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Utilization of management accounting tools at companies in the State of Espírito Santo

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SUMMARY: The present study tried, through empirical-analytical analysis, to find companies in the State of Espírito Santo utilizing modern management accounting tools, as well as study the possible link between the utilization of modern and traditional tools and the financial performance of the companies in the sample. The sample consisted of the companies listed in the FUCAPE Business School database. This database contains the records of the Top 200 companies in the State of Espírito Santo included in the ranking published by Findes magazine in its 2007 and 2008 edition, with information of the period 2008-2009. Data collection was performed by personal interviews in loco. The multinomial logistic regression technique was utilized for data analysis. Evidence was found that companies in the State of Espírito Santo utilize traditional as well as modern management accounting tools. The results also suggest a non-random even though weak link between economic performance and the traditional management accounting tools.

Keywords: Tools; modern and traditional; management accounting.

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1. INTRODUCTION

The economic and financial success of institutions may depend in part on information management. Currently, many companies have undergone changes in their organizational structures, information technology and in the competitive environment in which they operate, requiring new management techniques. For some scholars, this has led to a need for changes in the management accounting (BURNS; VAIVIO, 2001).

Thus, some authors analyzed the set of elements that constitute the management of the accounting function and management accounting, considering them with respect to adherence, evolution and use in several countries (AMAT; CARMONA; ROBERTS, 1994; BESCOS; MENDOZA, 1995; WIJEWARDENA; DE ZOYSA, 1999).

In this context, some questions persist about the suitability of the authors of management accounting systems to the current reality. To this end, Johnson and Kaplan (1996) portrayed the lack of timeliness in generating information in the accounting process, describing it as too aggregated and distorted to be relevant to planning decisions and managerial control. For other authors (SCAPENS, 1988, SULAIMAN et al., 2004), there is a difference between the theory and the management practices used by companies and therefore, the authors have sought the restructuring of these management practices in order to better reflect the practical corporate needs.

However, management accounting practices have undergone some changes and developments as described by the International Federation of Accountants (IFA) by issuing in 1998 a study entitled "International Management Accounting Practice 1" (IMAP 1). The study aimed to describe the activity known as management accounting, segregating its activities, practices, tools, philosophies, artifacts (instruments and tools of management accounting), management models and systems in four stages of development. The study was released as a conceptual framework and presented the developments and changes in management accounting, its objectives, activities and parameters.

Thus, some authors have sought to verify whether the companies still use management accounting tools considered traditional or whether they use modern ones. Sulaiman et al. (2004) observed the extent to which companies in four Asian countries use traditional or modern management accounting tools, finding that there is a lack of use by the companies in these countries, of the tools considered modern. In Brazil, we highlight the work of Souto and Guerreiro (2007) that sought to identify whether Brazilian companies

used management accounting artifacts considered modern and its relationship with financial performance, and Frezatti (2005) who analyzed the conceptual adhesion between the theory and the practice of management accounting in Brazilian companies, identifying clusters in the profiles of use of management tools.

These studies conducted in Brazil, contributed to portray the status of management accounting in Brazilian companies. In this sense, this paper extends previous contributions by using local information to determine whether such data reflect the same trend of the country-wide data.

Thus, this paper seeks to verify that the companies in the State of Espírito Santo use management accounting tools considered modern, as well as the association between the use of management accounting tools with corporate financial performance, considering a period of two years, 2008 and 2009.

Given the above, the following question arises: **Do companies in the State of Espírito Santo utilize modern management accounting tools?**

To meet the proposed objectives, we used information from the FUCAPE Business School database, compiled from the application of a questionnaire-form to companies in the State of Espírito Santo, based on the methodology used by Soutes and Guerreiro (2007).

This research contributes to the literature in two distinct ways. First, the adoption of management tools by the companies in the sample is evidenced by means of descriptive statistics. Secondly, given the scarcity of empirical studies in this area, it provides empirical evidence of the association or not between the adoption of management tools and the companies' financial performance.

2. THEORETICAL REFERENCES

The current accounting process demands efficient systems that can provide timely and accurate financial and non-financial information so as to facilitate the coordination and motivation of the various activities performed by the human components that make up the organization. Hence the activity known as management accounting, whereby this process identifies, measures, reports and analyzes information about economic events, for the managers (GARRISON; NOREEN; BREWER, 2007; JOHNSON; KAPLAN, 1996).

Johnson and Kaplan (1996) went a little further and conceptualize that the management accounting system serves as a vital and two-way communication link between those who make up the entity. It is two-way for being both an instrument for the dissemination of organizational goals and objectives set by senior management, as well as the channel through which information on production yields and company performance, in general, are reported to the upper levels of management. It is vital for being a formal procedure used by managers to change or maintain organizational activities, setting as an important tool for the professionalization of the organization (DAVILA; FOSTER, 2007).

In the same line, Anthony (1970) defines management accounting as the process of ensuring that resources are obtained and used effectively and efficiently in achieving the organization's objectives. In this sense, Chart 1 provides an overview of the basic characteristics that make up management accounting:

Topics	**Characteristics of Management Accounting**

Target Audience	Internal: Employees, managers and executives
Objective	To inform to facilitate decision-making by employees, managers and executives: feedback and control of operational performance
Timeliness	Current, future-oriented
Constraints	Without established rules: systems and information determined by managers to meet strategic and operational needs
Type of Information	Financial plus operational and physical covering processes, technologies, suppliers, clients and competitors.
Nature of Information	Subjective and judgmental; valid, relevant and accurate.
Scope	Disaggregated, information to local actions and decisions

Chart 1 - Characteristics of Management Accounting
Source: Adapted from Atkinson et al. (2000).

Because of the diversity involved in the concept of management accounting, the Committee on Financial and Management Accounting of the International Federation of Accountants (IFAC) issued a report in 1998, with the objective was to describe the current stage of evolution of management accounting, characterizing all the earlier stages as well as the essential elements that constitute effective practice in this area. Furthermore, four stages of evolution of management accounting were characterized, as described below:

Stage 1: Period prior to 1950, where the main focus of management accounting was costing financial control through budgeting. At this stage, the main tools and methodologies used were: annual budgets, financial and operational control, absorption costing and variable costing.

Stage 2: Period around 1965 where, due to the growing importance of the supply of information technology, one saw an emphasis on analysis of decision making and responsibility accounting. The following tools and methodologies stand out: standard costing, activity-based costing (ABC), RKW costing (*Reichskuratorium für Wirtschaftlichkei (Board of Trustees for Economicity)),* decentralized decision making.

Stage 3: By 1985, a phase in which attention turned to the reduction of waste of the economic resources expended in the projects and to cost management, through strategic management. Value based management, responsibility centers, transfer pricing, target costing, the Kaisen costing method, and life cycle costing are some of the activities of emphasis.

Stage 4: From 1995 onwards, creation of value has become the main attraction, through the use of technologies that allow a link among clients, shareholders and organizational innovation. Strategic planning, balanced scorecard a performance evaluation method, EVA (Economic Value Added) and MVA (Market Value Added) are the tools that stand out.

Analyzing the phases that make up the evolutionary process, IFAC (1998) mentions the existence of a critical difference in how management accounting is perceived by companies. In Stage 1 it was seen as a "technical activity needed to achieve the organizational goal." In Stage 2 the management accounting activity migrates from a strictly technical operational activity to gain traction in the institutional hierarchy, in the role of a staff activity, "providing information for planning and control." The position of full integration with management systems emerges in stages 3 and 4, with information available to management in real time. In terms of institutional hierarchy there is no standard, sometimes represented as an activity staff, sometimes as one of line. As to the objectives, the focus is "the use of resources (including information) to creation value is an integral part of the management process in organizations." (IFAC, §19, 1998).

However, according to Soutes and De Zen (2005, p. 4), the artifacts can be classified into evolutionary stages, defined in *International Management Accounting Practice* 1 (IMAP 1), and they are:

- **Stage 1**: absorption costing, variable costing, financial and operational control, the annual budget.
- **Stage 2**: standard cost; ABC; RKW costing method, capital budgeting, decentralization.
- **Stage 3**: value-based management, responsibility centers, transfer pricing, target costing; the Kaisen costing method, life cycle costing.
- **Stage 4**: strategic planning, balanced scorecard, performance measurement method, EVA and MVA.

Along the same lines, some authors, such as Coad (1999), Sulaiman et al. (2004), Soutes, and Guerreiro (2007) proposed the segregation of the artifacts used by management accounting between traditional and modern artifacts

Coad (1999) cites as modern approaches to management accounting such tools such as: ABC, activity-based management (ABM), income accounting, life cycle costing, strategic cost management for the value chain, accounting assessment of competitive positioning, qualitative measures of performance, balanced scorecard, target costing and Kaizen costing.

Sulaiman et al. (2004) examined the use of management tools considered traditional and modern, in four Asian countries: Singapore, Malaysia, China and India. The authors grouped the management accounting tools in traditional and modern tools. In the authors'

ranking, standard tools such as cost analysis, cost / volume / profit, return on investments and budgets were classified as traditional artifacts. Total Quality Management, ABC, target costing and balance scorecard, were considered modern artifacts. The authors also found evidence that there is an absence of the use of tools considered modern.

In this line, Soutes, and Guerreiro (2007) checked whether the Brazilian companies nominated for the ANEFAC- FIPECAFI –SERASA award (Transparency Trophy), which appeared in the list of the 500 Best and Largest in 2004, used modern management accounting artifacts and the relationship between the use of these artifacts and the financial performance of the companies in the sample.

Soutes e Guerreiro (2007) considered the following as traditional artifacts: absorption costing, variable costing, standard costing, transfer pricing, and return on investment, constant currency, present value, budgeting and decentralization. The following were classified as modern artifacts: ABC, target costing, benchmarking, Kaizen, just-in-time (JIT), theory of constraints, strategic planning, ABM, GECON (Economic Management), EVA, simulation, balance scorecard and value based management (VBM). As a result, the authors found, by testing the significance of the means of two independent samples, that Brazilian companies contained in the sample utilized artifacts considered modern by management accounting. It was also found that: i) companies that use artifacts classified as modern present a differentiated financial performance; and ii) there is no relationship between economic sector, shareholder control and the management accounting artifacts used.

Based on the IMAP 1, Soutes and De Zen (2005) sought to identify in which evolutionary stage management accounting could be slotted in Brazil. They proposed in the four stages of evolution of management accounting, a classification and segregation of the artifacts that arose due to the changes, noting that the first three stages are dominated by the management accounting of Brazilian companies. However, as the authors' research sample was intentional, the results cannot be generalized and offer, according to them, only a brief analysis of the use of artifacts and of the stages of management accounting in Brazil (SOUTES; DE ZEN, 2005).

Considering the management tools to be used by companies, there is no standard on what should be used for management. However, the management accounting tools professionalize management and help to resolve the risks involved in the processes of the organizations (DAVILA; FOSTER, 2007). Still, these tools can be used in different contexts and goals, whereby results diverge when considering their the use and some factors, among

them organizational ones, such as: i) Aguiar et al. (2009) using as sample the information in the FUCAPE database for 2008, found an association between the use of management accounting practices provided by the principle of controllability and the presence of incentive systems; ii) Almeida and Da Luz (2010) using the same sample, found that there is no relationship between the life cycle of the companies in the sample and the structure of their management control system, however, the descriptive statistics shows that companies with more than 50 years of age have a higher mix of tools, both traditional and modern in management accounting; iii) Gonzaga et al. (2010) checked whether there is an association between company size and the use of management accounting tools. Using the information on management practices of the FUCAPE database, for 2008 and 2009, the authors found through multinomial logistic regression, an association between the quantity / intensity of use of management tools and company size in the sample. However, Teixeira et al. (2010) found that it is not possible to conclude that there is a relationship between the management accounting tools adopted by the companies and some organizational factors such as performance, incentive systems and the manager's education level, using the companies in the FUCAPE database as sample.

Thus, considering the results already found, it can be argued that the management control system may vary depending on organizational needs, and that the structure of management control system is established to assist managers to achieve the desired goals and objectives, without the existence of a pre-defined model influenced by the context in which the company operates (WIDENER, 2004).

3. METHODOLOGY

In order to check whether companies in the State of Espírito Santo utilized management accounting tools considered modern, as well as to study the association between the utilization of the management accounting tools with the financial performance of the companies in the sample, the following question was raised: **do companies in the State of Espírito Santo utilize modern management accounting artifacts?**

In methodological terms, it is an empirical-analytical research, since the objective was to find know-how of practical application, involving local assumptions and interests. In addition, empirical-analytical research studies are approaches that use techniques of data collection, processing and analysis that looks for a causal relationship between the variables being analyzed (MARTINS, 2000).

With regard to the sample, same was extracted from the FUCAPE Business School's database, which contains the records of the Top 200 companies in the State of Espírito Santo listed in the ranking published by Findes magazine in its 2007 and 2008 edition, with information for the 2008-2009 period related to the utilization of management accounting practices and financial information from the 2007-2008 period. The information about the utilization of management accounting practices covers the 2008-2009 period, due to the data collection interviews having occurred one year after the ranking was issued. The sample was non-probabilistic and totaled 150 companies referring to 2007 and 146 referring to 2008. The FUCAPE Business School's database was populated by interview-questionnaire presented to the decision-making managers of the companies in the sample. Due to the sample being intentional, the results provide only a brief diagnosis about the utilization of management accounting artifacts by companies in the State of Espírito Santo.

Another methodological feature refers to the drafting and validation of the data collection instrument. Questionnaires with collectively exhaustive and mutually exclusive questions were applied, whereby the questionnaire's draft was based on the theory and on the use statistical techniques. Moreover, regarding the questionnaire's formulation, same was based on the methodology proposed by Soutes and Guerreiro (2007) who distributed the management accounting tools slotted in the evolution stages suggested by IMAP 1, segregating them as traditional or modern. At first a questionnaire model for collection of data referring to 2007 was used, followed by a second model for 2008.

The first questionnaire was structured in six blocks: Block 1 referred to information about the company and the answerer; Block 2, to the role of management accounting according to same; Block 3 to the management accounting tool in use at the respondent's company; Block 4 to the benefits of implementation of the tools, as seen by the respondent; Block 5, to the factors that restrict or motivate the implementation of the tools in the company; and Block 6, to information about the participants. The questionnaire contained 44 questions distributed as follows: closed questions using the five point Likert scale to determine the degree of utilization of the management accounting tools slotted in the four evolution stages; closed questions about the role of management accounting and the main initiatives of the company in this area, as well as the benefits of implementing such tools as seen by the respondents and the factors that restrict or motivate their implementation in the company.

The second questionnaire was utilized according to the methodology adopted by Teixeira et al. (2009). It was divided into seven blocks, in which: Block 1 was related to the degree of utilization of costing tools; Block 2 had information about the budget utilized by the company; Block 3 had information about the performance indicators used by the company; Block 4 had information about the incentive systems offered; Block 5 had information about the respondent and the company; Block 6 had information about corporate governance, accounting standards and strategic positioning; and lastly Block 7 had company financial information (GONZAGA et al. 2010).

Data collection was performed through personal interviews in loco, which was considered as one of the most adequate techniques to obtain reliable data. Another positive factor is the possibility of immediately clearing possible doubts of the respondents about one or more questions in the questionnaire-form or even about the research itself. The data collection referring to the 2007 ranking was done between April and December of 2008, while the data referring to the 2008 ranking were collected between May and December of 2009.

The identification of tools was done through the methodology proposed by Soutes e De Zen (2005). The distribution between traditional and modern categories was done according to Sulaiman et al. (2004). Thus, the artifacts in the first and second stages were considered traditional, and then ones in the third and fourth stage were considered modern. Chart 2 shows the list of management accounting artifacts considered traditional and modern utilized in this work:

Traditional Tools
- absorption costing - variable costing - standard costing - transfer pricing - budgeting
Modern Tools
- ABC - target costing - benchmarking - kaizen - theory of constraints - strategic planning - ABM - EVA - Balanced Scorecard.

Chart 2 - Traditional and Modern Tools
Source: Adapted from Soutes and De Zen (2005); Sulaiman et al. (2004)

4. RESULTS

4.1 UTILIZED MANAGEMENT ACCOUNTING TOOLS

The third block applied to the companies contained questions about the management accounting artifacts used by the companies. To these questions, the respondents were supposed to indicate the degree of utilization of the tool, having the following answer choices available: widely used (AU), partially used (PU), in implementation (EI), not used (NU) and don't know (NR). The results are tallied in Table 1.

Table 1 - Degree of Use of Management Accounting Tools

Tools	2008	2009
Analysis of the Value Chain	23%	14%
Analysis of the Theory of Constraints	12%	8%
Analysis Responsibility Center	51%	74%
Balanced Scorecard	11%	13%
Benchmarking (external)	–	30%
Benchmarking (internal)	39%	29%
ABC Costing	9%	8%
Life Cycle Costing	13%	10%
Kaizen Costing	3%	–
Target Costing	21%	11%
Standard Costing	22%	31%
Absorption Costing	55%	45%
RKW Costing	3%	–
Variable Costing	28%	21%
Specific Management Accounting Department	57%	71%
EVA	11%	10%
Annual budgeting	51%	75%
Capital budgeting	38%	–
Strategic Planning	40%	71%
Breakeven	31%	40%
Transfer Pricing	33%	44%
Management Information System	55%	82%

Note: The question about the use of the Benchmarking (external) tool did not figure in the questionnaire applied in 2008, and the questions referring to Kaizen Costing, Budget Costing and RKW Costing did not figure in questionnaire applied in 2009.
Source: Authors

In 2008 according to Table 1, on the one hand, Responsibility Center Analysis, Absorption Costing, Annual Budgeting and Management Information System stand out as the tools most used by the sample companies in 2008, since they demonstrated a level of adherence above 50%. On the other hand, the Balanced Scorecard, Activity Based Costing, Product Life Cycle Costing, Kaizen Costing, RKW Costing, EVA Costing and costing by Analysis of the Theory of Constraints tools were the least used, all of which showed a degree of utilization below 20% by the companies in the sample.

2009 showed similar results. The Analysis by Center of Responsibility, Annual Budgeting, Strategic Planning and Management Information System tools were the ones most utilized. As least utilized the Balanced Scorecard, Analysis of the Value Chain, ABC Costing, Product Life Cycle Costing, Target Costing, EVA costing and costing by the Theory of Constraint Analysis tools also showed results below 20% in the sample. In both years, more than 50% of the companies in the sample stated having a specific Management Accounting department (57% in 2008 and 71% in 2009).

These results confirm the findings already evidenced in other studies. Oyadomari et al. (2008) found that modern artifacts like the EVA showed a smaller level of utilization compared with traditional artifacts in the sample used by the authors.

With respect to the tools used to measure performance (Balanced Scorecard, Benchmarking and EVA) by the companies in the sample, among the three, Benchmarking showed the highest utilization, followed by Benchmarking and EVA). Thus, they confirm the findings of Soutes e De Zen (2005) who found Benchmarking as the most utilized artifact in the sample analyzed and Oyadomari et al. (2008) who found that the Balanced Scorecard and the EVA tools were little utilized.

With respect to the techniques utilized for cost accounting, among Absorption Costing, Variable Costing, Standard Costing, Target Costing, Theory of the Constraints, Analysis by Responsibility Center, Life Cycle Costing, Kaizen Costing, ABC Costing and RKW Costing, the ones that stand out are Responsibility Center, Absorption Costing and Variable Costing as they showed higher levels of utilization than the other tools. On the other hand, RKW Costing, Kaizen Costing and Costing by activity – ABC showed the lowest levels of utilization. The results suggest evidence that corroborates the findings of Soutes and De Zen (2005) who found Analysis by Center of Responsibility as the tool most utilized among the tools in the analyzed sample.

4.2 INFORMATION ABOUT THE RESPONDENTS

With respect to the respondents, their qualification was considered essential to validate the questionnaire responses. They were asked to provide personal information, such as position held in the company, length of service in office and academic background. The results are presented in Table 2.

Table 2 – Information about the respondents

Education		
	2008	**2009**

	Frequency	**Percentage**	**Frequency**	**Percentage**
Some College	11	7%	9	6 %
Graduate	87	58%	46	32%
MBA	9	6%	71	48%
Master's degree	17	12%	17	11%
Doctorate	2	1%	1	1%
Other	24	16%	2	2%
Total	150	100%	146	100%
Position				
	2008		**2009**	
	Frequency	**Percentage**	**Frequency**	**Percentage**
President	24	16%	1	1 %
Director	75	50%	21	14%
Manager	13	9%	70	48%
Coordinator	2	1%	28	19%
Other	36	24%	26	18%
Total	150	100%	146	100%
Time in Position				
	2008		**2009**	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Less than 5 years	77	51%	69	47%
Between 5 to 10 years	36	24%	34	24%
Between 10 to 15 years	26	17%	22	15%
More than 15 years	11	8%	21	14 %
Total	150	100%	146	100 %

Source: Authors.

It can be seen that most respondents had only Graduate education in 2008 (58 %) and in 2009, 71% of respondents had an MBA. With respect to the position held, 50% of respondents in 2008 occupied the position of Director, but in 2009 this number decreased to 14%, while 48% in the 2008 sample occupied management positions. As for the time in the position, in both years some renewal of professionals in the areas related to management accounting, with the majority of respondents being in the position less than five years in 2008 and 2009, 51% and 47% respectively.

4.3 ASSOCIATION BETWEEN THE USE OF MANAGEMENT ACCOUNTING TOOLS AND ECONOMIC SUCCESS

To analyze the association between the use of traditional and modern tools and the economic success of the companies in the sample, these were divided into three groups: companies that did not use any of the tools classified as traditional and modern; companies using traditional tools; and companies using modern management accounting tools.

For this purpose, the study observed the proportion of use of the management accounting tools of by the company, noting where there was a higher proportion of use for

the classification. A Group 0 was created to accommodate companies which did not use any of the management accounting tools considered as traditional and modern. Group 1, was reserved for companies that used only the tools considered traditional and that obtained a value lower than 1 in the ratio of the total of modern tools and traditional tools used. Finally, Group 2 contained the companies using only the tools considered modern and those that obtained a value greater than 1 in the ratio of the total of modern tools and traditional tools used.

It was found that in 2008 107 (72%) companies stated that they were using traditional management accounting tools, 26 (17%) stated that they used modern tools and 17 (11%) did not use any. In 2009, it was found that 113 (77%) used traditional management accounting tools, against 27 (18%) which use modern tools and 6 (5%) that used none.

In order to determine the association between the utilization of the tools considered traditional and modern in management accounting and the sampled companies' economic performance, a model of multinomial logistic regression was used.

Through multinomial logistic regression it is possible to compare a categorical dependent variable with different levels and independent variables, where it is possible in its interpretation to perform comparisons among ratios of relative risk by opposing a single category to all the other categories (HILL; LEWICKI, 2006; GONZAGA et al. 2010).

As dependent variable, a dummy variable referring to the utilization of the management accounting tools classified as traditional, modern or none. As independent variables the following ones were used: ROE (Return on Equity), ROA (Return on Assets) as proxies of performance. The control variable logarithm of asset was used as proxy for size, since the size of companies can be associated to the number of management accounting practices used (GONZAGA et al. 2010). The model is described as Equation 1 below:

$$Tools_{i,t} = \beta_1 + \beta_2 ROA_{i,t} + \beta_3 ROE_{i,t} + \beta_4 Tam_{i,t} + e \quad (1)$$

Where:

Tools – Dummy variable referring to the utilization of management accounting tools by company i in period t, equal to 2 for modern tools, equal to 1 for traditional tools and 0 for no tools.

$ROA_{i,}$ – Return on assets of company i in period t;

$ROE_{i,t}$ – Return on equity of company i in period t;

$Tam_{i,t}$ – Size of company measured by the logarithm of total assets.

4.4 RESULTS ANALYSIS

Table 3 presents the results of multinomial logistic regression.

Table 3 - Results of Multinomial Logistic Regression

		Observations	LR Chi2 (6)	Prob>Chi2	Pseudo R2	
		201	15,55	0,0164	0,0289	
Group		**Relative Risk**	**Standard Error**	**z**	**P>z**	
1	*ROA*	0.0539	0.0926	-1.70	0.089	*
	ROE	2.9396	1.6680	1.90	0.057	*
	Tam	1.1266	0.1728	0.78	0.437	
2	*ROA*	0.1336	0.1930	-1.39	0.164	
	ROE	2.6525	1.8197	1.42	0.155	
	Tam	1.2791	0.2083	1.51	0.131	

Group 0 is the base category for comparison.
Significance: *** = 1% ; ** = 5% ; * = 10%
Source: Authors.

With regard to the comparison between Group 1 and the base Group (Group 0), the ROA and ROE variables were statistically significant at 10% suggesting that the association between the ROA and ROE variables, used as measures of economic performance, and the utilization of modern management accounting tools is not random (P>z = 0,089 – ROA and P>z = 0,057 – ROE). In this case, the relative risk of higher ROA and ROE being present in 1 is 5% and 293% higher, respectively, when compared with the probability of being in Group 0.

In the comparison between Group 2 and the base Group (Group 0) it is observed that no variables were statistically significant, i.e., there was not a single association among the variables used as proxies for return, the one used as proxy for size and the fact that the company used management accounting tools considered modern.

Going against the expectations raised previously in the research, no association was found between the size variable and the utilization of management accounting tools in any of the analyzed groups.

5. CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The objective of this study was to determine whether companies in the State of Espírito Santo considered using modern management accounting tools, as well as the association between the use of management accounting tools with the financial performance of companies listed in the ranking of the Top 200 companies in the State of Espírito Santo between 2008 and 2009, included in the FUCAPE Business School's database.

The results suggest empirical evidence that the companies in the sample use traditional management accounting tools and that the association between economic performance and the management accounting tools considered traditional does not occur at random, whereby the same cannot be said for the results of the group of companies using modern tools.

These results differ from those found in the literature with other samples. Soutes e De Zen (2005) observed that the first three stages defined by the IMAP 1 are the ones that predominate in the management accounting of Brazilian companies, suggesting that they use modern artifacts. Corroborating, Soutes e Guerreiro (2007) found that Brazilian companies use modern management accounting artifacts, when one classifies the tools of the stages of evolution into traditional and modern tools. The differences found between the results in this study and the ones in previous ones, point to a greater dispersion of the items object of research among the companies in the sample. This dispersion can be explained by the fact that the sample was concentrated in one geographic region (State of Espírito Santo) and that the companies in the sample were located in the two smallest quartiles of the size variable.

The main contribution of this work was to expand previous findings by using local information for verification of the tools used, noting that the results may differ when considering local samples.

This study has some limitations that do not allow generalization of results. A major limitation refers to the possibility of introducing bias in the sample, since the same is not probabilistic.

It is suggested for future research, to expand the sample space and the statistical tools. Thus, if the same results are obtained with an expanded space sample, one can make safer inferences regarding the results. It is also suggested to analyze possible local factors that may influence the results.

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APPENDIX I

Companies participating in the Research

Nº	Company	Rank	Nº	Company	Rank
1	AFECC-Hosp. S. Rita	107	76	Lojas Sipolatti	66
2	Andrade Marm. Gran.	96	77	Lorenge	137
3	Aracruz	3	78	Luz Força STª Maria	62
4	Arara Azul	100	79	Metalosa	129
5	ArcelorMittal Cariacica	20	80	Metropolitan Trad.	58
6	ArcelorMittal Tubarão	1	81	Nibrasco	9
7	AST Com.	193	82	Nicafé	41
8	Atacado S. Paulo	163	83	OI	12
9	Atlântica Autom.	127	84	Panan Móveis	119
10	Autobahn	142	85	Paranasa	67
11	Autovil	113	86	Pemagran	118
12	Banco do Brasil	10	87	Perfilados Rio Doce	86
13	Bandes	91	88	Plantão Serv.	189
14	Banestes S.A.	14	89	Podium Veículos	54
15	Banestes Seguros	64	90	Porto Novo Sup.	108
16	Bonno Veículos	199	91	Portocel	123
17	BR Distribuidora	46	92	Proimport	60
18	Brick Eng.	192	93	Prosegur Brasil	157
19	Buaiz Alimentos	63	94	PW Brasil	173
20	Buteri	171	95	Quimetal	68
21	Cafénorte	146	96	Quimetal Dist.	97
22	Casa STª. Terezinha	195	97	Rede Bristol	148
23	CBF	55	98	Rimo	106
24	Cesan	29	99	Rodosol	117
25	CIA. Portuária V.V.	169	100	S.A. A Gazeta	89
26	Citágua	153	101	Samarco	4

27	Clac	35	102	Santa Fé Trading	134
28	Codesa	93	103	Selita	72
29	Coimex Trading	5	104	Serdel	174
30	Commar	182	105	Sharpener	39
31	Concrevit	90	106	Shopping Vitória	197
32	Contek Eng.	84	107	Sid. Ibiraçú	111
33	Cooabriel	83	108	Silotec	158
34	Coopeavi	82	109	Solesa	114
35	Coroa	141	110	Somar Intern.	110
36	Corpus	75	111	Souza Cruz	45
37	Cotia Trading	11	112	Sup. Casagrande	40
38	Cotia Vitória	24	113	Sup. Perim L. Neves	105
39	Custódia Forzza	30	114	Sup. Perim M. Praia	115
40	CVC	49	115	Sup. STº. Antônio	95
41	CVRD	2	116	Tangará	44
42	D. Dalla	51	117	Tenax	177
43	Diaço	101	118	Terra Nova	85
44	Eisa	22	119	Thork Trading	185
45	Eletromil	181	120	Tomazelli Eng.	172
46	Elkem	48	121	Tower Imp. E Exp.	147
47	Elson´s	145	122	Tracomal	78
48	Eluma	116	123	Tracomal Min.	102
49	Embali	187	124	Transcampo	178
50	Escelsa	6	125	Transfinal	170
51	Eximbiz	28	126	Trieste Veículos	154
52	Extrabom	31	127	Trop	38
53	Famex	159	128	TV Gzeta	112
54	Fortlev	52	129	TV Vitória	200
55	Frisa	32	130	Unicafé	19
56	Full Comex	176	131	Unimed Norte	162
57	Garoto	8	132	Unimed Sul Capix.	87
58	Gecel	190	133	Unimed Vitória	25
59	Granvitur	198	134	Usina Paineiras	80
60	GS Internacional	194	135	V. Águia Branca	43
61	Hiper Export	149	136	V. Grande Vitória	164
62	Hispanobrás	16	137	V. Joana D'arc	161
63	Hortifruti	34	138	V. Praia Sol	128
64	Hosp. Meridional	165	139	V. Tabuazeiro	184
65	Hosp. Metropolitano	167	140	Vecal	180
66	IBEV	166	141	Venac	156
67	Isoalloys	109	142	Vessa	92
68	Itabrasco	18	143	Visel	103
69	Itacar Carros	150	144	Vitória Apart Hosp.	125
70	Júlio Simões Transp.	88	145	Vitória Diesel	65
71	Kifrango	152	146	Vitória Motors	139
72	Kobrasco	13	147	Vitoriawagen	50
73	Kurumá Veículos	33	148	Vix Logística	37
74	Latina Vitória	179	149	Vixtiles	104
75	Localiza	196	150	White Martins	61