

FIRM PERFORMANCE: how has it been measured in marketing and finance research?

PERFORMANCE DA FIRMA: como está sendo mensurada nas pesquisas em marketing e finanças?

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ABSTRACT

We conducted a survey on how firm performance has been measured by analyzing 128 papers published from 2006 to 2019 in some of the most cited journals of Marketing and Finance. Results show the existence of 80 different metrics of firm performance. This list of metrics evidences how the assessment of this construct is not a consensus. Marketing researchers have frequently used both subjective and objective metrics. Finance researchers most of the times adopt only objective metrics. Additionally, there is a lack of research exploring the theoretical aspect of firm performance and discussing how this multidimensional construct should be measured. It is also noteworthy how Marketing can improve its work on firm performance through an interface with Finance.

Keywords: Firm Performance. Metrics, Marketing and Finance. Interface. Review, Subjective Metric. Objective Metric.

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RESUMO

Conduzimos uma survey sobre como performance da empresa é mensurada, ao analisar 128 artigos publicados de 2006 até 2019 em alguns dos mais citados Journals de Marketing e Finanças. Os resultados mostram a existência de 80 métricas diferentes de performance da empresa. Essa lista de métricas evidencia como a avaliação do constructo não é um consenso. Pesquisadores de marketing usam frequentemente medidas tanto objetivas quanto subjetivas. Pesquisadores em finanças na maioria das vezes adotam apenas medidas objetivas. Adicionalmente, existe uma falta de pesquisas explorando os aspectos teóricos de performance da empresa e discutindo como esse constructo multidimensional deve ser mensurado. Nota-se como o marketing pode melhorar seu trabalho na mensuração de performance da empresa através de uma interface com finanças.

Palavras-chave: Desempenho da Empresa. Métricas, Interface de Marketing e Finanças. Revisão. Métrica Subjetiva. Métrica Objetiva.

1 INTRODUCTION

The Marketing department has lost power and space in companies' top management (HOMBURG et al., 2015; RUST et al., 2004; SRIVASTAVA, SHERVANI, and FAHEY, 1998). Corporate boards need support to their decision making. A long time, the lack of explanations, objective indicators on Marketing performance and financial reporting, has undermined the credibility and threatened the existence of Marketing as a distinct capability within companies (SHETH and SISODIA, 1995; DOYLE, 2000; RUST et al., 2004; MIZIK and JACOBSON, 2008).

For a Marketing executive to ensure its participation in important business decisions, he needs to develop the capacity to associate Marketing activities to financial performance (LEHMANN, 2004). Traditionally, Marketing strategies have been focused on the market performance of the product, so the success of Marketing actions has been assessed by market outcomes, such as sales and market share (LEHMAN, 2004; GRUCA and REGO, 2005). However, much of the value creation arising from Marketing comes from market-based assets: intangible assets that are difficult to measure, such as brand equity and customer equity (SRIVASTAVA, SHIRVANI, and FAHEY, 1998). Even though the area faces difficulties in demonstrating its results, it is recognized that a higher influence of the Marketing department has a positive impact on the relationship with customers and on firm financial performance (HOMBURG et al. 2015)

For that reason, Marketing accountability presents itself as a central concern in academia and business, especially in those industries where spending in this area are significant (SHETH and SISODIA, 1995; MORGAN, CLARK, and GOONER, 2002). In this context, the Marketing Science Institute (MSI) has identified Marketing performance measurement and the impact of its actions on firm performance as a top research priority (MORGAN, CLARK, and GOONER, 2002). In the 2008-2010 edition of the Research Priorities (MSI, 2011), one of the priorities was precisely the theme "accountability and return on investment of Marketing expenditures". The Research Priorities 2010-2012 (MSI, 2011) points out the theme "resource allocation to Marketing activities", which is concerned with "evaluating and comparing the long-run value of alternative Marketing strategies so that managers can communicate this information to others

within the firm” (MSI, 2011). For the period between 2012-2014 (MSI, 2012), MSI mentions that research is needed to better understand how Marketing capabilities influence business performance. Finally, for the 2014-2016 triennium, MSI has indicated “measuring and communicating the value of Marketing activities and investments” among the research priorities (MSI, 2014). Finally, MSI suggest “capturing information to fuel growth: what key performance indices (KPIs)/metrics should be measured and how?” as a research priority for 2018-2020 triennium. Thus, it is noteworthy the need to better understand the performance of marketing actions and to explain its impact on firm performance as it is recurrent in the biannual MSI Research Priorities publication, appearing in the most recent editions.

All these indications encourage research institutes of leading academic centers to increasingly advance the knowledge in productivity, efficiency, effectiveness, value added, Marketing metrics and its interface with firm performance. Rust et al. (2004) argue that not only marketers but also scholars are under increasing pressure to explain and show how Marketing investment impacts the company's bottom line.

However, in order to achieve the objective of linking the Marketing outcomes to firm performance, it is relevant for marketing practitioners and scholars to better understand how firm performance should be measured.

Even though the number of academic studies that attempt to demonstrate the relationship between Marketing actions and wealth generation has increased, the concept of firm performance is more consolidated in the area of Finance, since the very purpose of it, as defined by Ross, Westerfield, and Jaffe (1999), is to maximize the current value of each existing share. Thus, a Marketing interface with Finance is important to establish a relationship between the resources used to develop certain market-based assets and the company financial outcomes, aiming to justify the profitability of its activities (RUST et al., 2004).

Despite the approach between Marketing and Finance and the efforts to measure their results, there is a lack of consensus within academia about which effectively means firm performance and which are the metrics that effectively measure it (RICHARD et al. 2009). Richard et al. (2009) sustain there are few studies that use consistent definitions and measures of this concept. Such a fact occurs because firm performance is regarded as a common concept, leading the vast majority of authors not to justify or explain the metrics used in their research (RICHARD et al., 2009).

The analysis on how different variables act on overall firm performance has been subject of study over the years. Some scholars have analyzed both theoretically and empirically how several actions impact on firm performance (e.g. SHARMA, SABOO, and KUMAR, 2018). However, it is worth noting that firm performance is not a simple construct and there is no consensus about operationalization between researchers (COMBS, CROOK, and SHOOK, 2005; BRITO, BRITO, and MORGANTI, 2009). Thus, the definition of organizational performance is still an open question (RICHARD et al., 2009; HAMANN et al., 2013).

A great number of metrics used to measure firm performance can be identified in the literature. They are related to customers, product market, accounting and financial market (KATSIKEAS et al., 2016). The decision about which metric to choose depends on several factors related to the firm, so there is no single metric which could be the single solution to every company (KNOWLES and AMBLER, 2009). In the area of Marketing, for instance, Morgan, Feng, and Whitler (2018) present a survey about marketing capabilities in international markets. The authors identified the use of a great number of firm performance metrics, without finding a

consensual metric. Furthermore, for Micheli and Manzoni (2010), several areas of study within the management field debate about how to measure firm performance. However, the lack of studies across such areas result in a fragmentation of the field, as well as a polarization among the supporters of specific methods to access the construct (MICHELI and MANZONI, 2010).

Therefore, this study aims to verify the main firm performance measures used in Marketing and Finance, to categorize them and to analyze how they are calculated carrying out a desk research in articles of leading journals of these two areas. This work also aims to compare the metrics used by researchers in these areas in order to identify ways to enhance marketing practice related to its capacity to measure firm performance. The present study extends the findings of Katsikeas et al. (2016) in that it compares the metrics used in Marketing and Finance research to measure firm performance. In addition, all of them are categorized and we show how each of them may be calculated.

To achieve the purpose of this article, first we carried out a literature review presented in section 2, where issues are addressed on the interface between Marketing and Finance, on firm performance and on firm performance measures. In Section 3, the research method is exposed. The results are highlighted and discussed in section 4 and in section 5 a final discussion is held. Finally, we present the limitations of this study and suggestions for future research.

2 THEORETICAL REVIEW

2.1 MARKETING AND FINANCE INTERFACE

Marketing researchers have sought inspiration in Psychology and Sociology, often forgetting their roots and ignoring the possible economic benefits of closer ties with Finance and with the common origin of both (ZINKHAN and VERBUGGE, 2000). The interest in the interface between Marketing and Finance areas emerged in the late 1980s and early 1990s - especially in Day and Fahey's articles and their colleagues', but their true origins go back to the work of Mathur and his co-authors in 1970 (HYMAN and MATHUR, 2005). "In recent years, marketing scholars have paid increasing attention to the impact of marketing actions/metrics on firm's stock price" (GAO et al., 2015, p. 83).

According to Hyman and Mathur (2005), the reasons for that decade of indifference towards Marketing and Finance interface, between 1970 and 1980, are related to (1) the difference in focus and level of data aggregation, because Marketing researchers use data on consumers and products, while Finance researchers use companies' data; (2) the difference in the type of data used, since Marketing is based on primary and secondary data, whereas Finance uses market and financial statements data; and finally (3) the goals of the disciplines during the period, as Marketing, during this period, tried to determine its scope and acquire a scientific status, while Finance scholars focused their research in the Finance topics related to maximizing shareholder wealth.

On the other hand, Ruyter and Wetzels (2000) show that within organizations the differences between the areas are often related to interpretive differences about events, that is, marketers and financiers have different ways of seeing the world, adopting different solutions to the same problems. As a consequence of these different world views, Zinkhan and Verbrugge (2000) point out that professionals and researchers from the two disciplines often suggest different solutions for the same problem to top management of companies. Moreover, these two areas tend to make decisions focused on different stakeholders: the Marketing department tends to

consider mainly the customers, suppliers and competitors in its decisions, the Finance department, in turn, is more focused on shareholders and institutions that provide capital to the company (ZINKHAN and VERBRUGGE, 2000). Zinkhan and Verbrugge (2000) believe that to establish the interface between the two areas, marketers are starting to pay attention to various financial metrics such as firm value and shareholder value.

As increased shareholder value should be the ultimate goal of companies' activity, Marketing managers and scholars are under pressure to measure and communicate the value created by their marketing actions to top management and shareholders (GRØNHOLDT and MARTENSEN, 2006; LIANG and GAO, 2020; RUST et al., 2004; SRINIVASAN et al., 2009). In this context, marketing area faces the challenge of documenting how marketing strategies and activities contribute to the company's financial performance (AMBLER 2003; GRØNHOLDT and MARTENSEN, 2006; RUST et al. 2004), as well as define relevant and clear marketing metrics (GRØNHOLDT and MARTENSEN, 2006; STEWART, 2008).

In order to identify relevant marketing performance measures, Grønholdt and Martensen (2006) proposed a Marketing Value Chain, based on seminal works of Srivastava et al. (1998), Srivastava and Reibstein (2004) and Rust et al. (2004), and used it as the conceptual framework for linking marketing area with shareholder value and categorizing the performance measures: Marketing actions → Mental consumer results → Behavioral customer results → Market results → Financial Results. Hence, there are theoretical and empirical evidence that marketing capabilities are important drivers of firm performance (e.g. KRASNIKOV and JAYACHANDRAN, 2008; VORHIES, ORR, and BUSH, 2006; MORGAN, 2012, SHARMA, SABOO, and KUMAR, 2018), and even major journals such as Journal of Business Research and Journal of Academy of Marketing Science have published special issues on the subject.

Yet, we note little theoretical deepening in firm performance measure (e.g. KATSIKEAS et al., 2016; BAYER et al., 2020). Therefore, it is relevant to Marketing, especially concerning firm performance measurement, to approach Finance to advance the understanding about how such construct should be measured. However, few marketing studies explore metrics with a broader view, analyzing marketing and financial uses of firm performance metrics, observing objective and subjective measures.

Research on the marketing-finance interface can build more powerful theories of marketing-based assets in terms of the value relevance of marketing both before and after IPO's (LUO, 2008, p. 99). Marketing and finance approach a practice of business in different ways, however these viewpoints are complementary and considering both is relevant to reach more robust performance evaluations (HYMAN and MATHUR, 2005).

2.2 FIRM PERFORMANCE

There is a growing gap between academic research and what is needed by Marketing managers, what may lead to a potential loss of influence for scholars, according to Reibstein, Day, and Wind (2009). The authors state that some areas of extreme relevance to Marketing have been filled by others disciplines. Thus, Marketing researchers point out the need for future research to analyze the role and impact of marketing activities on firm performance (Moorman and Day, 2016).

Performance measurement is useful for managers' decision making (SAINAGHI, PHILLIPS, and ZAVARRONE, 2017). Some authors argue that performance metrics have not an end on

itself, but they play an important role in the learning process which will support the definition of strategic directions for the firm (MORGAN, 2012; SAINAGHI, PHILLIPS, and ZAVARRONE, 2017). The organizational performance is a recurring subject in Finance and one of the most important concepts in business strategy (COMBS, CROOK, and SHOOK, 2004; VENKATRAMAN and RAMAJUNAM, 1986; RICHARD et al., 2009). In the area of Marketing, a growing number of empirical studies seek to associate the firm's assets with its performance (ANGULO and RIALP, 2007). Measurement is essential to allow researchers, market analysts and managers to assess specific actions of the organization, and understand how firms develop and perform over time (RICHARD et al. 2009).

Hence, performance indicators are used in most studies as dependent variables in order to analyze how certain events or phenomena impact on organizations. Financial measures such as liquidity ratio, activity ratios (e.g. inventory turns), debt ratios, profitability ratios (e.g. return on assets and return on equity) and market related ratios (e.g. market-to-book ratio) are used convenient tools to analyze the performance of the firm in a given period (SMART, MEGGINSON and GITMAN, 2004). Likewise, Hamann, et al. (2013) have proposed four dimensions of financial metrics for firm performance measurement: liquidity measures, profitability measures, growth measures, and stock return measures. Conversely, other researchers have also measured firm performance by asking the perceptual evaluation of executives about firm performance through scale items (KABADAYI, EYUBOGLU and THOMAS, 2007; CHAKRAVARTY, KUMAR and GREWAL, 2014).

As aforementioned, these indicators are used not only in general strategic management studies, but in specific business areas to investigate how the actions of Marketing, Innovation, Finance, Corporate Governance, among others, affect firm performance. This occurs because the actions of these areas also impact the organization's overall performance and, given the company's overall goal of maximizing the wealth of the owners (GITMAN and ZUTTER, 2015), there is pressure on such areas to "meet the numbers", that is, to deliver superior performance.

However, Richard et al. (2009) point out that the definition of firm performance is an old and surprisingly open question, mentioning that there are few studies that use consistent definitions and measures. "The performance is so common in management research that its structure and definition are rarely explicitly justified" (RICHARD et al., 2009, p. 719). Despite its long existence, nowadays the construct remains extremely up-to-date, requiring increasingly attention by managers. Even though several reviews on the subject were published in the 80s (e.g. VENKATRAMAN and RAMANUJAM, 1986), in the last 30 years there has been a growing number of the studies on the topic. This was due to the emergence of broader metrics and to empirical and methodological development, but they were not yet fully integrated (RICHARD et al., 2009). Besides the lack of integration, it is also noted that there is still a limited amount of published studies (compared to the relevance of the topic) that seek to enhance and develop the construct per se. That is, despite the improvement in research and analysis, there are problems in measuring this construct (GLICK, WASHBURN, and MULLER, 2005), which limits theoretical advances.

In the literature of organizational performance, there are different classifications and dimensions of the firm performance concept. Combs, Crook, and Shook (2005), for example, analyzed studies from the strategic management area and identified different dimensions within the financial performance construct. For Brito, Brito, and Morganti (2009), measures of profitability such as return on assets or investments constitute the first and most explored dimension. Growth measures constitute the second and the notion of market value constitutes

the third dimension of financial performance. In turn, in Marketing, firm performance may be analyzed from two points of view. The first is performance based on accounting issues, which combines operational results, such as income, profit and cash flow. The second approach is performance based on the capital market, and it is related to stock returns, market value and Tobin's Q, among other indicators (ANGULO and RIALP, 2007).

In this context, one can say that there are also discussions about the characteristics and boundaries of the firm performance construct. The representation of it only by financial aspects is the most used in traditional performance evaluation (PACE, BASSO, and SILVA, 2003). However, non-financial measures have been recommended by indicating important aspects of the competitive environment (PACE, BASSO, and SILVA, 2003). Thus, Marketing researchers and practitioners have also developed non-financial Marketing metrics.

Nevertheless, many researchers measure performance through a single metric, although it is more likely to be a multidimensional concept (GLICK, WASHBURN, and MULLER, 2005). Using, however, a unique and exclusive definition of firm performance is not an easy task, if not risky. Therefore, regardless of the context and the indicators used, the inability to understand and characterize performance consistently reduces the effect and relevance of the research, because it can produce different results depending on the metric used (RICHARD et al., 2009).

3 METHOD

To achieve the research objective, a desk research was carried out. Through this method we sought to examine how the major international journals and the leading researchers in the areas of Marketing and Finance approach and measure firm performance.

Much of the previous studies related to firm performance (e.g. COMBS, CROOK, and SHOOK, 2004; RICHARD et al., 2009) revise exclusively journals of Management. However, as previously stated, it is understood that different areas of the organization are under pressure to demonstrate the impact of their actions on the whole firm performance. This fact, along with the need for a Marketing and Finance interface, are the motivations to check the publications linked specifically to these areas.

We observed publications in the period from 2006 to 2019, seeking a broad understanding of what the literature presents on the subject. The citation index of the Web of Science database was used as the criteria to choose the researched journals. In this context, in 2009 we selected the first three journals of each area (Marketing and Finance/Accounting) with the highest 5-year impact factor. Thus, we selected the following academic journals: Journal of Marketing (JM), Journal of Retailing (JR), Marketing Science (MS), Journal of Finance (JF), Journal of Financial Economics (JFE), and Journal of Accounting and Economics (JfE).

At every search, the following procedure was used. First, we searched for articles that addressed specifically the subject "firm performance". Then the titles and abstracts of the articles were read in order to confirm whether the studies really addressed firm performance. The selected papers were read carefully and kept in the sample only those papers which included the measurement of firm performance. The journals studied, their 5-year impact factors in 2009, when the research project started, and their 5-year impact factors in 2018, the most recent result published in the Web of Science platform, are described in Table 1. From 2009 to 2018, five journals (Journal of Marketing, Journal of Retailing, Journal of Finance, Journal of Financial

Economics, and Journal of Accounting e Economics) have had their 5-year impact factors increased, whereas one journal (Marketing Science) has had its 5-year impact factor slightly decreased.

Table 1 - Selected Journals

Journals	5-year impact factor in 2009	5-year impact factor in 2018	Area
<i>Journal of Marketing</i>	7.092	8.829	Marketing
<i>Journal of Retailing</i>	4.978	6.254	Marketing
<i>Marketing Science</i>	3.868	3.598	Marketing
<i>Journal of Finance</i>	5.863	9.772	Finance and Accounting
<i>Journal of Financial Economics</i>	5.203	7.976	Finance and Accounting
<i>Journal of Accounting e Economics</i>	4.405	7.058	Finance and Accounting

Source: Web of Science (2009, 2020)

After selecting the papers, their contents were read again and a number of elements related to the use of the performance indicator were analyzed. First, we verified whether the article was related to the theory of business performance or whether an empirical study was performed and whether it was using performance measures as dependent or independent variable. Analyses on the representativeness and efficiency of each metric identified were not carried out, since this is not an objective of the present study.

It was also observed whether the data used in the study came from secondary sources (public database, companies, publications), or primary source (survey, for example), or both. It was also examined whether the selected papers used a single measure or several measures of firm performance. In the case of using more than one measure, we evaluated whether they were used in separated or aggregate form (average factor, grouping, etc.). Regarding the data used, these were classified as cross-sectional, longitudinal or panel data. In addition, we identified the firm performance metrics used in each article.

After searching the selected information in each article, the identified metrics were grouped based on the classification used by Richard et al. (2009), which classifies the metrics of firm performance based on how they are calculated. Thus, measurements were divided into two major categories: objective metrics and subjective metrics. Their respective subcategories are presented and defined in Table 2 below:

Table 2 – Definitions of the metrics groups

Groups	Subgroups	Definition
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<i>Objective Measures</i>	<i>Accounting measures</i>	Metrics built up from the financial statements of companies.
	<i>Financial market measures</i>	Metrics built up from data typically used by the financial market, as the market value and stock returns of a company.
	<i>Mixed accounting/financial market measures</i>	Metrics calculated from both accounting and market indicators.
<i>Subjective Measures</i>	<i>Fully subjective measures</i>	Metrics not based on any definite object, being built from the opinions of individuals.
	<i>Quasi-objective measures</i>	Objective metrics - such as sales growth or market share - obtained from questioning a particular subject about its result.

4 RESULTS

In this section are presented the main results found in the research of the articles of the selected journals of Marketing and Finance. Among these journals, based on the criteria established in the previous section, we have selected 128 articles published from 2006 to 2019 which addressed firm performance.

Firstly, the characteristics of the data and methods employed in the analyzed articles are presented. Then, the analysis of the indicators of firm performance found in every selected article of Marketing and Finance are presented and analyzed.

4.1 AGGREGATED RESULTS

Most of the work on firm performance (96.87%) is quantitative. Although studies that use only survey (7.80%) have been analyzed, most data comes from secondary data source (89.84%). This reinforces a greater use of real and quantitative data. A third fraction of 4.69% of the articles have used both survey data and secondary data. Finally, 4.69% of the articles have used experiment and just one article has used only interviews.

In terms of type of data, most articles have used longitudinal data (78.12%) – panel data included in the percentage of longitudinal studies – and 21.87% of the articles have used cross-sectional data. It is relevant to note that 91.04% of Finance articles are based on longitudinal data, whereas 63.93% of Marketing articles are based on it, indicating a larger use of cross-sectional data in marketing research.

Regarding the type of analysis performed, all the articles conduct empirical research. This corroborates the work of Glick et al. (2005), which shows little concern to enhance theoretical and conceptual issues related to firm performance. In these articles, firm performance has been used as a dependent variable in most cases (95.31%). However, a smaller proportion of the articles has also used firm performance as an independent variable (9.37%) and in three articles it has been used as control variable.

4.2 RESULTS ON THE PERFORMANCE INDICATORS VERIFIED

Table 3 shows data on the number of measures of firm performance (individual measure or multiple measures) used in each of the analyzed publications, as well as the way in which multiple measures were used (separated or aggregated). Most of the analyzed articles (59%) have used more than one performance measure. However, when the results are analyzed by discipline, we conclude that in Finance (69%) the use of multiple metrics is more frequent. In Marketing only 49% of the articles have used multiple metrics. This characteristic of Marketing research is not consistent with the viewpoint of Glick et al. (2005), which indicates that firm performance is a multidimensional concept. It indicates that Marketing researchers should consider rethinking the way they treat firm performance measurement, because the results they may find using only one firm performance metric might fall short of robustness. Finally, concerning the cases in which multiple metrics were used to measure firm performance, most of the authors have used these metrics separately (91%).

Table 3 – Use of the metrics

	Finance				Marketing				Total
	JF	JFE	JAeE	Sub total	JM	JR	MS	Sub total	
Number of articles	19	36	12	67	46	7	8	61	128
Number of measures									
Individual measures	21%	33%	42%	31%	52%	43%	50%	51%	41%
Multiple measures	79%	67%	58%	69%	48%	57%	50%	49%	59%
Use of the multiple measures									
Used separated	87%	97%	100%	95%	91%	100%	50%	87%	91%
Used aggregated	13%	4%	0%	6%	9%	0%	50%	13%	9%

As previously mentioned, in the analyzed articles, metrics that measure firm performance (usually a dependent variable) are variables used to capture the impact on itself of other construct or several constructs (independent variables). To test these models, most authors do not present the reasons for the choice of the firm performance metrics used, they only mention the metric used without explaining why it was chosen.

Table 4 shows the amount of different metrics used in the articles selected from both the Marketing and the Finance articles. Among the 128 articles analyzed, 80 different metrics of firm performance were identified. Only 16 metrics were used in both areas (return on assets, return on sales, total sales, sales growth, annual sales per employee, cash flow, net operating cash flow, operating income, net income, return on equity, Tobin's Q, market to book ratio, stock returns, abnormal returns, market share, and overall performance). On average each article of Marketing uses 2.0 metrics while Finance, in turn, uses on average 2.5 different metrics in each article. Overall, these results demonstrate the wide range of metrics used by the studies in both areas, what reinforces the theoretical arguments about the multidimensionality of the construct of firm performance. However, it also highlights the lack of consensus about the ways of measuring firm performance, which is enhanced by the lack of theoretical discussion on the topic.

Another important finding, which will be discussed later, is the fact that the Finance articles have mostly used objective metrics. Metrics used by the Marketing authors, in contrast, are more varied, since these authors have used both objective and subjective metrics, what highlights the importance that Marketing researchers give to subjective information.

Table 4 - Quantities of different metrics used in Marketing and Finance

	Marketing	Finance	Total
Objective – Accounting measures	20	33	53
Objective – Financial market measures	9	4	13
Objective – Mixed accounting/financial market measures	3	7	10
Subjective – Fully subjective measures	6	1	6
Subjective – Quasi-objective measures	9		9
Total	47	44	91

Table 5 shows the percentages that evidence how many articles have used at least one measure in each subcategory of metrics. Most of the Finance articles (77%) have used accounting measures, while the same was observed in 60% of the Marketing articles. Thus, accounting measures were the ones mostly used by researchers from both disciplines. Among Marketing researchers, fully subjective measures and quasi-objective measures have also been used, since 9% of the analyzed articles have used fully subjective measures and 16% have used quasi-objective measures. Conversely, these metrics subcategories have not been used in any Finance study, except for one paper in the Journal of Accounting and Economics. Thus, from these findings, one can argue that these metrics, used in Marketing, do not find the same acceptance among Finance scholars, who usually develop their research based on public companies, therefore, they find consistent data available in secondary data sources.

Table 5 - Percentage of articles that used each kind of measure

	JM	MS	JR	Total of Marketing articles (%)	JF	JFE	JA&E	Total of Finance articles (%)
Number of articles	46	8	7	57	19	36	12	62
Objective – Accounting measures	61%	50%	71%	60%	79%	75%	75%	77%
Objective – Financial market measures	24%	13%	43%	25%	53%	56%	33%	55%
Objective – Mixed accounting/financial market measures	28%	13%	29%	21%	47%	39%	17%	37%

Subjective – Fully subjective measures	11%			9%			8%	
Subjective – Quasi-objective measures	16%	25%		16%				

Table 6 presents data on the metrics identified in the selected articles, classified according to Richard et al. (2009) as objective-accounting measures. This is the group that contains the largest number of different firm performance metrics, 43 in total, because they involve information traditionally used to evaluate firm performance. The most frequent metrics in this group are return on assets and its variations, found in 40% of the Finance articles and 14% of the Marketing articles. Metrics using sales (total sales and sales growth), used in 24% of the Finance articles and in 32% of the Marketing articles, come after. Most of the other metrics have been used very few times, indicating the lack of agreement in the literature about which metrics should be used to measure firm performance.

The accounting measures are widely used by both areas and therefore it is possible to make comparisons about the treatment given to firm performance metrics between those two areas. Examining Table 6, one can note that Finance researchers have performed several adjustments in accounting measures seeking to improve their validity and reliability. Thus, even for more consolidated metrics, such as return on assets, used in 26% of the 128 analyzed articles, finance researchers perform adjustments or adopt changes suggested by other authors in the area, which they consider relevant concerning how firm performance is measured. In this way, the authors have used metrics such as Operating ROA I, Operating ROA II, Lagged Operating ROA II, Industry-adjusted Operating ROA I, Industry-adjusted Operating ROA II, Cash to Asset Ratio, Industry-adjusted Cash to asset ratio. Conversely, Marketing scholars do not make the same adjustments, nor discuss the limitations of the metrics used, frequently restricting their measurements to traditional accounting metrics such as return on assets, total sales, sales growth, net income and cash flow. These findings highlight the better treatment given by the area of Finance for measuring firm performance.

Table 7 summarizes information about the objective-financial market measures that were identified. These metrics are calculated from financial market data or related to the market performance of the firm. Among these metrics, the stock returns and abnormal returns together were found in 53% of the Finance articles and in 18% of the Marketing articles. Also belong to this group metrics such as total shareholder return and market capitalization, as well as other measures related to the financial market.

As expected, given the nature of research in Finance, financial market measures were used more often in Finance studies than in marketing. This indicates that, if Marketing scholars and practitioners aim to straighten their relationship with Finance, taking financial market measures into account in order to quantify firm performance may be a recommended path to be followed. By showing the positive impact of Marketing actions in financial market measures of firm performance, marketers may improve the way they legitimate their strategies.

The objective-mixed accounting/financial market measures summarized in Table 8 refer to the metrics in which both accounting and financial market data are needed to calculate it. Tobin's Q is the main metric of this group, being found in 27% of the Finance articles and in 21% of

the Marketing articles. Other important metrics of firm performance in this subcategory are market to book ratio and book to market ratio.

These three metrics are particularly important for marketers, because they relate a company's market value to its book (or replacement) value of assets. By doing so, it is possible to compare a company's market value to the value of its tangible assets. If the amount of market value that exceeds the book (or replacement), value of tangible assets is attributed to intangible assets such as brands, business relationships, innovation, and so on. Since marketing actions contribute to these intangible assets, metrics which show that market value exceeds the book (or replacement) value of tangible assets are helpful to evidence the impact of marketing to firm performance. Not surprisingly, Tobins' Q, market to book ratio, and book to market ratio were the main mixed accounting/financial market measures used in the Marketing papers analyzed.

Subjective-fully subjective measures were found mainly in Marketing papers, specifically in those from the Journal of Marketing (see Table 9). The relationship of these metrics with Marketing is relevant because they are closely related to customers and brands, generally considered as key assets by Marketing researchers. Thus, metrics related to customer relationships and brand equity are examples of measures classified within this subcategory of metrics. They are usually measured through validated scales which are answered by managers or customers.

From Table 10, which shows the subjective-quasi-objective measures used, we observed that it is also characteristic of Marketing research to measure objective metrics of firm performance in a subjective manner. In other words, Marketing researchers often use the opinions of specific and deliberate chosen people to measure a typical objective variable. Thus, for instance, managers are asked about sales growth or profits through validated scales. Some authors in the literature of organizational performance argue in favor of the use of subjective data sources. Dess and Robinson (1984), for example, argue that managers can become annoyed when asked to provide certain current objective accounting data, so to access it subjectively becomes a viable option.

Additionally, Wall et al. (2004) claim that subjective metrics may be more appropriate to make comparisons about the performance of companies operating in different industries. The main metrics identified in those scales are sales growth, profitability, and return on investment.

Even though there are arguments supporting the use of fully subjective and quasi-objective measures, the results of the present research corroborate the importance of using objective metrics, the group of metrics most frequently used in Marketing and Finance literature about firm performance. Subjective metrics are vulnerable to several potential biases which might be involved in the survey, such as lack of attention of respondent, lack of desirable knowledge of the respondent about the topic, difficulty to understand the scale items by a foreigner respondent when cross-national research is conducted, and so on. Consequently, we understand that subjective metrics may be an option for researchers especially when objective data is not available. However, whenever objective data is available, it is important to use it to have subjective and objective measures.

Finally, most of the fully subjective measures and quasi-objective measures identified have presented a positive characteristic: the scales usually involve more than one measure. That is, in order to measure firm performance, authors combine several of these measures (e.g. Overall performance, Profitability, Total Sales, and Return on Investment (ROI). Consequently, it accounts for the multidimensionality of the construct.

In Table 6, we present objective accounting measures. ROA is the most used measure. Total sales are usual of marketing articles.

Table 6 – Objective - Accounting measures

			JF	JFE	JA&E	JM	MS	JR	Total
Accounting measures	How is it calculated?	Citation	33	48	11	41	10	5	148
Return on Assets (ROA)	Net income / Total assets	Lys, Naughton, and Wang (2015)	3	16	6	7	1		33
Sales Growth	Sales at time t/ Sales at time t-1	Boyd, Chandy, and Cunha Jr. (2010)	4	5		6	2		17
Total Sales	Total Sales	Bennett et al. (2017)	2	4		9	1		16
Net Operating Cash Flow	EBIT + Depreciation – Taxes	Morgan and Rego (2006)	1	1	2	1	1		6
Net Income	Net Income	Voss and Voss (2008)		1		4	1		6
Return on Sales (ROS)	Net income / Sales	Nath and Mahajan (2008)	1	1		4		1	7
Market Share	Individual firm's sales / industry aggregate sales	Morgan and Rego (2006)	1	1		2	2		6
Operating ROA I	EBITDA/Total Assets	Mitton (2006)	2	3					5
Annual Sales per Employee	Total Sales / Number of employees	Mironov (2015)		2		1			3
Operating Income	Income before extraordinary items, discontinued operations, and accounting changes	Aboody, Johnson, and Kasznik (2010)		1	1			1	3
Operating ROA II	(EBIT- Discretionary Accruals)/Total Assets	Cornett, Marcus, and Tehranian (2008)	1	1	1				3
Industry-adjusted Operating ROA II	Median firm in the corresponding Fama and French (1997) industry – Operating ROA II	Core, Guay, and Rusticus (2006)	2	1					3
Total Asset	Book value of total assets	Core, Guay, and Rusticus (2006)	1	2					3
Asset Growth	Book value of asset at time t / Book value of asset at time t-1	Cooper, Gulen, and Schill (2008)	2						2
Cash to asset ratio	Operating cash flow / Total assets	Das, Guo, and Zhang (2006)	2						2
Capital Expenditures over Sales Ratio	Capital Expenditures / Sales	Santalo and Becerra (2008)	1	1					2
Leverage	Total Debt / Total Asset	Mitton (2006)		2					2

Net Operating Cash Flow Variability	Coefficient of variation of the previous five years net operating cash flows	Morgan and Rego (2009)				1			1
Gross Margin	Sales revenue – cost of sales	Morgan and Rego (2006)					1		1
Cost Efficiency	Obtained by estimating a cost frontier which is a frontier that represents firms with optimal performance. The further (or closer) a firm is from that frontier, the less (or more) cost efficient it is.	Assaf et al. (2012)						1	1
Return on Equity (ROE)	Net income / Book value of equity	Cremers and Vinay (2006)	1		1	1			3
Return on Investment (ROI)	Net income / Investment	Kumar, Venkatesan, and Reinartz (2008)				2			2
Amount of transactions	Number of Transactions	Gauri et al. (2017)						1	1
Sales per transaction	Sales / Number of transactions	Gauri et al. (2017)						1	1
Average Customer Spending	Average transaction value of customers per visit	Maxham, Netemeyer, and Lichtenstein (2008)					1		1
Customer equity	Customer Equity Model	Wiesel, Skiera, and Villanueva (2008)				1			1
Expenses	Personnel expenses + Production costs + Administrative expenses	Voss and Voss (2008)				1			1
Customer Acquisition	The number of newly acquired customers per period	Vries, Gensler, and Leeftang (2017)				1			1
Total Factor Productivity	Total factor productivity model	Giannetti, Liao, and Yu (2015)	1						1
Revenue per Available Room (Hotel Industry)	Revenue from all rooms in period t / Number of room-nights available in period t	Povel et al. (2016)	1						1
Total Sales on Asset	Total Sales / Book value of asset	Mironov (2015)		1					1
EBIT	Earnings Before Interest and Tax	Bennett et al. (2017)		1					1
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization	Bennett et al. (2017)		1					1
EBT	Earnings before taxes	Bennett et al. (2017)		1					1

Funds from Operations (FFO)	Net Income + Depreciation + Amortization - Gains on Sales of Property	Bennett et al. (2017)		1					1
Industry-adjusted Operating ROA I	Median firm in the corresponding Fama and French (1997) industry – Operating ROA I	Core, Guay, and Rusticus (2006)	1						1
EBIT/Sales	EBIT/Sales	Santalo and Becerra (2008)	1						1
EBITDA/Sales	EBITDA/Sales	Cooper, Gulen, and Schill (2008)	1						1
Industry-adjusted Cash to asset ratio	Median value of all firms from the same industry – (Operating cash flow / Total assets)	Das, Guo, and Zhang (2006)	1						1
Firm's Dividend Yield	(Common dividend + preferred dividends)/(market value of common stocks + book value of preferred)	Brav et al. (2008)	1						1
Firm's Dividend Payout Ratio	Total dividend payments / Net income before extraordinary items	Brav et al. (2008)	1						1
Investment	Capital Expenditures / Gross Fixed Assets	Mitton (2006)		1					1
Lagged Earnings Ratio (Lagged Operating ROA II)	1-year lagged EBIT / total assets.	Lel and Miller (2008)	1						1

In Table 7, the objective financial market measures are presented.

Table 7 – Objective - Financial market measures

			JF	JFE	JA&E	JM	MS	JR	Total
Financial market measures	How is it calculated?	Citation	11	20	5	11	3	5	55
Stock Returns	First differences of the logarithm of stock prices	Cheng (2008)	4	14	2	4	1		25

Abnormal Returns	Actual return on stocks in year t - Expected return given all information available prior to year t	Core, Guay, and Rusticus (2006)	6	5	2	4	1		18
Jensen Index	The regression intercept (alpha) of the excess return of the firm over the excess return of the market where excess return = (Firm's return - Risk-free rate)	Madanoglu, Lee, and Castrogiovanni (2011)				1		1	2
Total Shareholder Return	Firm's stock price at time t+4 quarters - stock price at time t + dividends during the four-quarter period	Feng, Morgan, and Rego (2015)				1	1		2
Market Capitalization	Market value of firm's outstanding shares	Li (2008)		1	1				2
Sharpe Ratio	(Firm's return - Risk-free rate) / Standard deviation of firm's average monthly return.	Madanoglu, Lee, and Castrogiovanni (2011)						1	1
Sortino Ratio	(Firm's return - Risk-free rate) / Firm's downside risk	Madanoglu, Lee, and Castrogiovanni (2011)						1	1
Treynor Index	(Firm's return - Risk-free rate) / beta systematic risk of the firm	Madanoglu, Lee, and Castrogiovanni (2011)						1	1
Upside Potential Ratio	A measure of risk adjusted returns (Madanoglu, Leeb, and Castrogiovanni (2011))	Madanoglu, Lee, and Castrogiovanni (2011)						1	1
Lagged Excess Returns	1-year lagged total stock returns in excess of the country average	Lel and Miller (2008)	1						1
Systematic Risk	The extent to which firm stock returns covary with overall market returns	Martin et al. (2018)				1			1

In Table 8, the most mixed accounting/financial market measures are presented, including Tobin's Q, which is a preferable metric to measure firm value (SRINIVASAN and HANSSENS, 2009).

Table 8 – Objective - Mixed accounting/financial market measures

	JF	JFE	JA&E	JM	MS	JR	Total
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Mixed accounting/financial market measures	How is it calculated?	Citation	13	16	2	12	2	1	46
Tobin's Q	Market value / replacement cost of its assets	Morgan and Rego (2009)	2	14	1	10	2		29
Market to Book Ratio	Market value of firm / Book value of firm	Santalo and Becerra (2008)	7	1		1		1	10
Book to Market Ratio	Book value of firm / Market value of firm	Core, Guay, and Rusticus (2006)	2						2
Earning per share	(Net Income - Dividends on Preferred Stock) / Average Outstanding Shares	Bennett et al. (2017)		1					1
Unexearn (Unexpected Earning)	First actual annual earnings per share announced after the initiation period - last corresponding analyst one year ahead (FY1) consensus EPS forecast issued in quarter t1 It is then scaled by the stock price at the time of the t1 consensus	Li and You (2015)			1				1
Abnormal Accruals (Adjusted with ROA)	Gong, Louis, and Sun (2008) model	Gong, Louis, and Sun (2008)	1						1
Market to Sales Ratio	Market value of firm / Total Sales	Santalo and Becerra (2008)	1						1
Idiosyncratic Risk	Stock return volatility that is specific to the firm	Martin et al. (2018)				1			1

In Table 9, we present fully subjective measures. There are mostly used by marketing papers.

Table 9 – Subjective - Fully subjective measures

			JF	JFE	JA&E	JM	MS	JR	Total
Fully subjective measures	How is it calculated?	Citation	0	0	1	7	0	0	8
Quality of Relationships as Perceived by the Customer	Scale for whether (1) the firm understands the customer's needs; (2) the firm provides value to the customer; (3) the customer is likely to	Seggie, Griffith, and Jap (2013)				2			2

	repurchase from the firm; and (4) the customer is likely to recommend the firm.								
Overall Performance	Scale for general success of the performance of the electronic marketplace	Chakravarty, Kumar, and Grewal (2014)			1	1			2
Global Channel Performance	Scale for Channel Contribution to: Sales, Profit, Growth, and Global Channel Performance	Kabadayi, Eyuboglu, and Thomas (2007)				1			1
Brand Awareness	Percentage of respondents who list the focal company among the ones they know.	Vries, Gensler, and Leeftang (2017)				1			1
Brand Consideration	Percentage of respondents who list the focal company among the ones they would consider if they had to choose one.	Vries, Gensler, and Leeftang (2017)				1			1
Brand Preference	Percentage of respondents who named the focal company as the one they would prefer if they had to choose a company among those in the industry.	Vries, Gensler, and Leeftang (2017)				1			1

In Table 10, we present quasi-objective measures. Mostly used metrics are sales growth, profitability and return of investment (ROI).

Table 10 – Subjective - Quasi-objective measures

			JF	JFE	JA&E	JM	MS	JR	Total
Quasi-objective measures	How is it calculated?	Citation	0	0	0	18	0	6	24
Sales Growth	Scale for performance relative to: (1) Sales growth or (2) Growth	O'Sullivan and Abela (2007)				4		2	6
Profitability	Scale for performance relative to: (1) Profitability or (2) Profit	O'Sullivan and Abela (2007)				5		1	6
Return on Investment (ROI)	Scale for performance relative to Return on investment (ROI)	Sheng, Zhou, and Li (2011)				3		1	4

Market Share Growth	Scale for performance relative to Market Share Growth	Sheng, Zhou, and Li (2011)				1		1	2
Total Sales	Scale for performance relative to Sales	Chakravarty, Kumar, and Grewal (2014)				2			2
Profit Growth Ratio	Scale for performance relative to profit growth.	Sheng, Zhou, and Li (2011)				1			1
Market Share	Scale for performance relative to market share.	O'Sullivan and Abela (2007)				1			1
Cash Flow	Scale for performance relative to cash flow.	Karpen et al. (2015)						1	1
Share-of-wallet	Customer spending with a firm's products/services within a category / Customer's total spending with the category	Samaha, Beck, and Palmatier (2014)				1			1

5 DISCUSSION

We verified a great number of different metrics being used to measure firm performance. In total, 80 different metrics of performance were identified among 128 articles analyzed. Moreover, there were several measures that were used in only one article. For instance, in the accounting measures subcategory, 53% of 43 metrics were used only once.

Concerning the choice of the firm performance metrics used, Marketing authors usually do not discuss what should be the most appropriate measures of performance for the case they are working with and few justify why they have chosen the metrics they used.

Firm performance is a key construct widely used in Marketing and Finance literature. When used as a dependent variable it allows the confirmation of a given independent variable impact on the performance of a company. However, the results of our research show a high number of different metrics being used on an attempt to measure the same construct (firm performance) and confirm a given hypothesis. While there is agreement in the literature about the multidimensionality of firm performance, there is little consensus among Marketing and Finance scholars on which set of metrics would be appropriate to access such construct.

In fact, we noticed that firm performance is most of the times treated as if it did not deserve further attention, as scholars usually choose a given metric or set of metrics and do not explain why it was chosen. These evidences support the conclusion that in the analyzed articles there is little concern about improving theoretical and conceptual issues relating to firm performance. The clearest sign of agreement could only be depicted by the frequency that Marketing and Finance researchers have used each metric, since both areas preferentially use established metrics such as return on assets, stock returns, Tobin's Q, and sales. However, we understand that scholars from both disciplines should extend the knowledge about firm performance metrics, in order to define which dimensions of firm performance should be evaluated in order to fully measure this multidimensional construct.

In all the analyzed Finance articles, mostly objective measures were used to access the firm performance in relation to issues such as corporate governance, voting issues, and other typical themes from this field. The main purpose of the Finance articles regarding the use of performance metrics is to improve or test existing objective measures or seek to create new perspectives to measure the performance in a purely quantitative manner. Therefore, the most frequent metrics used in Finance research were: ROA - return on assets, stock returns, abnormal returns, and Tobin's Q.

Furthermore, in many works of Finance, the hypotheses are tested by using several performance measures in the same research and industry-adjusted metrics are also used, what provides greater reliability and validity for the conclusions of a study. Usually, when multiple metrics are used, they are accessed individually, without combining them.

In Marketing articles firm performance was also measured in an objective manner, using accounting measures (e.g. return on assets and sales), financial market measures (e.g. stock returns) and mixed accounting/financial market measures (e.g. Tobin's Q). The field, however, due to the characteristics of its participation within organizations, deals with variables such as customer satisfaction, innovation, brand portfolio, alliances and market orientation. Because of that, one distinction between studies of Marketing and Finance is the fact that in Marketing authors have also used more fully subjective measures, such as overall performance, and quasi-objective measures, such as return on assets measured from the managers' perceptions.

Even though the use of subjective measures is accepted in Marketing studies, we have observed papers that use only fully subjective or quasi-objective measures. Such practice is susceptible to biases because are based on the respondent's evaluation of performance, which sometimes may not reflect actual performance when it is analyzed based on objective measures. Therefore, we recommend marketing researchers to also adopt multiple objective measures as an attempt to incorporate the multidimensionality of the construct. The metrics chosen should be from different categories of objective metrics: accounting measures, financial market measures, and mixed accounting/financial market measures.

Most of the Marketing studies use data at longitudinal intervals (63.93%), however, there are several articles that use cross-sectional data. In the financial area, longitudinal studies represent 91.04% of the analyzed articles. Using cross-sectional data is not common in the Finance field. Thus, it is understood that Marketing scholars could make use of the interface with Finance to increase the use of longitudinal studies aiming to provide greater robustness to the results of their research.

Regarding the period to which that data is related, we highlight the small number of studies that seek to quantify the effect of the variables on the future performance of the organization. In almost all of the articles of both areas, real/historical data have been used, without analyzing how variables relate to future performance. Therefore, it can be stated that in most of the cases the studies show that certain variables have affected past performance, but no analysis is used to project future performance.

Based on the present study, it is clear that Marketing researchers have responded positively to the pressure to demonstrate the impact of actions of their area on firm performance using both Marketing metrics as well as metrics from other areas, such as Finance and Accounting. However, the results suggest relevant practices that are common in Finance research which should also be adopted by Marketing researchers. They should (1) conduct more longitudinal studies in order to obtain more robust results in its research and be more efficient and effective in the task of being accountable; (2) test its models with multiple variables of firm performance in the same study given the multidimensionality of the firm performance construct; (3) make industry adjustments in performance metrics in a manner that will make it possible to take into account differences between industries; (4) seek to discuss why the performance metrics used are the most suitable for the study over other metrics that could also have been used, just like Finance researchers have done in some cases; (5) use robust methods that are more frequently adopted in Finance papers to evaluate the impact of Marketing activities on firm performance such as Vector Autoregressive (VAR), Fama and French (1997) model, quasi-natural experiments.

6 LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The present study examined articles of only 3 journals of Marketing and 3 journals of Finance. Thus, if a larger number of journals in these areas were considered, the results could be even more robust in the face of different possible research scopes adopted by the new journals. However, as the analyzed journals present high 5-year impact indexes according to the Web of Science and a very extensive period was taken into account, it is understood that the sample is able to provide a fairly accurate and updated overview about the treatment given to firm performance within the areas of Marketing and Finance.

Another limitation of the study is the fact that journals of only two management areas were considered for the analysis of the way in which business performance is measured. We did not consider disciplines such as Production and Human Resources, for example. However, the choice of only two areas is related to the subject-matter of this study, which is the interface between Marketing and Finance, and the need for rapprochement between these disciplines, as widely supported by the existing literature.

It is understood that, in future research, scholars from both areas can further broaden the knowledge about business performance indicators. Based on the results obtained in this study, we suggest that an analysis in greater depth of issues related to theory, conceptualization and measurement of the construct of business performance should be conducted. Moreover, given multidimensionality of the firm performance construct, it would also be important to define the dimensions of firm performance that should be evaluated as well as the recommended metrics which could be used to measure each dimension. Another avenue of research is the development of studies using indicators aiming to project future performance of the firm, since a major feature of the researched articles is the use of only current or past performance. Additionally, future studies could not only analyze the individual metrics used but also investigate how the results of multiple metrics are correlated. Finally, researchers which would like to analyze only measures published in Marketing journals, could classify the measures found following Marketing Value Chain proposed by Srivastava and Reibstein (2004), Rust et al. (2004) or Grønholdt and Martensen (2006).

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