



EARNINGS MANAGEMENT THROUGH REAL ACTIVITIES: REVIEW OF THE EXISTING LITERATURE AND SUGGESTIONS FOR FUTURE INVESTIGATIONS

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RESULTADOS POR ACTIVIDADES DE GESTIÓN REAL: UNA REVISIÓN BIBLIOGRÁFICA ENCAMINADA Y SUGERENCIAS PARA FUTURAS INVESTIGACIONES

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ABSTRACT

This study aimed to characterize the results of research earnings management through real activities (GRAR) as well as possible gaps for future researches. For that, a bibliometric research was carried out, with a descriptive purpose, a documental procedure and a quantitative approach, and it was applied the technique of content analysis and the analysis of social networks through UCINET software. Scientific articles were collected, all of them published in international accounting journals of the area available in Scopus database. The seminal study of Roychowdhury (2006) on GRAR was the base of which a sample of 50 publications was obtained. The results show that the year of 2014 was the one with the

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highest number of publications on GRAR with a greater significance from the *Journal of Business Finance & Accounting*, although the production related to the theme has not evolved in a period of six consecutive years. It was also observed that among those 50 publications, 27 were conducted in the United States, and 22 of them presented no theory in theoretical construction. Nevertheless, it was observed that the Agency Theory was the most frequent used theory among the other ones in publications. Regarding the application of GRAR metric, it was found that only 11 publications used the isolated model of actual activities (Roychowdhury, 2006). In contrast, 39 publications applied together GRAR and models based on accruals. In view of these results, it is assumed that the theme and the model proposed by Roychowdhury (2006) have not yet been disseminated by the researchers, and so little has been consolidated in the literature of the area since the related publications are not constant. However, there was a considerable evolution in the period of 2014 and 2015, demonstrating an interest in the application of this metric, which in turn tends to be legitimized by researchers of the area, as well as other metrics of quality of previous accounting information. Finally, this research contributes to the development, expansion and identification of research-related gaps in national and international literature, providing insights for a new research, which may use variables and theories from a different perspective.

Keywords: Earnings Management; Earnings Management through Real Activities; Management through Operational Decisions.

RESUMO

Esta pesquisa buscou caracterizar as pesquisas sobre gerenciamento de resultados mediante atividades reais (GRAR) e as lacunas para investigações futuras. Para tanto, realizou-se uma pesquisa bibliométrica, com objetivo descritivo, procedimento documental e abordagem quantitativa, aplicando a técnica de análise de conteúdo e análise de redes sociais por meio do *software* UCINET. Foram coletados os artigos científicos publicados em periódicos internacionais da área de Contabilidade disponíveis na base de dados SCOPUS. Assumiu-se como base o estudo seminal de Roychowdhury (2006) sobre GRAR, no qual se obteve uma amostra de 50 publicações. Os resultados apontam que o ano de 2014 foi aquele que apresentou maior quantidade de publicações sobre GRAR, com uma representatividade maior do *Journal of Business Finance & Accounting*, embora a produção relacionada ao tema não tenha evoluído em um período de seis anos consecutivos. Observou-se também, que dentre as 50 publicações, 27 foram realizadas nos Estados Unidos, e destas, 22 não apresentaram teoria na construção teórica. Não obstante, observa-se que a Teoria da Agência foi a mais recorrente dentre as demais teorias utilizadas nas publicações. Quanto a aplicação da métrica do GRAR, verificou-se que apenas 11 publicações utilizaram o modelo isolado de atividades reais (Roychowdhury, 2006). Em contrapartida, 39 publicações aplicaram de maneira conjunta o GRAR e modelos baseados em *accruals*. Diante desses resultados, pressupõe-se que o tema e o modelo proposto por Roychowdhury (2006) ainda não tenham sido disseminados pelos pesquisadores, tão pouco se consolidou na literatura da área, pois as publicações relacionadas não se mantêm constantes. Contudo, ocorreu uma evolução considerável no período de 2014 e 2015, que demonstra um interesse pela aplicação dessa métrica, que tende a se tornar legitimada pelos pesquisadores da área, assim como outras métricas de qualidade da informação contábil anteriores. Por fim, esta pesquisa contribui para o desenvolvimento, ampliação e identificação de lacunas de pesquisa relacionadas ao tema existentes na literatura

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nacional e internacional proporcionando *insights* para novas pesquisas que possam utilizar variáveis e teorias sob uma perspectiva diferente.

Palavras-chave: Gerenciamento de Resultados; Gerenciamento de Resultados por Atividades Reais; Gerenciamento por Decisões Operacionais.

RESUMEN

Este estudio tuvo como objetivo caracterizar los resultados de la gestión de la investigación a través de actividades reales (Grar) y brechas para futuras investigaciones. Por lo tanto, llevamos a cabo una investigación bibliométrica, con, procedimiento documental descriptivo y enfoque cuantitativo, aplicando la técnica de análisis de contenido y análisis de redes sociales a través de software UCINET. Se recogieron los artículos científicos publicados en revistas internacionales área disponible en la base de datos Scopus Contabilidad. Se partió del supuesto basado en el estudio seminal roychowdhury (2006) sobre Grar, que se obtuvo una muestra de 50 publicaciones. Los resultados muestran que para el año 2014 era el que tenía el mayor número de publicaciones sobre Grar con una mayor representación de la Revista de Finanzas y Contabilidad, mientras que la producción relacionada con el tema no ha evolucionado en un período de seis años consecutivos. También se observó que, entre las 50 publicaciones, 27 se llevaron a cabo en los Estados Unidos, y de éstos, 22 no mostró ninguna teoría en la construcción teórica. Sin embargo, se observa que la Teoría de la Agencia fue la más frecuente entre las otras teorías utilizadas en publicaciones. Como la aplicación de Grar métrica, se encontró que sólo 11 publicaciones utilizaron el modelo aislado de las actividades reales (Roychowdhury, 2006). En contraste, 39 publicaciones aplican conjuntamente el Grar y modelos basados en valores devengados. Teniendo en cuenta estos resultados, se supone que el sujeto y el modelo propuesto por roychowdhury (2006) aún no se han difundido por los investigadores, por lo que poco se consolida en la literatura como publicaciones relacionadas no permanece constante. Sin embargo, hubo un considerable progreso en 2014 y 2015 periodo, lo que demuestra un interés en la aplicación de esta medida, que tiende a quedar legitimada por los investigadores, así como otros indicadores de calidad de la información contable anterior. Por último, esta investigación contribuyen al desarrollo, la expansión y la identificación de las lagunas de investigación relacionados con el tema existente en la literatura y proporciona información nacional e internacional para la investigación adicional que puede utilizar variables y teorías desde una perspectiva diferente.

Palabras clave: Gestión de los resultados; Las ganancias por las actividades de gestión de reales; Gestión de las decisiones operativas.

1 INTRODUCTION

The evolution of knowledge occurs differently from one science to another and from within, the lines of research evolve at different speeds. Specifically in Accounting Sciences, a few researchers have been dedicated to the traceability of research citations over results management. Traceability can provide a better understanding of the area's development, as well as its support bases for the advance or for the consolidation of results management in the context of Brazilian researches (ROSA et al., 2010).

Machado and Beuren (2013) point out that studies related to results management started with Healy (1985), DeAngelo (1986), Schipper (1989) and Jones (1991) with model creation. In Brazil, the research began with the thesis of Martinez (2001). However, studies

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related to the management of results through real activities (GRAR), also known as management of results through operational decisions, began in 2005 and 2006 with the works of Graham, Harvey and Rajgopal (2005) and Roychowdhury (2006), and in 2009 in Brazil with the study of Martinez and Cardoso.

Avelar and Santos (2011) analyzed researches on results management in Brazil between the years of 2000 and 2009 and verified a centralization of production to a few authors, and that a small number of cooperation social networks among authors are normally too long, leaving one another no ties. Therefore, they concluded that an increase in the number of links between researchers, that is, a greater cooperation could help the production and diffusion of knowledge, as well as the expansion of research on results management in the country.

Researches highlight the incipience of studies on real results management (carried out through operational activities) in the national context (AVELAR; SANTOS, 2011), as well as international (ROYCHOWDHURY, 2006). Although the theme is not much explored in Brazil yet, Seidler and Decourt (2013) point out that there was a growth in production in the years of 2007, 2009 and 2012, in comparison with the reference year (2006).

In this sense, when Martinez (2013) conducted a survey of the literature related to results management in Brazil. He stated that the absolute majority of the Brazilian scientific work is still focused on results management by accruals (GRA), and that the use of operational decisions as a way of results management is incipient. Due to a growing context of research related to results management, and to the incipience of researches related to the management model by real activities, the following research question arises: What are the characteristics of research on results management through real activities and the gaps for future researches? Thus, this research seeks to characterize research on results management through real activities and the gaps for future researches.

In a similar way to the studies of Avelar and Santos (2010), Rosa et al. (2010), Machado, Bennetti, Bezerra (2011), Machado and Beuren (2012) and Seidler and Decourt (2013), it seeks to identify several characteristics related to authors, publication vehicles and publications, as well as to perform a bibliometric and sociometric study on these publications.

In addition, it resembles the study by Carmona and Gutierrez (2003), since it seeks to examine the flow of research trends related to Accounting, in special GRAR, through national research groups. The authors emphasize that organizations with higher education are defined by increased interactions within the field, such as research networks and conferences. These interactions help to identify a status ordering and to provide useful information to members of the organizational field, about the trends being pursued by national groups with high research profiles (CARMONA; GUTIERREZ, 2003).

However, this research differs from others as a result of the direction given to GRAR, which is considered an area of research still incipient in Brazil (MARTINEZ, 2013). Therefore, it aims to contribute to the development, expansion and identification of research-related gaps in the national and international literature.

2 THEORETICAL FOUNDATION

This topic encompasses a theoretical discussion on the practice of managing results through actual activities, including the major national and international studies related to the topic.

2.1 Earnings Management through Decisions that affect Real Activities

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Results management is a subject that has gained prominence and relevance in the academic literature (KOTHARI, 2001). It consists of the intentional intervention on the elaboration of financial information, with the aim to obtain private gains (SCHIPPER, 1989; HEALY; WAHLEN, 1999). One of the reasons for the managers' interest in managing results is because the result has been used for a variety of purposes, including: contractual obligations, assets valuation, bonus plans and executive compensation.

The information generated by accounting provides relevant and informative content, used for a wide variety of stakeholders. Thus, lenders use the numbers to access aspects related to the financial health, credibility and viability of companies. On the other hand, shareholders use the numbers to monitor the organization's operational performance (CUPERTINO; MARTINEZ; DA COSTA, 2015).

The intervention on the accounting numbers is a procedure that deserves to be highlighted, since the financial statements summarize the relevant information regarding the performance of an entity. Thereby, profit reporting is of central importance because it is used for several purposes; such importance creates incentives for results management (XU; TAYLOR; DUGAN, 2007). This kind of management intervention can occur not only through accounting procedures, but also from operational decisions. Therefore, managers have an abundance of available methods, ranging from acceleration on sales to a reduction in research, development and maintenance costs.

Schipper (1989), Healy and Wahlen (1999) and Martinez and Cardoso (2009) classify management of results in accounting practices and / or real activities, which are chosen for the purpose of preparing different accounting reports from those that are prepared without the adoption of intentional or normal practices. Therefore, the techniques for the practice of results management can be divided in two categories: management through accounting practices and management by operational decisions (GUNNY, 2010). These categories have some fundamental differences, including the impact on operating cash flows. Thus, the result can be generated from two elements - cash flow and discretionary accumulations. Managers have both alternatives available to management (JOOSTEN, 2012).

Operational decisions affect an organization's cash flow, while discretionary accumulations do not necessarily have this same relation. Another difference between the two types of results management is the point at which they are used, because the operational decisions are taken over the period, depending on the perceptions of how business activities will operate throughout the operational cycle. On the other hand, discretionary accruals are mainly conducted in the interval between the end of an exercise and the period of publication of the financial statements (CUPERTINO; MARTINEZ; DA COSTA, 2015). Hence, while real activities are considered forms of *ex ante* management of results, discretionary accumulations are considered a method of *ex post* manipulation (CHEN, 2009).

A great deal of researches on manipulation of results have considered discretionary accruals as mechanisms to determine such a practice (MARTINEZ, 2001, HEAL, WAHLEN, 1999, KANG, SIVARAMAKISHISH, 1995, DECHOW; SLOAN; SWEENEY, 1995; WILSON, 1988). In this fashion, regardless of the methodology used by the aforementioned surveys, all of them are examples of studies that comprehend the management of results through accounting choices.

Graham et al. (2005) recommended that researches on manipulation of results should be extended to investigations on operational decisions related to the business of organizations, since this kind of practice is popular among managers. They also claim that management of

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results through operational decisions have negative potential consequences for the profitability of organizations.

Another argument is that there is already consistent evidence that managers practice management of results through the manipulation of discretionary accumulations (SAJADI et al., 2011). However, it is a recent finding that profit manipulation can also be accomplished by manipulating real activities, for instance, actions that deviate from normal operating practices. In Brazil, the subject has received almost no attention, with a limited research in a small number of studies (MARTINEZ; CARDOSO, 2009).

Graham, Harvey, and Rajgopal (2005) pointed out that executives were willing to manipulate actual activities in order to fulfill certain goals, although the activity potentially reduces the value of the company. Roychowdhury (2006) then set the stage for the estimative of empirical studies on abnormal real activities, by using a linear regression approach. Roychowdhury (2006) discussed the management of operational activities and developed measures for sales manipulation, production level, and reduction of discretionary expenditures. From these measures on, the companies were grouped into manipulation of real activities, in order to avoid losses.

In addition, a number of studies have employed the same measures in detecting management through real activities. Cohen, Dey, and Lys (2008) documented a significant increase in GRAR following the approval of the Sarbanes-Oxley Act in 2002, while there was a simultaneous decrease in management of results based on discretionary accruals. Likewise, in an environment where investor's protection is more fragile, Kuo, Ning, and Song (2014) found out that companies had shifted to less the management of results by discretionary accruals and abandoned the GRAR. Zang (2012) also presented consistent evidence that gestors manage results through real activities and discretionary accruals in an alternate way. Cohen and Zarowin (2010) found out that the poor operating performance of companies experienced in stock offering, could be linked to the consequences of using GRAR.

McKee (2005) presents some examples of GRAR occurrence: a) the manager may choose to offer special discounts or incentive programs to increase sales, near the end of the quarter in which revenue targets have not been met; B) the manager has the option to choose to invest in a new equipment or hire additional employees. This way, manipulation through operational decisions impacts the entity's cash flow and, consequently, revenues and expenses related to activities. McKee (2005), Christie and Zimmerman (2003), Emanuel et al. (2003) and Arya, Glover and Sunder (1994), comment that the management of results through real choices is associated with the company's strategy.

The first models and the evidence of the existence of manipulation of results through operational decisions, were initially pointed out by Roychowdhury (2003; 2006), Gunny (2005) and Zang (2005). These authors used the term "real" to characterize the manipulation that involves the decisions of operational and administrative strategies that influence the entity's cash flow.

Roychowdhury (2006) defined the manipulation through real choices by distancing the entity's normal operating practices, motivated by the desire of presenting an altered result to at least some users of the accounting information, causing them to believe that certain economic-financial targets were reached through the normal course of activities. When analyzing American companies, the author learnt that companies adopted real choices in order to change the information to be disclosed, avoiding this way to disclose losses.

There is no evidence for a perfect way to measure the manipulation of real activities. Researches in this area have used models to estimate the phenomena. The study by

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Roychowdhury (2006) is considered the most influential in the development of proxies for the measurement of GRAR. The author measured the manipulation of operating activities through the abnormal levels of cash flow from operations, discretionary expenses and production costs. In addition, some studies have used the same metrics (COHEN, ZAROWIN, 2010; COHEN et al., 2008; ZANG, 2012), providing further evidence on the usefulness of such metrics to capture manipulation through real activities.

Abnormal levels are obtained by comparing the estimates generated by linear models with real cash flow levels of operations, discretionary expenses and production costs. Therefore, the findings of differences between normal and real levels indicate the management of results through real activities. Although Roychowdhury (2006) has tested three measures to estimate the manipulation of results through operational activities, Cohen et al. (2008) argue that measures should be aggregated in order to capture the effects of GRAR.

Cohen et al. (2008) captured the aggregate effect through a comprehensive measure that combines the three individual proxies. This measure is calculated by summing the standard errors of these proxies. Kim and Park (2014) also used the comprehensive measure and determined that before aggregating the individual measures into a combined proxy, we must multiply the abnormal cash flow and the abnormal discretionary expenditure by a negative, in order to obtain a more intuitive measure.

Although there has been a growing interest in researches that discusses and measures the GRAR level, there are no studies whose compiled a survey for the theoretical and empirical basis on the subject. In this sense, it is necessary to indicate the evolutionary phase of the studies elaborated so far, in order to guide the directions of new researches, besides making possible suggestions for future studies on the subject.

3 RESEARCH METHODOLOGY

Regarding the methodological delineation of this research, it is characterized as being descriptive regarding the objectives, documentary in terms of means and quantitative in respect to the approach of the problem.

The research universe comprised scientific articles published in international journals in the area of Accounting available in SCOPUS database. For the determination of the initial population of the research, the seminal study of Roychowdhury (2006) was used as a base.

The choice of journals for research purposes was characterized as intentional and not probabilistic. Based on some of the criteria used in the study by Carmona and Gutierrez (2003), the criteria for choosing journals were: 1) Selection of the researches that cited the seminal study of Roychowdhury (2006) available in SCOPUS database; 2) Selection of high quality accounting journals (with a focus on accounting); 3) Selection of publications focused on GRAR. Thus, all the scientific articles that cited the seminal study of Roychowdhury (2006) available in SCOPUS database were collected, in a period of nine years between 2007 and 2015. It should be noted that were collected only those publications in which the access was possible, totalizing a population of 211 articles.

At the time of the identification of the research, some criteria for data collection were delineated in order to obtain the bibliometric and sociometric characteristics of the publications. These were divided in relation to the characteristics of the vehicle of publication, the authors, and the publication related to the subject GRAR.

That way, regarding the publication vehicle it was collected the information related to: the name of the journal; the year of its publication; the country of origin; the impact factor. Regarding the authors, the information was name and country of origin; and for the

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publication itself, it was: thematic (the subjects related to GRAR); objective; general results; variables used; base theory and number of citations. Chart 1 below shows the research sample, according to the year of publication.

Chart 1 - Survey sample.

Journal(s)	Year of Publication						
	2010	2011	2012	2013	2014	2015	Total
Total	5	2	2	9	20	12	50

Source: Research data.

It should be noticed that the research population comprised 211 articles citing the base study of Roychowdhury (2006) in the references. For the selection of the sample, those publications, which presented the application of the GRAR model in data analysis, were indeterminate. It was observed that only 50 of these studies used the model proposed by Roychowdhury (2006) in data analysis, that is, the vast majority of studies used it only for theoretical discussion of the GRAR model. Thus, the final research sample consisted of 50 publications (24% of the population) related to the GRAR theme, which used the Roychowdhury (2006) model empirically.

Next, for data analysis it was performed a content analysis, the descriptive statistics of the publications characteristics and, finally, the analysis of social networks with the application of the software UCINET, seeking to verify the existence of ties of cooperation between the authors and the institutions of different countries. Based on the pre-established criteria in the collection for determination form of presentation of the results in the following topic.

4 ANALYSIS AND INTERPRETATION OF RESULTS

This topic presents the analysis and the description of the results. Initially, through descriptive statistics, with the characterization of the researched sample and with the description of information of the analyzed categories. Secondly, a network analysis was carried out through the application of UCINET software, seeking to verify the existence of cooperation links between the authors and their institutions in different countries.

4.1 Descriptive Statistics

For the elaboration of the descriptive statistics, it was considered the pre-established criteria for data collection related to the bibliometric and sociometric characteristics of the publications. Initially, Table 1 presents the distribution of GRAR articles according to the vehicle of publication during the period from 2010 to 2015, considering that from 2007 to 2009 no studies were found quoting the work of Roychowdhury (2006).

Table 1 - Distribution of GRAR articles by journal and year of publication.

Journal	2010	2011	2012	2013	2014	2015	Total
<i>Advances in Accounting, incorporating Advances in International Accounting</i>	0	0	0	0	2	0	2
<i>Asian Review of Accounting</i>	0	0	0	0	2	0	2
<i>Contemporary Accounting Research</i>	1	0	0	1	0	0	2
<i>European Financial Management</i>	0	0	0	0	1	0	1
<i>European Management Review</i>	0	0	0	0	0	1	1
<i>Expert Systems With Applications</i>	0	0	0	0	0	1	1
<i>Financial Management</i>	0	0	0	0	1	0	1

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<i>Global Finance Journal</i>	0	0	0	0	0	1	1
<i>Journal of Real Estate Finance and Economics</i>	0	0	0	1	0	0	1
<i>Journal of Accounting and Economics</i>	1	1	0	1	0	0	3
<i>Journal of Accounting and Public Policy</i>	0	0	1	1	2	1	5
<i>Journal of Business Finance & Accounting</i>	1	1	0	1	4	1	8
<i>Journal of Business Research</i>	0	0	0	0	1	0	1
<i>Journal of Contemporary Accounting & Economics</i>	0	0	0	0	0	1	1
<i>Journal of Corporate Finance</i>	0	0	0	0	1	1	2
<i>Journal of Financial and Quantitative Analysis</i>	0	0	0	1	0	0	1
<i>Journal of Industrial Engineering and Management</i>	0	0	0	0	0	1	1
<i>Journal of International Financial Management & Accounting</i>	0	0	0	1	0	1	2
<i>Journal of Multinational Financial Management</i>	0	0	0	1	1	0	2
<i>Management Decision</i>	0	0	0	0	0	1	1
<i>Research in Accounting Regulation</i>	1	0	0	0	0	0	1
<i>Research in International Business and Finance</i>	0	0	0	0	0	1	1
<i>Review of Accounting Studies</i>	1	0	0	0	1	1	3
<i>Review of Quantitative Finance and Accounting</i>	0	0	0	1	1	0	2
<i>Review of Accounting and Finance</i>	0	0	1	0	1	0	2
<i>The International Journal of Accounting</i>	0	0	0	0	1	0	1
<i>The Journal of Economics Asymmetries</i>	0	0	0	0	1	0	1
Total	5	2	2	9	20	12	50

Source: Research data.

It can be seen from Table 1 that in the year of 2014 was the one that presented the largest number of publications on the subject, with a greater representation of the Journal of Business Finance & Accounting, with four publications in that year.

Considering that in the period from 2007 to 2009 no studies were found using the model proposed by Roychowdhury (2006). It is inferred that after this interval of four years, the research effectively began the process of dissemination in high impact journals in the field of accounting, especially the Journal of Business Finance & Accounting, which presented the largest number of publications in the six year period (a total of 8 articles). In general, it can be observed that the production related to the theme has not evolved in an increasing way in the period of six consecutive years analyzed, considering the quantity of productions.

Afterwards, Table 2 shows the distribution of articles according to the nature of GRAR research. The nature of the research consists on the main themes discussed in the research on management of results through real activities. Therefore, incentive variables and or control variables in studies dealing with results management are not included in the assumptions on Table 2.

Table 2 - Distribution of articles according to the nature of GRAR research.

Nature of Research	2010	2011	2012	2013	2014	2015	Total
1- Adoption of Standards IFRS	0	0	0	0	2	1	3
2- Classification Agencies	0	0	0	1	0	0	1
3- Acquisition of Shares / Stock Market	0	0	1	1	1	1	4
4-Banckmarks Results	2	1	0	0	0	0	3

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5- Competition (Competitive Environment)	0	0	0	1	2	0	3
6- Economic Crisis	0	0	0	0	1	0	1
7- Cost of Capital / Indebtedness	0	0	0	1	1	1	3
8- Operational Performance	1	0	0	0	0	0	1
9- Corporate Diversification	0	0	0	0	1	0	1
10- Privacy Policy	0	0	0	0	1	1	2
11- Property Structure	0	0	0	1	0	0	1
12- Overconfidence of Managers	0	0	0	0	1	0	1
13- Financial Experience of CEOs	0	0	0	1	0	0	1
14- Corporate Governance	0	0	0	1	0	0	1
15-IPOs – Initial Public Offering of Shares	0	0	0	1	3	0	4
16- Self-Organization Maps	0	0	0	0	0	1	1
17- Stock Market	1	0	0	0	3	0	4
18- Investor Perception	0	0	0	0	0	1	1
19- Prediction of market analysts	0	1	0	0	1	1	3
20- Investor Protection	0	0	0	0	0	1	1
21- Reformulation of Financial Demonstrations	1	0	1	1	0	0	3
22- Performance-based compensation	0	0	0	0	0	2	2
23- Corporate Social Responsibility	0	0	0	0	0	1	1
24- Test of <i>Impairment</i>	0	0	0	0	0	1	1
25- <i>Trade-Off</i> Management metrics	0	0	0	0	2	0	2
26- Taxation	0	0	0	0	1	0	1
Total	5	2	2	9	20	12	50

Source: Research data.

Table 2 shows the nature of GRAR research in the analyzed publications, in which it was verified the main themes were Acquisition of Shares / Stock Market, IPOs - Initial Public Offering of Shares and the Stock Market, both present in 4 publications each. By that, it is perceived a predominance of issues facing the market and the external users.

It is also observed that such issues as corporate governance, which are traditionally related to the research on quality of accounting information, were less recurrent. Although, corporate governance is considered a constant incentive for quality information, since it is accurate and useful for decision-making, and it helps in the economic and financial evaluation of the company (RODRIGUES, et al, 2016).

Table 3 presents the distribution of articles according to the country of the sample and the basic theory used in the research.

Table 3 - Distribution of articles used in research, according to sample country and base theory.

Countries / Theory	Does not have	Positive	Agency	Corporation	Signaling	Prospector	Trade Off	Total
Other Countries	3	0	0	0	0	0	0	3
Brazil	1	0	0	0	0	0	0	1
United States	22	1	2	1	0	0	1	27
China	4	0	0	0	0	1	0	5
Germany	0	1	0	0	0	0	0	1
France	0	0	1	0	0	0	0	1
Italy	1	0	0	0	0	0	0	1
Iran	0	0	1	0	0	0	0	1
Taiwan	2	0	0	0	0	0	0	2
Thailand	1	0	0	0	0	0	0	1

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United Kingdom	2	0	0	0	0	0	0	2
Canada	1	0	0	0	1	0	0	2
Spain	0	0	1	0	0	0	0	1
Malaysia	0	0	1	0	0	0	0	1
South Korea	0	0	0	0	0	1	0	1
Total	37	2	6	1	1	2	1	50

Source: Research data.

It can be seen from Table 3 that among the 50 publications belonging to the sample, 27 were performed considering samples from companies located in the United States of America (USA), as well as 37 did not present any theory in the theoretical construction. However, it was observed that the Agency Theory was the most recurrent among the other theories used in publications (present in 6 different articles).

It was verified that the GRAR research has enabled the insertion of new theories and theoretical approaches in publications carried out in different countries, such as signaling, prospecting and Trade Off theories. Thus, it is suggested that these theories can contribute to the literature of the area, inserting new elements and theoretical arguments, which can help to explain the managers' behavior and strategic decisions regarding operational activities in different contexts.

In the Brazilian context, it is observed that even though researches related to the quality of the accounting information (based on the proxy of the results management) are considered consolidated, they remain a topic of growing interest by the literature researchers in the area. However, a little progress has been made in the research on results management through real activities in terms of amount of published research in the relevant international journals. The study by Cupertino, Martinez and Costa Junior (2015) on results management through real activities and the perception of investors is highlighted. However, there may be other Brazilian surveys, which were published in high quality accounting journals and were not the subject of this research.

Thereafter, the studies were separated according to the embodiment of the results analysis. It was considered the one containing an isolated analysis of GRAR (ROYCHOWDHURY, 2006) and the others with a joint analysis of this type of management with the one based on accruals. Table 4 presents the distribution of the articles according to management theories and metrics.

Table 4 - Distribution of articles according to GRAR studies theories and metrics.

Theory / Metrics	Earnings Management Metrics		Total
	Isolated analysis of GRAR (Roychowdhury, 2006)	Joint analysis with management based on <i>accruals</i>	
Does not have theory	6	31	37
Positive Theory	1	1	2
Theory of the Agency	1	5	6
Theory of the Corporation	1	0	1
Theory of Signaling	0	1	1
Theory of Prospecting	2	0	2
Theory of <i>Trade-Off</i>	0	1	1

Source: Research data.

It can be observed that the publications in which the isolated GRAR metric was applied (Roychowdhury, 2006) (11 publications), only 5 used the theory, with Prospecting theory being the predominant one. In those publications which GRAR and management based

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on accruals were applied together (39 of them), the majority did not present theory in theoretical construction (31 publications), but the ones that did, agency theory was predominant. It is worth noticing that the application of agency theory is constant in publications that analyze results management based on acronyms.

It is suggested that because GRAR research is not consolidated in the literature of the area, it does not have a single theory that can explain its elements. It is important to say that the discussion and theoretical support related to GRAR is still in development, and therefore there is no consensus on which theory is the most adequate. We can see a change in the studies with a predominantly view based on the firm's economic theory (like agency and trade-off theories), for the ones that are often used in research related to managerial accounting (as in prospecting theory). It is suggested that these theories can contribute to the development of new theoretical approaches, providing better arguments for the strategic decisions of managers regarding operational activities in different countries.

In the sequence, the distribution of the articles is presented according to the metrics used on results management. Thereby, Table 5 shows the evolution of studies that performed GRAR isolated analysis (ROYCHOWDHURY, 2006) and others with joint analysis (GRAR and based on accruals).

Table 5 - Distribution of articles according to results management metrics.

Métricas	2010	2011	2012	2013	2014	2015	Total
Roychowdhury	1	1	1	1	1	3	16%
Jones and Roychowdhury	1	0	0	3	4	1	18%
Jones Modificado and Roychowdhury	0	1	0	5	12	6	48%
Others and Roychowdhury	3	0	1	0	3	2	18%
Total	5	2	2	9	20	12	100%

Source: Research data.

It is noteworthy that only 8 (16%) studies analyzed used the GRAR model proposed by Roychowdhury (2006). However, it was observed that 66% of the studies used joint analysis of GRAR model and the accrual-based model. Of these, 9 (18%) were based on Jones Modified and Roychowdhury models, while 24 (48%) used Modified Jones and Roychowdhury models, respectively.

It is assumed that this joint analysis of results management based on Roychowdhury (2006) model and accruals management models occurs due to the fact that the real activities model has variables that receive interference from decisions that involve discretionary accumulations. In addition, there is evidence in the literature that firms modify one management practice for another. In periods when accruals management becomes more difficult due to a higher market regulation or from regulatory bodies, for instance, companies tend to migrate their management practices to real activities. On the other hand, when management's option for real activities is not accessible, accrual management can be a viable option.

It is suggested that the model proposed by Roychowdhury (2006) has still not been widely disseminated by researchers of this field, because it is a research trend that is not yet consolidated in the literature of the area. Possibly, due to the ordering of useful status for members of the organizational field on this topic, since it has been adopted by national groups in recent research profiles (CARMONA; GUTIERREZ, 2003). However, it is considered that GRAR research may become consolidated in the literature, in the same way as other quality

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metrics of accounting information, which should be determined by the quantity, stability and relevance of publications on the subject in the upcoming years.

Among researches that used only the model proposed by Roychowdhury (2003, 2005, 2006) for GRAR, inserting new mediating variables, we highlight studies by Gunny (2010), Athanasakou, Strong and Walker (2011), Zhao et al. (2005), Goh, Lee and Lee (2013), Farooqi, Harris and Ngo (2014), Brown, Chen and Kim (2015), Chung et al. (2015) and Zhang (2015). Considering these results, it is considered that GRAR studies can still contribute to the literature of the area, including other incentive and control variables, or new relationships in environments that have different organizational, environmental and legal aspects. Thus, it seeks to disseminate the discussion about managers' unintentional practices and their strategic decisions in terms of operational activity. In general, there was a considerable evolution in the research on management of results based on real activities, mainly in the period from 2014 to 2015, showing an interest in the application of this metric proposed by Roychowdhury (2006), which tends to become legitimated by researchers in the area, as well as to other previous accounting quality metrics.

In the light of this, some characteristics of the aforementioned surveys are summarized, as shown in Chart 2 below.

Chart 2 - Summary of the main characteristics of surveys that used GRAR metric.

Model	Author (s) / year	Main Variable	Theory of base	Sample Location	Place of Authors
International					
Roychowdhury (2006)	Gunny (2010)	<i>Banchmarks</i> of Results	Positive Theory	USA	USA
	Athanasakou, Strong and Walker (2011)	Prediction of market analysts	Does not have	United Kingdom	United Kingdom
	Zhao et al. (2012)	Public protection for stock acquisitions	Theory of the Corporation	USA	USA
	Goh, Lee and Lee (2013)	Property Structure	Theory of Prospecting	Korea	Korea, Australia
	Farooqi, Harris and Ngo (2014)	Corporate Diversification	Theory of the Agency	USA	USA
	Brown, Chen and Kim (2015)	Cost of Capital	Does not have	USA	USA, Canada
	Chunget al (2015)	Prediction of market analysts	Does not have	Taiwan	Taiwan, USA
	Zhang (2015)	Acquisition of Shares	Theory of Prospecting	China	China

Source: Research data.

By using the results presented in Chart 2, it can be observed that few studies are devoted to analyze the GRAR practice, considering only the Roychowdhury (2006) model (the majority of these studies were carried out in the USA). This suggests the existence of a research gap related to the Roychowdhury's (2006) model application, as well as the theoretical discussion of research on real activities in contexts of other economies beyond the US, UK, Korea, Taiwan and China. However, it should be noted that there may be other researches using the model proposed by Roychowdhury (2006) and that they were not the target of this research, due to the selection criteria of the sample. It is also verified the use of other basic theories beyond agency theory, which are commonly used in positive accounting research on results management practices such as prospecting theory.

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Then, a compilation of incentive variables for the management of results through real activities was carried out, aiming to present a summary of the main words that represent incentives or control variables for this practice. Wordle - Beautiful Word Clouds was used to determine the word cloud.

Therefore, besides the nature of the discussions related to GRAR, it were selected the additional variabels included in the researched studies. Some of them treat the variables for management incentives, while other the control variables. In Figure 1 is formed the incentive/control variables cloud to GRAR.



Figure 1 - Cloud of the incentive / control variables for GRAR.

Source: Research data.

The results show that the variable “company size” was the most used in the studies of results management. In addition, the variable Net Worth at Market Value, Leverage, Operating Cash Flow, Sales Growth, Return on Assets, Big Four Audit, Losses and Shareholders' Equity at Book Value were widely used in the analyzed studies. Consequently, by carrying out some studies that involve the explanation of the level of results management through different contexts, it is interesting to evaluate the inclusion of such explanatory variables.

It should be pointed out that the choice of variables used in GRAR surveys may change due to the nature of the investigation, which, as verified in Table 2, is related to issues related to the market and external users, such as IPOs - Initial Public Offering of Shares and the Stock Market.

4.2 Structural configuration of the relationships

In this session, the results analysis is presented through the application of the social networking technique, in which the links (connections) of cooperation among authors of GRAR surveys are verified. Thus, Figure 2 presents the structural configuration of the relationships between authors with publications in the 50 analyzed journals.

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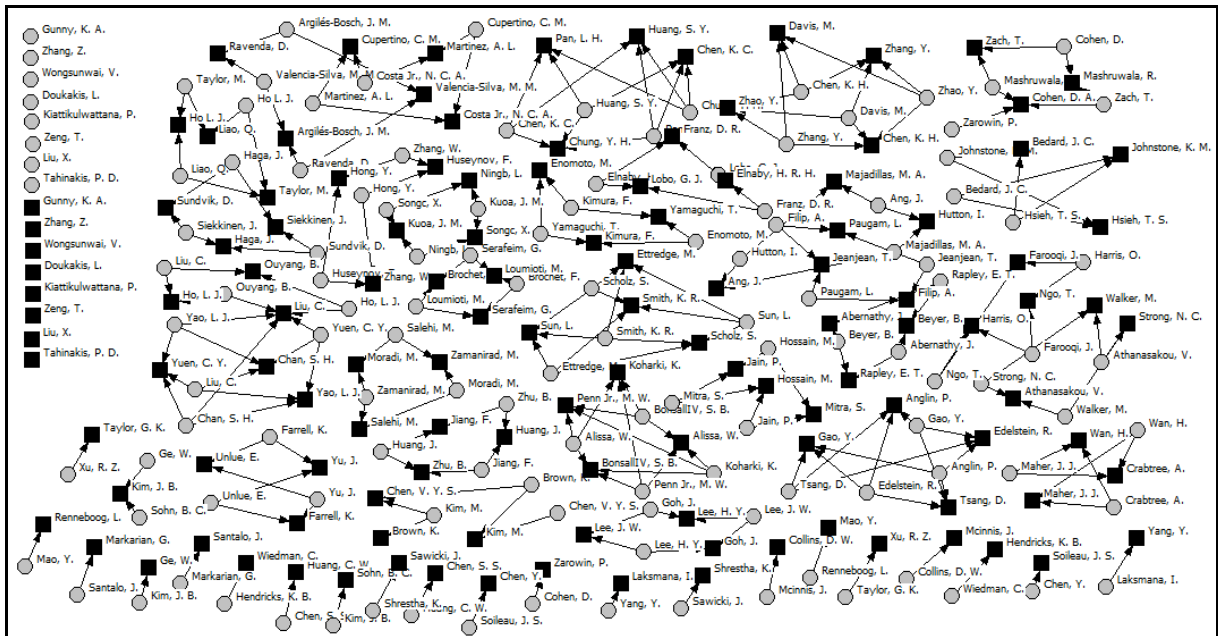


Figure 2 - Social networks of cooperation among authors with GRAR publications. Source: Research data.

It is observed in Figure 2 the existence of links between the majority of the 128 actors (authors) of GRAR publications. It was verified that most of the authors have at least two ties of cooperation with other researchers of the area. Among these authors, Zhao, Y., Chung, YH, Alissa, W., Anglin, P., Liu, C., Kim, JB, Cohen, D., and Liu, C.

Considering these results, it is possible to say that the scientific research leads to a collaborative relationship among the actors within the financial area, regarding the research involving quality of the accounting information that uses the GRAR metric proposed by Roychowdhury (2006). In addition, Table 6 shows the number of links between authors with more cooperation relations in different journals.

Table 6 - Number of links between authors in different journals.

Authors		Newspapers	N° Ties
1	Kim, J. B.	Journal of Business Research; Journal of Accounting and Public Policy	2
2	Cohen, D.	Journal of Accounting and Economics; Review of Accounting Studies	2
Total			4

Source: Research data.

It can be seen on Table 6 that two authors appear with a large number of relationship ties with other researchers in other journals. The authors Kim, J. B. and Cohen, D. presented a higher number of loops, with 2 each. These authors can be regarded as the ones with greater representativeness in terms of productivity on the subject in the analyzed journals. Considering that these authors belong to national groups with high research profiles, it is interesting to highlight some information about their profile. The first one, Kim, J. B., is a professor of Accounting at the University of Waterloo and a researcher in the area of Accounting and Finance; the latter, Cohen, D., is a professor of Accounting at the University of Texas in Dallas and a researcher in Financial Accounting.

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In general, these results demonstrate the incipience of researches about GRAR, in addition to the need for disseminating related research in high-impact journals in accounting area. They also demonstrate a research gap for future researches on GRAR using the model proposed by Roychowdhury (2006) in different contexts, which may contribute to the growth of the theme through the relationships of cooperation between authors of different institutions or nationalities, with publication in other journals areas.

5 CONCLUSIONS AND RECOMMENDATIONS

This study aimed to characterize research on results management through real activities and the gaps for future researches. For that, scientific articles published in international periodicals on the field of Accounting were collected in SCOPUS database. The seminal study of Roychowdhury (2006) on management of results based on real activities was used as basis, from which a sample of 50 publications was obtained. The results show that 2014 was the year with the highest number of publications on GRAR, with larger representation of the Journal of Business Finance & Accounting, although the production related to the topic did not evolve significantly in the period from 2010 to 2015.

It was observed that, 27 out of 50 publications belonging to the sample were carried out in the United States, which of these, 22 did not present any theory in the theoretical construction. Nevertheless, it is observed that the Theory of the Agency was the most recurring among other theories used in the publications. In terms of application of the isolated GRAR metric (Roychowdhury, 2006), it was observed that only 5 studies used theory, the prospective theory being the predominant one. And in those publications which GRAR and accrual-based joint applications occurred, most of them did not present any theory in theoretical construction (31 publications), and in the ones that did, agency theory was the predominant one.

These results reveal the need to broaden the use of basic theory in GRAR research, aiming at a better theoretical construction and possibly a larger dissemination of the topic, since theoretical discussions can bring different positions to the same theme. In addition, it points to a recent theoretical perspective change in the literature related to the management of accounting results, since theories such as the prospector, for example, were not commonly used in the area of financial accounting. In general, it is assumed that the model and theme proposed by Roychowdhury (2006) have not been much disseminated by researchers in the area. That is because it is a research trend that has not been consolidated in the literature of the area until now, due to the incipience of the theme, and since related publications are not a constant.

It was verified that the research developed by Roychowdhury (2006) as well as its model has been little used in empirical studies of the area, since the incipience of the subject in the literature, in the sense that the related publications do not remain constant, even though this may possibly be an indication of future research trends. In the same way, the theoretical discussion related to the thematic needs new studies, which can contribute to increase the knowledge about the strategic decisions of managers, the operational activities of the companies and other aspects related to the variables that build up the model of real activities. These results point to a research gap, in the sense that other studies can insert other variables related to these managerial and operational aspects of the business, of little investigation so far. However, it is considered that GRAR research might become consolidated in the literature, in the same way as other quality metrics of accounting information, which should

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be determined by the quantity, stability and relevance of publications on the subject in the years to come.

This research contributes to the literature of the area, once the results found suggest new insights in the use of other basic theories in addition to the agency theory. That is, other researches can verify which elements of the prospecting theory could help to explain management practices through real activities, or even if both theories would be complementary in cases of joint GRAR and accrual-based analysis. Finally, this research contributes to the development, expansion and identification of research-related gaps in the national and international literature, providing insights for new researches that can use variables and theories from a different perspective.

It is recommended for a future research that the GRAR model, proposed by Roychowdhury (2006) shall be analyzed separately, particularly by inserting other variables of incentives / control, in order to expand and evolve the research related to the topic. It is specially suggested that this model shall be analyzed in the context of emerging countries, aiming to assist the theoretical development related to the strategic decisions of the managers regarding operational activities. Finally, for those researches that choose to enhance a joint analysis of results management practices through real activities and based on accruals, considering common incentive variables for both.

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