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Resonance Of Articles And Impact Factor Of Brazilian Accounting Journals

Abstract

The objective in this study was to identify what characteristics of the papers published in Brazilian accounting journals are associated with their resonance in scientific production. A theoretical-empirical approach and a quantitative design were adopted. The strategy was a survey and data collection used the content analysis of the individual search results of each article in Google Scholar. The sample consisted of 577 articles, published between 2006 and 2011 in the four journals ranked highest in Qualis/CAPES 2012: Contabilidade Vista & Revista, Revista Contabilidade & Finanças, Revista de Contabilidade e Organizações and Revista Universo Contábil. In total, 1,655 records were ranked in an electronic worksheet, with 1,372 citations and 283 articles that were not cited. Chi-squared and correspondence analyses were used, besides the calculation of the journals' impact factor. The findings demonstrated a mean number of 2.38 citations per article and 49.05% of the articles that were not cited. Associations were found between journal, year of publication and language of the articles and citations received per citation vehicle, as well as between the language of the article and the country of the citation. Articles published in RC&F received 66.33% of the citations, as the most important journal to explain the data variability. The highest impact factor in 2011 was found for RC&F (0.861), followed by CVISTA (0.667), RCO (0.458) and UNIVERSO (0.458), with a general average of 0.578. In conclusion, the resonance of the scientific production under analysis can be considered low, the data variability is related to the characteristics of the articles/journals and the distance among the journals' impact factors has decreased.

Key Words: Scientific communication, Scientometrics, Impact factor, Accounting journals.

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1. Introduction

Research is a determinant element in countries' scientific and technological development process. Nevertheless, the dissemination and resonance of this scientific production are aspects that need to be observed for the produced knowledge to attend to expectations related to quality of life and social development.

For scientists and philosophers, the activity of science, as the search for knowledge, is by itself the greatest social good and any other social benefits are but sub-products (Nelson, 1959). In a broad sense, research can be considered as the search for and inquisition of reality with a view to the elaboration of knowledge to help and understand the real that guides human actions (Carmona, 2011; Czarniawska, 2011).

Scientific communication is a fundamental part of the knowledge creation process. Hence, the efforts made through the researchers' actions will be worthless if the research results are not disseminated – unpublished research is useless, as it produces no implications nor criticism, its discovery is not appreciated and the theory can be neither accepted nor discarded (Meadows, 1999; Tahai & Rigsb, 1998).

Since the 17th century, publishing in scientific journals is one way of disseminating the knowledge produced (Mueller, 2000). Kuramoto (2006, p. 91) highlights that: "[...] scientific research results are disseminated to the community through journals. The procedures to publish that information were established by the scientific communication system, which has been consolidated over more than three centuries".

Earlier studies, which discuss aspects of research, have analyzed its attributes in the light of the scientometrics of scientific production, such as: impact factor (Packer, 2001; Strehl, 2005; Amin & Mabe, 2007; Vanclay, 2011); citations (Garfield, 1972); and others related to journals and elements of accounting researchers' productivity (Rosenstreich & Wooliscroft, 2009; Lee, Yap, Lim, & Tam, 2012). These attributes are used to get to know the characteristics and assess the quality and resonance of this production.

In that context, the following guiding question emerges: which characteristics of the articles published in Brazilian accounting journals affiliated with Graduate Accountancy Programs are associated with the resonance of scientific production?

The objectives in this study were to:

- Examine the resonance of the production analyzed based on the association between the journals and the citation volume received by the articles published.
- Identify the impact factor of the articles analyzed based on the citations received as listed in Google Scholar.

From the scientometric perspective, the knowledge area that studies research assessment measures and indices, this work is justified by the importance of observing whether the scientific accounting production published in Brazilian journals in the area finds resonance in the scientific production, defined as the researchers' interest in the publications, revealed through the number of citations received (Meadows, 1999; Pinto, 2008).

Studying the repercussion of what is published in the main accounting journals about the studies developed by the scientific community is one way of knowing the perceived external validity of the knowledge production based on the citations (Garfield, 1972; Flick, 2009; Pendlebury, 2009; Lee, Yap, Lim, & Tam, 2012).

By bringing up the discussion about the resonance of the Brazilian accounting production, the intent is to provoke reflections in the academic sphere about the repercussions and quality of what is disseminated, as well as about the need to attempt to guarantee validity criteria of the content that is produced and published in the main accounting journals. The researchers hope that the knowledge of these aspects can lead to changed practices and grant greater visibility and recognition to the scientific accounting production, as evidenced by the impact factor.

This Introduction is the first part of the study. The second, third and fourth part present, respectively, the theoretical framework – with topics about the dissemination, resonance and the impact factor of scientific research; the method and the analysis of the results. In the fifth and final part, the conclusions of the study are presented.

2. Theoretical Framework

2.1 The dissemination and resonance of scientific research

Journals are relevant communication channels between researchers and the community (Campello, 2000). Nevertheless, the research results disseminated in scientific journals are sometimes surpassed due to the rhythm of scientific and technological changes. Timely publication became necessary so as not to lose the opportunity to contribute to intellectual and social advances.

One important study about the dissemination of research was undertaken by Garfield (1972), who explains the creation of the Science Citation Index (SCI) by the Institute for Scientific Information (ISI), based on the analysis of approximately one million citations received by texts published in 2,200 multidisciplinary journals around the world in 1969. The SCI started to provide measures to rank journals in terms of their impact, furthering an increasing search for publications in indexed journals with a higher impact factor (IF) (Kuramoto, 2006).

The ISI started to publish three indicators per year and per journal title: the immediate citation index (Immediacy Index), the half-life of the citations (Cited Half-Life) and the bibliometric index called Impact Factor. These are calculated based on the citation data categorized by journals, published in the Journal Citation Reports (JCR) and used as a parameter to assess researchers and institutions (Strehl, 2005).

The references cited in a scientific article express the geographic focus of the work to a greater or lesser extent. On the other hand, the analysis of the impact involves measuring the dissemination of knowledge produced within and beyond the borders of the study's country of origin. According to Ladle, Todd & Malhado (2012), there is a trend for the researchers to cite articles with abstracts or translations in their native language, mainly in developing countries. Citations of studies from the country itself can derive from the concentration of studies focused on its development. This preference encourages the increasing impact of native journals from countries affiliated with the JCR for example.

Christensen (2011) observes that publishing a study is not enough, even in first-line journals; the research should exert influence and present innovative reflections. According to Ohlson (2011), a research is successful when it becomes known and, in general, frequently cited. Meadows (1999) believes that one way to assess the quality of a publication in scientific journals is based on other researchers' level of interest in the research, and this interest can be measured by the amount of citations received.

According to Chan & Costa (2005), the Brazilian structure of research and of the ability to absorb science is weak, and this scenario has led to low levels of scientific production. The new global knowledge in terms of science basically originates in rich countries, with high spending levels on research and development. As an illustration, in a comparative study of the performance of science, King (2004) found that the United States, United Kingdom, Germany, Japan and France were responsible for almost 70% of scientific publications around the world (1997-2001).

2.2 Earlier Studies

In a study to understand the function of scientific journals as formal vehicles to communicate knowledge and among peers in the scientific community, Miranda & Pereira (1996) analyzed scientific journals printed until the end of the 1980's. These authors highlight the journals as the primary means to disseminate research results and contribute to the expansion of knowledge, despite the absence of return on how the results of their work are distributed and their impact in the scientific community.

Pinto & Andrade (1999) demonstrated the calculation of the impact factor of scientific journals and the consequences of the number of citations of scientific articles in the international literature, evidencing their importance and limitations. The article states that the discussions about how frequent a research is cited gained visibility and polemics when the newspaper Folha de S.Paulo (1995) published the names of

the 170 researchers active in the country who, between 1981 and 1993, were cited more than 200 times in the international literature, according to an ISI database.

Yamamoto, Menandro, Koller, Lo Bianco, Hutz, Bueno & Guedes (2002) developed a research to present a new phase in the evaluation process of Brazilian scientific journals in the psychology area. These authors discuss the responsibility to monitor and control the production to achieve the quality of the scientific journal in function of the knowledge that is to be dissemination.

The study by Vilhena and Crestana (2002) emphasized the growing concern of funding entities with ranking the scientific journals and assessing the number of citations – whether to evaluate projects, grant scholarships or even assess graduate programs – given that journals are one of the most used scientific research communication channels.

Strehl (2005) discussed the variables that most influence the IF and approaches to measure the obsolescence of literature. The author concludes the study with reflections about the Brazilian scientific assessment system and the role of SciELO in the formulation of bibliometric indices.

Amara and Landry (2012) studied the assessment of researchers' performance at Canadian business schools based on data taken from Thomson ISI Web of Science (WoS) or Google Scholar (GS). They concluded that the researchers' average performance, based on the number of contributions, citations and the h-factor, is higher when the assessment uses GS instead of WoS.

Wang (2012) applied a bibliometric technique and social network analysis to examine 34,764 references cited in 647 articles, based on two accounting journals cited in SSCI and SCI. As perceived, low co-citations of the authors indicate that they were not susceptible to having a significant impact in the development of their area, or that their publications were that recent that no impact whatsoever was possible.

2.3 Impact factor (IF): representativeness and measuring

The calculation of the IF consider the number of times each article is cited by others and has served as a quality indicator of the journal the research was published in. Bibliometrics and scientometrics call the calculation of this indicator based on the impact of the publications in the scientific community citation analysis or citation studies (Strehl, 2005).

Pinto (2008) highlights two main applications of scientometrics: (1) assessment of the production for the division of research funding; (2) development of quality criteria to guide the readers in the choice of the best scientific evidence, like the journal impact factor published each year by ISI.

In his study of citations, Garfield (1972) verified that most of the references cite relatively few journals, with a predominance of citations from studies published in some journals preferred by the users of the database. According to the author, this analysis arouses concerns with the increased number of scientific and technical journals, as it does not represent greater coverage of the literature necessary for research.

Based on Garfield's model (1972), the impact factor of a journal in 2011 is calculated by the Total number of citations received in 2011 by the articles published in 2009 and 2010, divided by the Total number of articles published in 2009 and 2010.

One of the aspects criticized with regard to the IF is the lack of comparability between journals from different areas – texts from broader areas tend to receive more citations, which will not necessarily entail higher quality of the production when compared to areas with less researchers and less wide-ranging studies (Pinto, 2008).

Amin & Mabe (2007) graphically studied the accumulation of a journal's citations and ratified that this graph tends to follow a steeply rising curve of citations over a given time period. The model was synthesized in accordance with Figure 1:

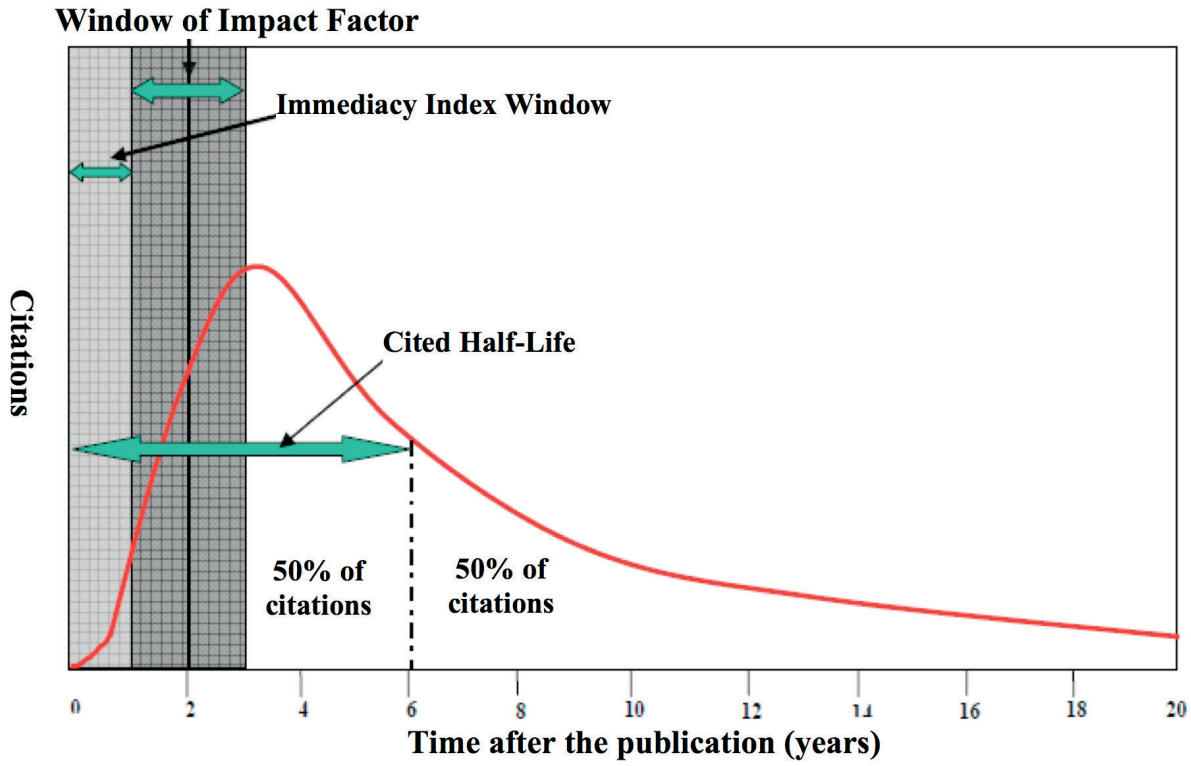

Figure 1. Generalized citation curve.

Source: Amin & Mabe (2007).

In this model, the first six years of publication of an article concentrate 50% of the citations it can receive throughout its life. The first year is not considered in the calculation because this is a short period for assessment purposes – immediacy index.

According to Bianco (2004), studies by ISI indicate that, literally, the impact factor is the achievement of the size of the citation curve in two and three years. Generally, the citations of articles published in a specific year increase in the subsequent years and peak between two and six years after the publication, followed by an exponential decline as from that period. In other words, if a scientific publication is unable to obtain a degree of resonance within two to three years, it is improbable that this can happen in more than six years, in view of the steep decline in that probability as from that moment.

A journals' IF tends to vary in function of the knowledge area, the number of authors and the size. A journal that publishes 35 articles per year is considered small, while journals publishing more than 150 articles each year are considered big. In the social sciences, in general, journals have a lower factor when compared to the natural sciences; the IF should be compared among journals from the same area (Mueller, 1999; Amin & Mabe, 2007).

According to the studies, it can be inferred that, as a scientometric measure, the impact factor can help to evidence the influence of journals in their knowledge area, but is not a direct measure of their quality.

3. Method

A theoretical-empirical study was developed with a quantitative design. Based on the ideas of Martins & Theóphilo (2007), the research strategy is a survey, although documentary research characteristics are also present. The data collection technique was content analysis, with electronic access to the websites.

3.1 Composition and sample selection criteria

The sample comprises the articles published in Brazilian accounting journals issued by institutions that offer *stricto sensu* Graduate Programs in Accountancy, Accounting and/or Controllership and are classified in the top ranks of the area Administration, Accountancy and Tourism. These ranks include the most relevant journals in each area, as defined by the Journal Assessment System of the Coordination for the Improvement of Higher Education Personnel – Qualis/CAPES (A1, A2 and B1) in its most recent three-yearly assessment (2009-2011) (CAPES, 2012).

A list was elaborated with the 21 *stricto sensu* Graduate Programs (GP) in Accountancy, Accounting and/or Controllership recognized or recommended on the CAPES website, excluding repetitions. The websites of the higher education institutions (HEI) were visited to identify accounting journals affiliated with the GP or with the Department/School offering the Program. Thirteen accounting journals were identified, four of which figure in the top ranks of Qualis/CAPES:

Table 1
Accounting journals affiliated with *stricto sensu* GP in Accountancy, Accounting and/or Controllership, classified in the top ranks (Qualis/CAPES 2012)

Program	HEI	State	Journal	Qualis rank
1. Accountancy	FURB	SC	Revista Universo Contábil	B1
2. Accountancy	UFMG	MG	Contabilidade Vista & Revista	B1
3. Controllership and Accounting	USP	SP	Revista Contabilidade & Finanças (RC&F)	A2
4. Controllership and Accounting	USP/RP	SP	Revista de Contabilidade e Organizações (RCO)	B1

Source: elaborated by the authors based on the websites of the Programs and of Qualis/CAPES.

The journals Brazilian Business Review (BBR) and Revista Brasileira de Gestão de Negócios (RBGN), issued by FUCAPE and UNIFECAP, figure in the top ranks A2 and B1, respectively. A survey of the articles published in those journals in 2011 revealed that more than half belongs to other areas, such as Marketing and Economics. Therefore, they were removed from the sample to avoid bias.

The period analyzed considers the two most recent three-yearly CAPES assessments: 2006-2008 and 2009-2011. The production published in those journals in this interval was considered, as it covers a minimum series of five years.

3.2 Study hypotheses

The relation between Brazilian accounting journals and the citations received, as distributed by the citation vehicles, is the core aspect in this research. Garfield (1972) indicated the predominance of citations from studies published in some journals preferred by the users. In this case, the first research hypothesis considers that the journal is associated with the citations received by the articles it published. The denial of the null hypothesis is expected, in view of the dependence between expected and observed values. If the statistical significance in this relation is confirmed, the association will be studied with the help of correspondence analysis (ANACOR).

To verify the relation between the article's characteristics (journal of publication, year of publication and language of the article) and the citations received per citation vehicle (type of source where it was cited), the hypotheses displayed in Table 2 were formulated:

Table 2
Study hypotheses

Hypotheses	Description
Hypothesis 1	An association exists between Journal and Citations received per citation vehicle
Hypothesis 2	An association exists between Year of publication and Citations received per citation vehicle
Hypothesis 3	An association exists between Language of the article and Citations received per citation vehicle
Hypothesis 4	An association exists between Language of the article and Country of the citation

As regards the journals and respective articles, the literature indicates that the concentration of citations in the first years after the publication (Bianco, 2004; Amin & Mabe, 2007) is related with the larger volume of citations of texts in the language of the country in research from developing countries like Brazil, evidencing insularity, that is, a larger volume of citations only by peers from the same country (Ladle, Todd & Malhado, 2012).

To test the hypotheses, contingency tables (cross-references) were elaborated, applying the Chi-square test. The expectation with the hypotheses raised is that there exists a difference between the expected and observed values in the relations between each characteristic and the citations received and, hence, that H_0 will be denied.

3.3 Data collection procedures

To initially register the observations, an electronic worksheet was used. The variables related to the articles published were: journal, year of publication, issue number, volume, article number (order in the journal's table of contents), language and title of the article.

The variables related to the citations were: citation vehicle, year of citation, language, country, electronic address of the text containing the citation and access date.

The articles were selected that were published in all issues of the four journals mentioned within the two most recent three-yearly assessment of the Qualis/CAPES system (2006-2008 and 2009-2011). The article data were registered based on the journal websites, analyzing each issue published within the selected time period.

The observations consider the citations received by 577 articles, distributed in 78 issues, which represent all issues published of the sample journals during the period under analysis, which were available for electronic analysis during the data collection phase, between May and June 2012.

The citations were registered by accessing the search mechanism called Google Scholar (http://scholar.google.com.br), using the exact expression (between inverted commas) of the article title as a filter criterion. Google Scholar was chosen because it is a search mechanism free of charge to access academic texts and an index of academic citations, which is relatively new in research productivity studies (Lee *et al.*, 2012). Besides the texts linked with the citations the mechanism produced, the other sources that came up in the search were observed whose content, although not displayed as citations, fit into the categories registered. It was verified if the article figured in the reference list included in the text through the content analysis technique.

Nominal qualitative variables were considered, as categorized in Table 3:

Table 3
Classification categories of the research findings

Journal	Language of the citation	Country of the citation	Media of the citation
• Contabilidade Vista & Revista (CVista) • Revista Contabilidade & Finanças (RC&F) • Revista de Contabilidade e Organizações (RCO) • Revista Universo Contábil (Universo)	• Protuguese • English • Spanish • Other	• Brazil • Another Country	• Annals • Article on the web • Dissertation • Monograph • Journal • Research Project • Thesis

To analyze the relation between the journal characteristics and the respective citations received, the Chi-square test was used, based on contingency tables. To identify the main relation in the study (journals versus citations), Correspondence Analysis (ANACOR) was used. SPSS© 20 was used for data analysis.

One research limitation is the use of a Web search engine to collect the data, whose access limitations may reduce the amount of citations the articles actually received. One example is that the content of the Digital Library of Dissertations and Theses of the University of São Paulo, the institution with the eldest GP active in accounting and the largest number of *stricto sensu* Programs active in Brazil, was not recognized in the searches.

4. Results and Discussion

In total, 1,655 observations were registered, 283 of which related to articles that were not cited and 1,372 to citations classified in the abovementioned categories. The tables and graphs presented next derive from the research data.

4.1 Descriptive analysis of the data

Table 4 presents the distribution of the observations according to the situation of the articles and the citations per year and citation vehicle.

Table 4

Frequencies of the articles (cited or not cited) per year and of citations per year and citation vehicle (2013)

Year	Articles					Citations							
	Cited	%	Not cited	%	Total	Annals	Article on web	Thesis	Monogr.	Journal	Research Proj.	Diss.	Total
2006	49	62.82	29	37.18	78	106	8	59	24	152	1	5	355
2007	64	71.91	25	28.09	89	124	8	70	42	222	1	5	472
2008	78	69.64	34	30.36	112	94	8	48	29	133	0	0	312
2009	59	55.66	47	44.34	106	44	9	34	12	67	0	3	169
2010	36	36.73	62	63.27	98	18	3	9	5	19	0	1	55
2011	8	8.51	86	91.49	94	3	0	0	2	4	0	0	9
Total	**294**	**50.95**	**283**	**49.05**	**577**	**389**	**36**	**220**	**114**	**597**	**2**	**14**	**1,372**

The summarized absolute and relative frequencies and the mean number of citations per article per year are displayed in Table 5.

Table 5

Absolute (Fi) and relative frequencies of the number of articles, number of citations and mean number of citations per article in each year (2013)

Description	2006		2007		2008		2009		2010		2011		Total
	Fi	%	Fi	%	Fi	%	Fi	%	Fi	%	Fi	%	
Number of articles	78	13.52	89	15.42	112	19.41	106	18.37	98	16.98	94	16.29	577
Number of citations	355	25.87	472	34.40	312	22.74	169	12.32	55	4.01	9	0.66	1,372
Mean citations per year	**4.55**		**5.30**		**2.79**		**1.59**		**0.56**		**0.10**		**2.38**

Based on the data displayed in Tables 4 and 5, it can be observed that the articles published in 2007 gained the largest absolute volume of citations, with 472, and that the mean number of citations per article in that year was the highest across the analysis period, with 5.30 citations. Although a larger volume of citations was expected for the oldest articles, those published in the first year did not receive more citations. The smaller number of citations for the more recent articles can be attributed to the maturity factor, that is, the articles were not read as much as the older ones year, and are therefore less cited, in accordance with Amin and Mabe (2007).

As regards the citations per vehicle, the majority was cited in journals, followed by congress annals. This is in accordance with what the literature describes as official knowledge dissemination channels: events as spaces for discussion and journals as definitive publication means. The 283 articles that were not cited are equivalent to 49.05% of all articles published, highlighting 2011 with a mean number of only 0.1 citation per article. RCO started in 2007, which explains the smaller total number of articles in 2006.

Another important data is that about 30% of the articles published more than three years earlier were not cited, reaching 37.08% in 2006. These studies produced no resonance, that is, although published in journals that currently figure in the top ranks of Qualis/CAPES, they did not arouse the academic community's interest in their use to support other studies. Particularly the studies published in 2006 already reached the cited half-life, as mentioned by Amim and Mabe (2007), without any citation.

Table 6 presents details on the observations according to journal, year and vehicle in which the article was cited:

Table 6

Frequencies of articles (cited or not) per journal and of citations per journal and citation vehicle (2013)

Journal	Articles					Citations							
	Cited	%	Not cited	%	Total	Annals	Article on web	Thesis	Monogr.	Journal	Research Proj.	Diss.	Total
CVista	65	46.76	74	53.24	139	55	5	19	21	78	1	2	181
RC&F	109	75.69	35	24.31	144	267	24	153	59	397	1	9	910
RCO	42	39.62	64	60.38	106	19	0	13	8	38	0	0	78
Universo	78	41.49	110	58.51	188	48	7	35	26	84	0	3	203
Total	**294**	**50.95**	**283**	**49.05**	**577**	**389**	**36**	**220**	**114**	**597**	**2**	**14**	**1,372**

The summarized absolute and relative frequencies and the mean number of citations per article per journal are displayed in Table 7.

Table 7

Absolute and relative frequencies of number of articles, number of citations and mean citations per article in each journal (2013)

Description	CVista		RC&F		RCO		Universo		Total
	Fi	%	Fi	%	Fi	%	Fi	%	
Number of articles	139	24.09	144	24.96	106	18.37	188	32.58	577
Number of citations	181	13.19	910	66.33	78	5.69	203	14.80	1,372
Mean citations per article	**1.30**		**6.32**		**0.74**		**1.08**		**2.38**

The findings displayed in Tables 6 and 7 reveal that the articles published by RC&F and cited in journals appeared most frequently. The RC&F articles received 66.33% of all citations collected. Next comes UNIVERSO with 14.80%, CVISTA with 13.19% and, finally, RCO with 5.69%. Although RCO revealed the smallest percentage share of citations received, the journals with the largest percentages of non-cited articles are CVISTA and UNIVERSO, with percentages superior to 50%. It is highlighted, however, that these volumes are influenced by the amount of articles published more recently, which fall into the Immediacy Index window and, therefore, tend to be less cited as they are still maturing.

The separate data about the citations per articles showed that two articles from RC&F, published in issue 40 and Special Issue 2006, obtained the largest individual number of citations, with 51 hits. In CVISTA, the most cited article was published in 2007 in vol. 1, No. 18, and received 14 citations. One article published in RCO vol. 2, No. 2, published in 2008, gained eight citations and was the most cited article from that journal. In UNIVERSO, one article, published in 2006 in vol. 1, No. 2, obtained 16 citations.

The data confirm RC&F as the journal with the largest citation volume, with a mean number of 6.32 per article, representing more than twice the general average.

4.2 Hypothesis tests and correspondence analysis

Table 8 presents the Chi-square tests of the relation between the variables that outline the study hypotheses:

Table 8

Summary of Chi-square tests of study hypotheses

Hypothesis	Relation	Case Summary		χ^2 test		
		Valid Cases	%	Value	GL	Sig.
Hypothesis 1	Journal vs. Citation vehicle	1,655	100.00	316.767[a]	21	.000
Hypothesis 2	Year of publication vs. Citation vehicle	1,655	100.00	583.229[a]	35	.000
Hypothesis 3	Language of article vs. Citation vehicle	1,655	100.00	107.664[a]	14	.000
Hypothesis 4	Language of article vs. Country of citation	1,655	100.00	172.131[a]	4	.000

As perceived in Table 8, the test results were significant in the relations under analysis, with probability rates inferior to α set at 5% – rejection of the null hypothesis. The relation between journal and citation vehicle, focused on in this study, showed statistical significance and justifies the application of ANACOR.

The characteristics Year of publication and Language of the article are related to the number of citations gained, as demonstrated by the test results of Hypotheses 2 and 3. This means that they suggest that a relation of dependence exists between the categories and the citations per citation vehicle, as the values observed are statistically significant when compared to the expected values.

The Language of the article is associated with the country of the citation and is in accordance with the observations by Ladle, Todd & Malhado (2012) about the prevalence of citations in texts in the native language, that is, texts in Portuguese are more cited by Brazilians.

Based on the correspondence analysis, the association between the journal and the citation vehicle was investigated. The results are displayed in Table 9:

Table 9

Summary of correspondence analysis of the relation Journal vs. citations (2013).

Dimension	Singular Values	Inertia	Chi Square	Sig.	Inertia proportion		Confidence of Singular Values	
					Counted by	Cumulative	Standard deviation	Correlation 2
1	.430	.185			.966	.966	.021	-.007
2	.063	.004			.021	.986	.024	
3	.051	.003			.014	1.000		
Total		.191	316.767	.000[a]	1.000	1.000		

a. 21 graus de liberdade

The Chi-square test confirmed the association between the variables Journal and Citation vehicle, which contain the citation volume received. Dimension 1 explains 96.6% of the total inertia, while Dimension 2 explains only 2.1%. This result suggests that Dimension 1 is more important to explain the data's behavior. It is highlighted that Dimension 3, in view of its marginal contribution, with only 1.4% of the total inertia, was not considered.

The line scores in the ANACOR revealed that RC&F was the journal that most contributed to the formation of inertia in Dimension 1, with 40.7%, followed by RCO with 25.5%. In Dimension 2, in turn, CVISTA contributed with 71.9% to the formation of inertia. The data demonstrated that RC&F was the journal that most contributed to explain the data's behavior, and exerts the strongest influence on the formation of the main dimension. The analysis of the dimensions in the row and column points are demonstrated next:

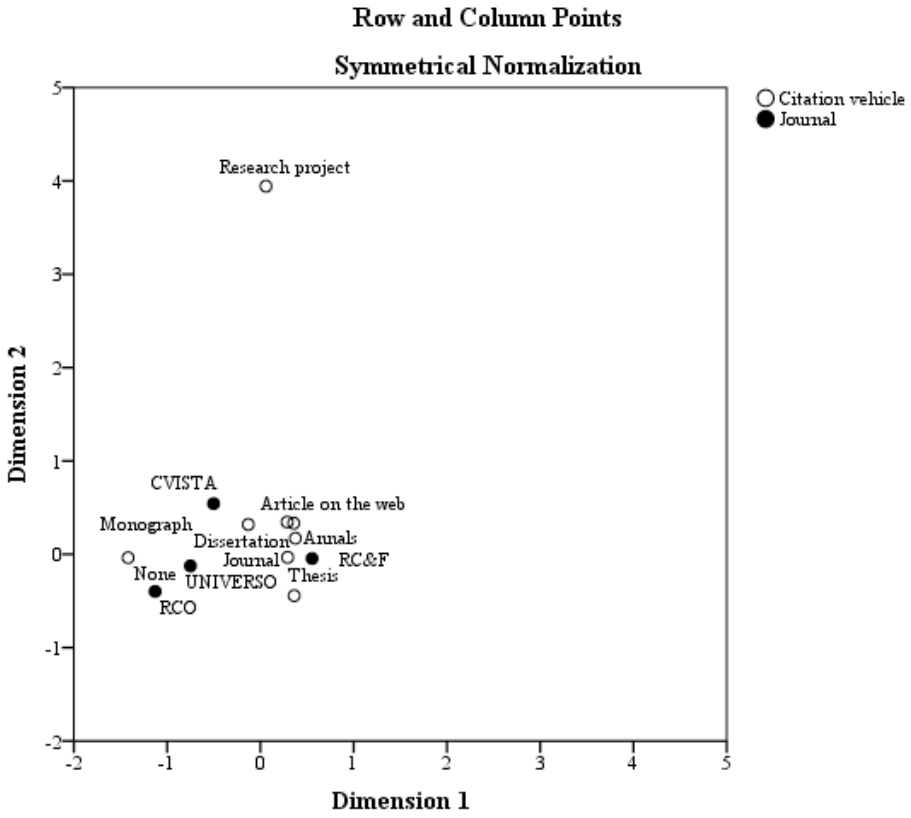

Figure 2. Line points per Journal and Column points per Citation vehicle (2012).

Figure 2, which represents the column and line points, reveals that RC&F stands out in Dimension 1, which best explains the data's behavior. The other journals are concentrated in Dimension 2, with a more reduced explanatory power. Most of the citation vehicles are concentrated around RC&F. Only Research project figured in Dimension 2, without a direct association with the journals. The category None, which represents the articles without citations, is more associated with the journals RCO and UNIVERSO.

In the ANACOR, the residue analysis reveals the association between each pair of variables. According to Fávero, Belfione, Silva & Chan (2009, p. 279), the negative values of the standardized residues "[...] indicate less association (similarity)." between the pairs. In the case under analysis, the symmetric standardization was used, applied to situations in which "[...] there is an interest in examining the differences or similarities between the two variables simultaneously" (Fávero, Belfione, Silva & Chan, 2009, p. 289). The residues are displayed in Table 10, as follows:

Table 10

Standardized residues of the relation Journal vs. Citation vehicle (2013)

Journal	Citation vehicle							
	None	Annals	Article on web	Thesis	Monograph	Journal	Research Project	Dissert.
CVista	4.6	-.6	-.2	-2.6	.8	-1.5	1.2	-.1
RC&F	-10.0	3.0	.8	2.4	-.8	3.0	-.1	.4
RCO	8.1	-2.5	-1.8	-1.4	-.6	-1.8	-.4	-1.1
Universo	7.7	-3.0	.1	-1.0	1.0	-2.7	-.6	.2

Based on the analysis of the standardized residues of the relation Journal vs. Citation vehicle, present in Table 10, it can be observed that the positive values indicate:

- RCO, followed by UNIVERSO and CVISTA, were the journals that were most association with non-cited articles. The negative value of RC&F shows less association between this journal and non-cited articles.
- CVISTA was more associated with the vehicle Research project, although it also stood out in the vehicle Monograph (which includes Course Conclusion Papers – CCP)
- RC&F was most associated with the vehicles: Annals, Articles on the web, Theses and Journals.
- UNIVERSO was most associated with the vehicle Monograph, and also showed a positive relation with the vehicles Article on the web and Dissertation.

This analysis of the standardized residues ratifies the association between the Journal and the citation, as represented by the variable Citation vehicle.

4.3 Impact factor of the journals analyzed

Based on the calculation model proposed by Amin and Mabe (2007), the impact factors of the journals under analysis were calculated for the period from 2008 till 2011. The calculation details, in view of the JCR model, are presented in Tables 11 and 12:

Table 11

Impact factors of the journals analyzed for 2008 and 2009 (2013)

Journal	2008					2009				
	Articles published			Citations received in 2008	Impact factor	Articles published			Citations received in 2009	Impact factor
	2006	2007	Total			2007	2008	Total		
CVista	25	24	49	7	0.143	24	24	48	9	0.188
RC&F	32	34	66	84	1.273	34	26	60	84	1.400
RCO	0	8	8	1	0.125	8	26	34	2	0.059
Universo	21	23	44	9	0.205	23	36	59	14	0.237
Total	**78**	**89**	**167**	**101**	**0.605**	**89**	**112**	**201**	**109**	**0.542**

Table 12

Impact factors of the journals analyzed for 2010 and 2011 (2013)

Journal	2010					2011				
	Articles published			Citations received in 2010	Impact factor	Articles published			Citations received in 2011	Impact factor
	2008	2009	Total			2009	2010	Total		
CVista	24	24	48	20	0.417	24	24	48	32	0.667
RC&F	26	22	48	106	2.208	22	14	36	31	0.861
RCO	26	24	50	19	0.380	24	24	48	22	0.458
Universo	36	36	72	29	0.403	36	36	72	33	0.458
Total	**112**	**106**	**218**	**174**	**0.798**	**106**	**98**	**204**	**118**	**0.578**

The impact factors were calculated based on the number of articles published and the number of citations identified through Google Scholar. For the sake of better comparison, Figure 3 represents the factors year by year, as well as the journal's mean factor.

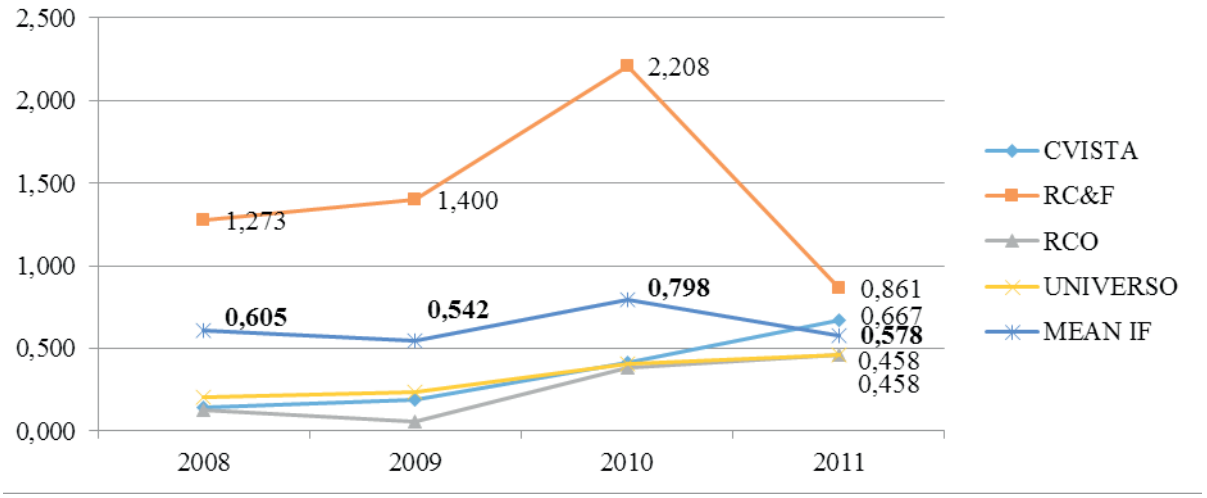

Figure 3. Impact factors of journals analyzed (2008 till 2011).

RC&F displayed the highest impact factor, which nevertheless dropped in the last year. The IF of the journals RCO and UNIVERSO in 2011 were identical; although the latter gained more citations in absolute figures, it also showed more articles published per issue.

The mean behavior of the IF in the first three years was more than twice as high as the IF of CVISTA, RCO and UNIVERSO. In the same period, the factor of RC&F was significantly higher than the others, with a considerable drop between 2010 and 2011, from 2.208 till 0.861, although it remains the journal with the highest IF in 2011.

The results confirm the intensity of the resonance of Brazilian scientific production in accounting. Although still inferior, the impact factors of the other three journals have increased across the analysis period, further approximating that of the journal with the highest factor in 2011.

5. Conclusions

Studies about the resonance of scientific research can serve to alert the academic accounting community in Brazil, due to the potential possibility to provide support in order to inform, through indicators, possible successes and errors by researchers. These can take form in the selection of themes, the theoretical support chosen, the methodological course and the reflections produced.

In that sense, this study identified the four Brazilian accounting journals published by the *stricto sensu* Graduate Programs or by the institutions that offer them, ranked highest in Qualis/CAPES. The citations were surveyed for the 577 articles published in the 78 issues of these journals over a six-year period. Among the 1,655 observations, 283 related to articles that were not cited.

The findings revealed that the journal of publication, year of publication, language of the article and country of the citation were statistically significant characteristics when crossed with the citations received. This statistical significance confirms that the observed frequencies differ from the expectations, that is, statistically speaking, a relation of dependence exists between the number of citations received and

the characteristics of the journal/article. A similar situation was found between the language of the article and the country where the text with the citation was published. In addition, about half of the articles published were not cited, which demonstrates the absence of relevance in part of the articles published.

The correspondence analysis aimed to observe the resonance of the production published in the journals, given by the relation between the journals and the citations received by the studies published. This relation was also significant and the ANACOR results demonstrate that RC&F was the most cited journal and the weightiest in Dimension 1, which best explains the data variability. The standardized residues demonstrate that some citation vehicles are prevalent, depending on the journal cited.

Based on the findings, it can be concluded that the resonance of the scientific production analyzed can be considered low, with a mean 2.38 citations per article during the study period, a large number of non-cited articles and a concentration of citations in one journal. The variability of the data is related to the characteristics of the articles/journals. The highest impact factor, calculated based on the findings, was for RC&F, with 2.208 in 2010 – the journal that most contributed to Dimension 1 and played a preponderant role when compared to the journals studied. The IF of RCO (0.458) and UNIVERSO (0.458) were the lowest and, hence, have a less intense influence on the scientific production. CVISTA, with 0.667, showed a slightly higher impact factor, reducing the distance from RC&F.

These data answer the research question and achieve the study objectives. They are also in accordance with the findings presented by Garfield (1972) about a concentration of citations in certain journals and, consequently, in the articles they published.

The interest of the academic community in the Brazilian scientific accounting production can be strengthened by the analysis of the core themes discussed. Reflections are due on the possible economic and social consequences of scientific Accounting production. In that sense, the resonance indicates the utility and the resulting answers and/or new inquiries evidence its transformative and communicative abilities. The scientific production tends to be uninteresting and incoherent with the contemporary context if the discussion presented does not consider the social relevance, that is, it turns into a void monologue.

Researchers are responsible for reconsidering the questions that guide their production, so as to consider the relevance of what is to be produced. Are the studies innovative and current? Are practical situations discussed that can contribute to reflections on and criticism against the accounting practices? Can theoretical elements be found that encourage new research questions or provide possible answers to the contemporary social demands? Or, what is more, are the Brazilian accounting journals publishing studies which their users consider useful and relevant?

In this research, the impact factor, an internationally acknowledged assessment measure, was used to analyze the Brazilian journals affiliated with graduate accounting programs. Although relevant in the Brazilian context, no analysis of these journals was identified based on the model proposed by Garfield (1972).

In fact, despite the limitations of and criticism against the impact factor, it should be highlighted that it is but one of the significant external elements that are to be discussed with regard to scientific production. Differently from the earlier studies mentioned here, studies about scientific publications in Brazilian accounting have not focused on the resonance. The researchers consider that it presents a perception of the effects this production has caused when it is shared and known in the scientific community.

Further studies can be undertaken to broaden the perception about the resonance of the publications classified in other ranks of Qualis/CAPES, with a view to discovering another view on the profile of Brazilian scientific accounting production in as disseminated in its academic journals.

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