit services	1
Corporate governance	21	Organizational decentralization	1	<b>AGRICULTURE</b>	<b>3</b>
Governance	5	Inventories management	1	CPC 29/IAS 41	1
Judicial governance	1	Dimensions of Control	1	Agribusiness	1
Cooperative governance	1	<b>METHODS</b>	<b>10</b>	Biological assets	1
<b>OWNERSHIP STRUCTURE</b>	<b>16</b>	Discourse analysis	1	<b>ACCOUNTING</b>	<b>3</b>
Shared power	1	Multicriteria analysis	1	Accounting	1
Ownership concentration	1	Panel data	2	Management Accounting	1
Voting rights concentration	1	Structural equation modeling	1	Governmental accounting	1
Shareholders agreement	1	Bibliography	1	<b>FINANCIAL INSTITUTIONS</b>	<b>3</b>
Shareholding	2	Logistic regression	1	Financial institutions	1
Degree of ownership concentration	1	Survey	1	Brazilian Central Bank	1
Control Structure	1	Empirical test	2	Banco Nacional S/A	1
Ownership structure	6	<b>DISCLOSURE</b>	<b>8</b>	<b>NON PROFIT ORGANIZATIONS</b>	<b>2</b>
Enforcement effects	1	Accountability	2	Nonprofit organizations	1
Entrenchment effect	1	Voluntary Disclosure	1	The third sector	1
<b>PERFORMANCE</b>	<b>13</b>	Rendering of accounts	1	<b>JUDICIARY</b>	<b>2</b>
Performance	1	Disclosure	2	Judiciary	1
Performance of franchisors	1	Management report	1	Court	1
Economic performance	1	Annual reports	1	<b>SIGNALING THEORY</b>	<b>2</b>
Financial performance	1	<b>EARNINGS MANAGEMENT</b>	<b>7</b>	Signaling	1
Judicial performance	1	Earnings management	5	signaling theory	1
Key performance indicator	1	income smoothing	1	<b>MINORITY</b>	<b>2</b>
Performance Measurement	3	Impression management	1	expropriation	1
Financial performance	1	<b>CAPITAL STRUCTURE</b>	<b>6</b>	minority shareholders' expropriation	1
Profitability	1	Cost of Debt	1	<b>BOARD OF DIRECTORS</b>	<b>2</b>
Efficiency	1	Debentures	1	Board of directors	2
Return	1	Debt	1	<b>BUREAUCRACY</b>	<b>2</b>
<b>INFORMATION ASYMMETRY</b>	<b>12</b>	Capital structure	3	Bureaucracy	2
Information Asymmetry	6	<b>KINDS OF COMPANIES</b>	<b>6</b>	<b>FRANSHISING</b>	<b>2</b>
Asymmetry	1	collective entrepreneurship	1	franchising system	1
Information	2	Public companies	2	fast food chains	1
Inside information	1	Nonlisted companies	1	<b>OTHERS</b>	<b>22</b>
insider trading	1	Traditional companies	1	Discretionary Accruals	1
probability of informed trading	1	Micro and Smalls enterprises	1	Working capital	1
<b>PUBLIC SECTOR</b>	<b>10</b>	<b>COOPETATIVES</b>	<b>5</b>	Characters' behavior	1
Public administration	1	Cooperatives	2	communication	1
Government	1	Agricultural cooperatives	1	Political connections	1
Government incentives	1	Credit unions	1	Trust	1
Foundations of Support.	1	Control in cooperatives	1	congressional oversight	1
Government investment	1	<b>FINANCES</b>	<b>5</b>	Business ethics	1
State reform	1	Finances	1	Euronext	1
Public sector	2	Financial development	1	Cash flows	1
Public transparency index	1	Risk	1	Corporate foundations	1
State Crisis	1	Investment funds	2	mergers and acquisitions	1
<b>EXECUTIVE COMPENSATION</b>	<b>10</b>	<b>COUNTRIES AND CONTINENTS</b>	<b>5</b>	Managerial power hypothesis	1
Executive compensation	2	Brazilian market	3	Incentive	1
Variable remuneration	3	Latin America	1	Intangibility	1
Stock options	1	Brazil	1	Budget participation	1
Goals Congruence	1	<b>FIRM VALUE</b>	<b>4</b>	PIN	1
Incentive plans	1	Firm value	1	Transfer pricing	1
Incentives schemes	1	Drivers of business valuation	1	Corporate social responsibility	1
Share-based payment	1	Business Valuation	1	Safety	1
		Value creation	1	Stakeholders	1
		<b>INDUSTRY</b>	<b>4</b>	University-company cooperation	1
		Supplementary healthcare sector	1		
		Telecommunications Sector	1		
		Philanthropic Hospitals	1		
		Basic materials industry	1		