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STUDY ON CAPITAL BUDGETING PRACTICES ADOPTED BY SUPERMARKET COMPANIES IN THE STATE OF SANTA CATARINA/BRAZIL

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Abstract

The objective of the present study is to analyze capital budgeting practices in supermarket companies in the State of Santa Catarina - Brazil. The study was carried out through the application of questionnaires in 19 large supermarkets in Santa Catarina. The results show that companies adopt different methods for evaluating investments, but often use the Net Present Value and the Accounting Return Rate and Scenario Analysis. It is concluded that managers usually use different methodologies in the preparation of capital budget, but still need adequate information systems to manage the budget.

Palavras-chave: Budget. Capital Budgeting. Supermarkets. Brazil.

ESTUDO SOBRE PRÁTICAS DE ORÇAMENTO DE CAPITAL ADOTADAS POR SUPERMERCADOS NO ESTADO DE SANTA CATARINA/BRASIL

Abstract

O objetivo do presente estudo é analisar as práticas de orçamento de capital em empresas supermercadistas do Estado de Santa Catarina - Brasil. Realizou-se o estudo por meio da aplicação de

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questionários em 19 grandes supermercados catarinenses. Os resultados evidenciam que as empresas adotam diferenciados métodos para avaliação dos investimentos, mas com frequência utilizam o Valor Presente Líquido e a Taxa de Retorno Contábil e Análise de Cenários. Conclui-se que os gestores costumam utilizar diversas metodologias na preparação do orçamento de capital, mas ainda necessitam de sistemas de informações adequados para o gerenciamento do referido orçamento.

Palavras-chave: Orçamento. Orçamento de Capital. Supermercados. Brasil.

Introdução

The supermarket sector is of great importance to the Brazilian economy. According to the Brazilian Supermarket Association (ABRAS, 2012), the supermarket sector had BRL (Brazilian Real) 224.3 billion in sales during 2011, and it had grown 4.4% compared to 2010, besides , accounting for 83.7 % of food, beverages, beauty, hygiene and cleaning products supply in the country.

In line with ABRAS (2013), that sector has shown significant growth rates in relation to GDP in the last three years, that is, when compared to 2010, 2011 and 2012. Furthermore, this sector showed superior performance in comparison with other retail sectors.

In 2012, the state of Santa Catarina, for example, accounted for 2.97% of the national market, according to an ABRAS Ranking research based on 120 largest companies of the whole country (ABRAS, 2013).

Additionally, by combining development and planning to reduce costs, supermarket companies that adopt the budget become different from their competitors, providing high quality services (RIBEIRO *et al.*, 2001).

The budget is an instrument of support capable of guiding the development and implementation of strategies, performance evaluation, staff motivation and setting goals and objectives in the organization (DE WAAL, 2005).

In this context, one of the most important stages of the budgeting process is the preparation and assessment of the capital budget, which deals with the analysis of long-term investment opportunities and is inherent to organizational success, contributing to a better evaluation and decision-making processes (HORNGREN *et al.*, 2000; PETERSON; FABOZZI, 2002; HORNGREN *et al.*, 2004; GARRISON *et al.*, 2007; KOCH *et al.*, 2009; BENNOUNA *et al.*, 2010; SOUZA; LUNKES, 2016).

Weighing up the analyses of future benefits, several methodologies are available to assess the capital budget and are often represented by the Net Present Value, Internal Rate of Return, Payback Period, Accounting Rate of Return and Profitability Index (BRIJLAL; QUESADA, 2009).

Simple risk analysis methods comprise the adjustment of discount rates and the Payback Period, while the more sophisticated methods include probabilistic risk analysis, such as Sensitivity Analysis, Scenario Analysis, Decision Tree, Monte Carlo Simulation, among others.

Given the above, one can note that it is for managers to evaluate the options and consider the relevance of each criterion for budget planning when performing a final analysis of investment projects (CARMONA *et al.*, 2011).

In this direction, several researchers have been carrying out studies in developed countries providing an international perspective on the capital budget practices (SCHALL *et al.*, 1978; PIKE, 1982; PIKE, 1985; KWONG, 1986; PIKE; SHARP, 1989; WHITE *et al.*, 1997; PIKE, 1988; PEEL; BRIDGE, 1998; PEEL; BRIDGE, 1999; ARNOLD; HATZOPOULOS, 2000; GRAHAM; HARVEY, 2001; RYAN; RYAN, 2002; SANDAHL; SJOGREN, 2003; BLOCK, 2003; BROUNEN *et al.*, 2004; LAZARIDIS, 2004; TOIT; PIENAAR, 2005; HERMES *et al.*, 2007; LAM *et al.*, 2007; TRUONG *et al.*, 2008; CORREIA; CRAMER, 2008; HOLMÉN; PRAMBORG; 2009; BRIJLAL; QUESADA, 2009; CHAZI *et al.*, 2010; BENNOUNA *et al.*, 2010; KHAMEES *et al.*, 2010; HALL; MILLARD, 2011; VIVIERS; COHEN, 2011; MAQUIEIRA *et al.*, 2012). However, the specialized literature still lacks studies exploring retail companies, mainly in the supermarket sector.

In that vein, the research question that guides this article arises: What are the capital budgeting practices adopted by supermarket companies from the state of Santa Catarina - Brazil? In order to answer the question, the main objective is defined: analyze the capital budget practices in supermarket companies from the state of Santa Catarina - Brazil.

To achieve this goal, questionnaires are applied and responses are examined, aiming at identifying what are the capital budgeting practices employed by supermarkets located in Santa Catarina.

This research is justified by three main reasons: obtaining information from retail supermarket managers about the management process; data on the documentation concerning capital budgeting practices and characteristics related to the methods used in investment budget appraisal.

Theoretical Review

The capital budget is essential for the development of a company. Decisions taken based on the evaluation of the various stages of this budget can lead companies to pursue or abandon their projects, thus undermining their own structure (BAIMAN *et al.*, 2013). This is due to the fact that managers tend to select projects that meet some specific organizational objectives, in accordance with restrictions imposed by the management of the companies concerned or external factors to consider (BERALDI *et al.*, 2013).

Investment Analysis Techniques and Discount Rates

The central feature of any investment analysis is the use of the Discounted Cash Flow (DCF), which includes the time value of money. Also, it has been considered in the the specialized literature as the most appropriate method, as it comprises at least four different discount models: Net Present Value (NPV), Internal Rate of Return (IRR), Modified Internal Rate of Return (MIRR) and Profitability Index (PI) (BRIGHAM; EHRHARDT, 2002).

The NPV explores the return on investment, as it brings expectations of future financial inputs and outputs to present values. The method is defined by adding the present values of annual net income determined during the period of investigation (HANAFIZADEH; LATIF, 2011).

The IRR differs from the NPV method, as it establishes the potential return on investment. The IRR rate makes the present value of capital outlay equivalent to the present value of cash inflows (KIERULFF, 2008).

From the NPV, the present value of future cash flows is calculated and compared to the value of initial expenditure. An investment project is deemed acceptable when it has a positive NPV. The IRR is a percentage that equates the present value of future cash flows with the present value of their capital expenditures (BENNOUNA *et al.*, 2010).

The Profitability Index represents the ratio of the present value of future cash flows to their initial cost (ROSS, 2000), in other words, is the quotient of net present value in relation to the initial investment (BREALEY *et al.*, 2002).

There are other methodologies available for capital budget analysis that do not involve Discounted Cash Flows. Among them, the most common are the Payback Period (PP) and the Accounting Rate of Return (ARR) (ROSS, 2000). The Payback Period calculates the period of time required for the recovery of invested capital. While the Accounting Rate of Return is the ratio of the book value of profit to the book value of the investment (HORNGREN *et al.*, 2000).

The Real Options approach recognizes the specific flexibility (options) in some investment projects (ALKARAAN; NORTHCOTT, 2006). For Antonik (2012), this technique should be used in addition to the Net Present Value approach that has a new value, and it is therefore the value of the investment project added to the exercise price of the various options for each project.

The rates of return include the Weighted Average Cost of Capital (WACC), the Cost of Debt and the Cost of Equity. It is worth pointing out that the Weighted Average Cost of Capital is superior when it comes to determine the cost basis, including preference shares as either debt or equity (BRIGHAM; EHRHARDT, 2002; RYAN; RYAN, 2002).

Conceptualized as the required rate of return of an investment proposal, where it is intended to stabilize the company's capital structure (BENNOUNA *et al.*, 2010), the WACC is the rate at which the Cost of Debt and Cost of Equity are used in a predetermined percentage (BLOCK, 2011).

In general, it is expected that organizations apply differential rates for investment projects, units and/or sectors. When assessing the market return, the company can create rates for different and new investments, even comprising projects outside its core business.

Risk Analysis Methods

The sensitivity analysis is a method that uses numerous possible values for a given variable, in order to assess their impact on the return of the organization. On the other hand, scenario analysis is applied to evaluate the impact on the return of the organization, resulting from simultaneous changes of multiple variables (GITMAN, 2010).

The decision tree is an instrument used to identify uncertain cash flows, formed by sequential decision diagram and possible outcomes (BREALEY *et al.*, 2005). It comprises a sequential decision diagram and possible outcomes (BREALEY *et al.*, 2002).

The Monte Carlo simulation is a technique found in stochastic simulations with different applications in distinct areas (HROMKOVIC, 2001). Also, it is a method to perform a propagation of uncertainty analysis, whose main advantage lies in determining how a random variation already known, or error, affect the performance or viability of the project being modeled (Moore; Weatherford, 2006).

In addition to the proper use of financial techniques, the literature provides several recommendations for management of processes when making decisions about the capital budget. Preferably, there should be a capital investment manual available for use (PIKE, 1988), full-time staff dedicated to the capital budget (KLAMMER; WALKER, 1984; PIKE, 1989), the application of a standard model to define the NPV or IRR – for example, a Microsoft Excel model –,information systems providing support (HO; PIKE, 1996) and post investment audit (KLAMMER; WALKER, 1984; PIKE, 1996).

Previous Studies

Several researchers have developed studies covering capital budget practices in recent years. Such studies involve large, medium and small organizations and a wide range of business sectors. According to Table 1, previous studies underline the percentage of capital budgeting practices prevailing in different countries.

Table 1: Main capital budgeting practices in percent (%)

Authors	Capital Budgeting Analysis Approaches							Technical Ground for Defining Rates of Return					Investment Risk Analysis Techniques				
	Net Present Value	Internal Rate of Return	Profitability Index	Payback Period	Accounting Rate Return	Real Option	Others	Weighted Average Cost of Capital	Cost of debt	Cost of equity	An Aleatory Rate	Others	Scenario Analysis	Sensitivity Analysis	Monte Carlo Simulation	Decision Tree	Others
Schall *et al.* (1978)	56	65	N/A	74	58	N/A	N/A	46	16	9	N/A	16	N/A	N/A	N/A	N/A	N/A
Pike (1982)	39	57	N/A	81	49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	42	N/A	N/A	N/A
Pike (1985)	32	44	N/A	73	51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	28	N/A	N/A	N/A
Kwong (1986)*	58	60	21	83	57	N/A	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	N/A
Pike & Sharp (1989)	68	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	71	N/A	N/A	N/A
White *et al.* (1997)	51	58	55,8	79	67,4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pike (1988)	68	75	N/A	92	56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	71	N/A	N/A	N/A
Peel & Bridge (1998)	36	39	N/A	81	48	N/A	2,02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peel & Bridge (1999)	42	42	N/A	82	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	35	30	N/A	90	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arnold & Hatzopoulos (2000)	43	48	N/A	30	26	N/A	N/A	54	11	8	6	25	85	85	N/A	N/A	3
Graham & Harvey (2001)	75	76	N/A	57	N/A	N/A	N/A	73,5	15,7	39,4	N/A	N/A	N/A	51,5	N/A	N/A	N/A
Ryan & Ryan (2002)*	96	92	43,9	74	33,3	11,4	N/A	83,2	7,1	1	N/A	8,4	66,8	85,1	37,2	31,1	N/A
Sandahl & Sjogren (2003)	52	23	N/A	78	21,1	0	6,3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Block (2003)	11	16	N/A	43	22,4	N/A	7,3	85,2	N/A	6,4	N/A	8,4	N/A	N/A	N/A	N/A	N/A
Lazaridis (2004)	13	9	2,6	37	17,7	N/A	N/A	6	31	20,2	26,2	13,1	30	28,3	N/A	10	31,7
Brounen *et al.* (2004)	47	53	N/A	69	N/A	N/A	N/A	N/A	N/A	31,3	N/A	N/A	N/A	42,9	N/A	N/A	N/A
	70	56	N/A	65	N/A	N/A	N/A	N/A	N/A	30,8	N/A	N/A	N/A	36,7	N/A	N/A	N/A
	48	42	N/A	50	N/A	N/A	N/A	N/A	N/A	18	N/A	N/A	N/A	28,1	N/A	N/A	N/A
	35	44	N/A	51	N/A	N/A	N/A	N/A	N/A	27,3	N/A	N/A	N/A	10,4	N/A	N/A	N/A
Toit & Pienaar (2005)	72	72	10,9	41	35,9	N/A	17,2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hermes *et al.* (2007)	89	74	N/A	79	2	N/A	2	66,7	14,3	9,5	N/A	9,5	N/A	N/A	N/A	N/A	N/A
	49	89	N/A	84	9	N/A	0	53,3	28,9	15,7	N/A	2,2	N/A	N/A	N/A	N/A	N/A
Lam *et al.* (2007)	72	65	N/A	85	82,6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	71,7	69,6	N/A	N/A	N/A
Truong *et al.* (2008)	94	80	72	91	57	32	13	84	34	72	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Correia & Cramer (2008)*	82	79	7,1	54	14,3	10,7	N/A	65	35	71,4	N/A	N/A	71,4	67,9	14,3	10,7	3,6
Holmén & Pramborg (2009)	69	62	N/A	79	65	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brijlal & Quesada (2009)	36	28	N/A	39	22	N/A	10	12	24	15	0	N/A	N/A	N/A	N/A	N/A	N/A
Bennouna *et al.* (2010)	94	88	N/A	N/A	N/A	8	N/A	76,1	9,9	1,4	N/A	12,7	85,3	92,8	N/A	N/A	N/A
Chazi *et al.* (2010)	83	83	43,8	73	48,5	61,3	N/A	57,1	29,6	50	N/A	N/A	N/A	72,7	N/A	N/A	N/A
Khamees *et al* . (2010)*	83	83	43,8	73	48,5	61,3	N/A	57,1	29,6	50	N/A	N/A	N/A	72,7	N/A	N/A	N/A
Hall & Millard (2011)	29	24	4,8	4,8	33,3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13,9	29,2	42	28	4,1
Viviers & Cohen (2011)	75	75	12,5	62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Maquieira *et al.* (2012)	72	70	53,8	62	14,8	24,5	18,3	37,8	39,1	15,3	31,3	8,67	N/A	58,9	18,6	N/A	N/A
Souza & Lunkes (2013)*	82	75	83	69	69	81	75	25	25	44	31	N/A	76	69	56	69	0

Source: Adapted from Souza; Lunkes (2013).

One can note that the most commonly used methods for investment analysis are the Payback Period, with a strong predominance from 1978 to 1999, and the Net Present Value, especially from 2001 to 2012. On the other hand, the Net Present Value was the least used technique during the period from 1978

to 1999. The Weighted Average Cost of Capital figures as the most used discount rate in enterprises (12 surveys), while the Cost of Equity appears in results obtained from 7 surveys as the least used.

Among managers, sensitivity analysis is the most popular methodology applied for risk analysis and the decision tree is the least popular. Those evidences represent a clear indication that, gradually, companies are increasing the level of sophistication of capital budgeting practices.

Moreover, the lack of previous studies shows the importance of carrying out a research on the capital budgeting practices in supermarket retailers.

Methodological Procedures

In this section, methodological procedures applied in the preparation of the questionnaires and analysis are presented, as well as the population and the sample of supermarket companies.

Procedures for Questionnaire Design and Data Analysis

The questionnaire was prepared based on the main features identified in the review of the specialized literature, in line with the research performed by Souza and Lunkes (2013), highlighted in Chart 1.

Chart 1: Main capital budgeting practices

Main capital budgeting practices	
Período Payback – PP	**Investment Analysis Approaches**
Net Present Value – NPV	
Internal Rate of Return – IRR	
Profitability Index– IR	
Accounting Rate of Return– ARR	
Real Option – OR	
Weighted Average Cost of Capital – WACC	**Technical ground for defining the minimum acceptable rate of return on investment**
Cost of debt	
Cost of Equity	
Aleatory Rate	
Other	
Scenario Analysis	**Investment Risk Analysis Techniques**
Sensitivity Analysis	
Decision Tree	
Monte Carlo Simulation	
Other	
Behavior of suppliers	**Environmental uncertainty or predictability**
Behavior of competitors	
Customers' tastes and preferences	
Behavior of Financial Market	
Government's Behavior	
Behavior of Trade unions	
Technological Changes	
Projected outward flows	**Data obtained from information systems geared towards investment appraisal**
Projected inward flows	
Capital cost and minimum rate of return	
Useful life expectancy	
Macroeconomic data	
Post-audit review	

Source: Souza and Lunkes (2013).

The questionnaire content of the present research was elaborated based on the characteristics extracted from Chart 1. The questionnaire was conducted by phone and email and it was divided into: 6 questions about characterization of the surveyed companies and 9 questions about the capital budget, 3 of them using the Likert scale with five levels and six objective questions. Furthermore, three general questions about the characteristics of the hotels managers were prepared.

The initial population is composed of supermarket companies, members of the Santa Catarina State Supermarket Association (ACATS), totaling 451 institutions. The identification of supermarkets preparing budget was performed through telephone contact. If the answer was negative, additional information about the institution was requested, in order to identify characteristics of supermarkets that do not apply the budgeting process in their management.

From the answers obtained, 19 companies that apply the budgeting process were identified. The questionnaire requesting information on the budgeting practices of capital was sent by email to the responsible for those procedures in the companies, aiming at obtaining characteristics of supermarkets from the state of Santa Catarina.

Presentation and Analysis of Results

For the presentation and analysis of capital budgeting practices, supermarket companies from Santa Catarina were characterized, as well as their managers, besides assessing the methods used for investments appraisal, discount rates and risk analysis. Finally, the degree of predictability of the supermarket and data obtained from information systems were examined.

Characterization of Supermarkets

In order to characterize the supermarkets, questions about the category of the organization and its managers were asked. Moreover, denomination used by those companies were called into question.

Table 2: Information on supermarkets located in the state of Santa Catarina

What is the total number of employees of the organization?			
Up to 100 employees	From 101 to 500 employees	From 501 to 1000 employees	Over 1001 employees
21%	26%	21%	32%

What is the organization's annual revenue?				
Up to 1,2 million	From 1,2 to 5 million	From 5 to 10 million	From 10 to 60 million	Over 60 million
5%	11%	16%	21%	42%

Does the company operate in the foreign market?	
Yes	No

Source: Elaborated by the authors, according to the questionnaires.

It was found that due to the fact that most of supermarkets have a total annual turnover of 60 million, a clear majority of them has more than 1,001 employees. Besides, it was evident that 58% of supermarkets selected operate in foreign markets, while only 42% claim to operate only in the domestic market.

After the confirmation of the use of capital budgeting practices, 19 supermarkets were surveyed on the profile of their managers. Thus, it was observed that the majority of CEOs/presidents are over 60 years of age (37%). As for the length of time working in the current position, 79% of respondents ensured that they work at the company for more than nine years.

Regarding education, 63% of managers only hold an undergraduate degree in a particular study area. Additionally, it was found that only one supermarket sample is run by a director who only holds a high school diploma, 6 hold an undergraduate degree and none of them hold a master's and/or doctorate degree.

Investment Analysis Techniques

Supermarket companies from the state of Santa Catarina were investigated with regard to the frequency of use of diverse methods for investment budget appraisal, as can be seen in Table 3.

Table 3: Methods used for capital budgeting and investment analysis

Methods	Always	Almost always	Eventually	Almost never	Never
	(%)	(%)	(%)	(%)	(%)
Net Present Value – NPV	73,68	15,79	-	10,53	-
Internal Rate of Return –IRR	26,32	57,79	10,53	5,26	-
Modified Internal Rate of Return – MIRR	21,05	42,11	10,53	21,05	-
Profitability Index	31,58	47,37	15,79	5,26	-
Payback Period	42,11	10,53	42,11	5,26	-
Taxa de Retorno Contábil	52,63	21,05	10,53	5,26	5,26
Real Option	42,11	42,11	-	10,53	5,26
Others	-	-	-	-	100

Source: Elaborated by the authors.

From the table in question one can note that companies under study, in their great majority, affirmed that they always use the Net Present Value and the Accounting Rate of Return. However, in any manner whatsoever, it is observed that other methods are also fairly applied by companies.

Similarly, research on companies show the prevalence of the Net Present Value in the capital budget evaluation (GRAHAM; HARVEY, 2001; BROUNEN *et al.*, 2004; HERMES *et al.*, 2007; TRUONG *et al.*, 2008; HOLMÉN; PRAMBORG, 2009; BRIJLAL; QUESADA, 2009; BENNOUNA *et al.*, 2010; CHAZI *et al.*, 2010). The Accounting Rate of Return figures as widely used in researches carried out by Lam *et al.* (2007), Holmén and Pramborg (2009) and Hall and Millard (2010). Moreover, results show that the Net Present Value and Payback stand out in the companies in relation to the use of other techniques.

Technical ground for defining the minimum acceptable rate of return on investment

Regarding the technique used to define the acceptable rate of return, it appears from Table 4, the prevalence of the Weighted Average Cost of Capital. However, the Cost of Equity is also used by 36.84% of the sample. In addition, it is worth stressing that the minimum acceptable rate of return is equal for all investments in more than half (58%) of those surveyed supermarkets.

Table 4: Techniques used to define the acceptable rate of return on a new investment

Techniques	Quantity	Frequency (%)
Weighted Average Cost of Capital – WACC	13	68,42
Cost of debt	3	15,79
Cust of equity	7	36,84
An Aleatory Rate	-	-
Other	1	5,26

Source: Elaborated by the authors.

Previous studies show that the most used technique in other countries is the Weighted Average Cost of Capital: in the United Kingdom, by Arnold; Hatzopoulos (2000); in the United States by Graham and Harvey (2001), Ryan and Ryan (2002) and Block (2003); in the Netherlands and China by Hermes *et al.* (2007); in Australia by Truong *et al.* (2008); in Canada by Bennouna *et al.* (2010); and in the Middle East by Chazi *et al.* (2010).

Nevertheless, when analyzing the market return, it is recommended that companies employ differential rates for different and new investment projects, units or divisions, which is not done by most of the supermarkets taking part in the research.

Techniques for Risk Analysis

In relation to the investment risk analysis, Table 5 shows that 21.05% never use the Monte Carlo simulation and other 21.05% of the sample do not use a formal technique in investment risk analysis.

Table 5: Investment Risk Analysis

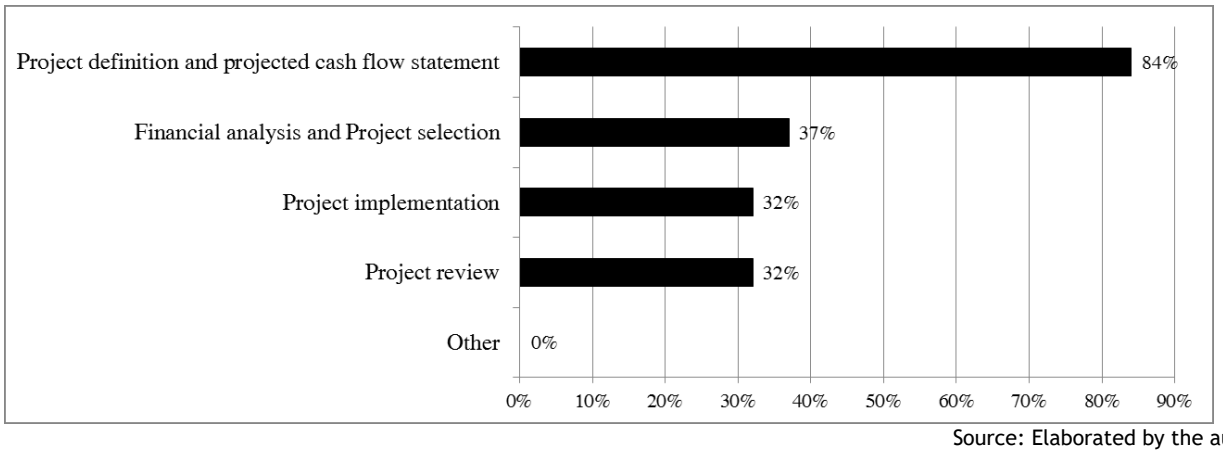
Techniques	Always (%)	Almost Always (%)	Eventually (%)	Almost never (%)	Never (%)
Scenario Analysis	78,95	10,53	-	-	5,26
Sensitivity Analysis	15,79	63,16	-	-	15,79
Monte Carlo Simulation	10,53	42,11	10,53	10,53	21,05
Decision Tree	10,53	31,58	31,58	5,26	15,79
It does not use a formal technique	15,79	31,58	21,05	5,26	21,05

Source: Elaborated by the authors.

Moreover, it is observed that the participant companies often use the scenario analysis method. As well as in several companies from the UK, United States, South Africa and Brazil, it is the most common technique (ARNOLD; HATZOPOULOS, 2000; RYAN; RYAN, 2002; CORREIA; CRAMER, 2008; SOUZA; LUNKES, 2013).

As a complement, Figure 1 shows that 84% of participants suggested that the project definition and cash flows forecast are the most critical and important stages of the investment process. Nonetheless, the project review and implementation have been identified as critical for 32% of the sample.

Figure 1: Critical stage of the investment process.



Source: Elaborated by the authors.

Such findings are in line with those obtained by Brijlal; Quesada (2009) in Africa, who reported the definition of the project as one of the most difficult steps in investment projects in the service sector.

Regarding the allocation of investments in the last five years, maintenance projects have received more attention from the sample. Likewise, Table 4 shows that new expansion projects are those that reach investment from 61% to 80% in 5.26% of cases.

Besides, it appears that in all participant supermarkets there is at least one member of the senior management directly involved in the capital budget process, but 79% of the sample confirmed to audit investment expenditures. On the other hand, 79% assured that a manual of basic guidelines for investing is available for use by managers.

Regarding the degree of uncertainty or predictability of the supermarket environment, Chart 2 shows the response given by managers. One can notice that customers' tastes and preferences and the behavior of competitors are more predictable by the system. Conversely, the government's behavior is among the most unpredictable.

Chart 2: Level of predictability in the supermarket environment.

ENVIRONMENT	Totally Impredictable (%)	Partially Impredictable (%)	Eventually (%)	Partially predictable (%)	Always Predictable (%)
Behavior of suppliers	5,26	10,53	10,53	31,58	42,11
Behavior of competitors	10,53	15,79	5,26	52,63	15,79
Customers' tastes and preferences	5,26	10,53	10,53	73,68	-
Behavior of Financial Market	5,26	21,05	21,05	36,84	15,79
Government's Behavior	5,26	26,31	26,31	15,79	26,31
Behavior of Trade unions	-	21,05	26,31	36,84	15,79
Technological Changes	-	15,79	31,57	36,84	15,79

Source: Elaborated by the authors.

According to Chart 2, it is possible to observe that supermarkets can somehow always predict, or at least partially predict, the behavior of suppliers, competitors, customers, government and trade unions. This means that these companies are able to identify and define their external audiences.

Chart 3: Frequency in which data are obtained through information systems.

INFORMATION	Always (%)	Sometimes (%)	Eventually (%)	Almost never (%)	Never (%)
Projected outward flows	73,68	15,79	5,26	-	5,26
Projected inward flows	36,84	52,63	5,26	-	5,26
Capital cost and minimum rate of return	26,32	47,37	15,79	10,53	-
Useful life expectancy	21,05	36,84	26,32	15,79	-
Macroeconomic data	15,79	47,37	21,05	10,53	5,26
Post-audit review	21,05	36,84	21,05	15,79	5,26

Source: Elaborated by the authors.

Chart 3 shows the frequency with which subsidies are obtained by information systems of the participating supermarkets. It is clear that the projected output flow is the most commonly available information.

In general, information is eventually or rarely available. This means that managers of supermarket companies in the sample do not have a system with information available when needed and this may be the cause of losses in the budgeting process.

Conclusions

This study was guided by evaluation objectives, which consisted of analyzing capital budgeting practices in supermarket companies from the state of Santa Catarina - Brazil. For this purpose, questionnaires were applied and the responses obtained were evaluated, aiming at identifying the capital budgeting practices employed by nineteen supermarkets from the state of Santa Catarina.

The profile of the companies and their managers, investment analysis techniques, discount rates used, risk analysis methods, the allocation of investments, the predictability of the company's environment, and the frequency with which information is obtained by the information systems were presented.

It was found that the majority of CEOs/presidents are over 60 years of age and 79% of them work at the company for more than nine years. Regarding education, 6 managers hold an undergraduate degree and none of them hold a master's and/or doctorate degree.

It was noted that, in general, investment appraisal techniques are frequently used in the companies, and the Net Present Value and the Accounting Rate of Return being the predominant approaches. The Accounting Rate of Return figures as widely used in researches carried out by Lam *et al*. (2007), Holmén and Pramborg (2009) and Hall and Millard (2010), but the Net Present Value and Payback stand out in the companies regarding the use of other techniques.

Also, the application of the Weighted Average Cost of Capital was predominant, corroborating studies carried out by Arnold; Hatzopoulos (2000), Graham and Harvey (2001), Ryan and Ryan (2002) and Block (2003), Hermes *et al*. (2007), Truong *et al*. (2008), Bennouna *et al*. (2010) and Chazi *et al*. (2010).

Nevertheless, more than half (58%) of the supermarkets surveyed apply the same minimum acceptable rate of return for all investments, ignoring the particular characteristics of each project.

As for investment risk analysis, it was observed that the scenario analysis method is frequently used. In several companies from the UK, United States, South Africa and Brazil, it is the most common technique (ARNOLD; HATZOPOULOS, 2000; RYAN; RYAN, 2002; CORREIA; CRAMER, 2008; SOUZA; LUNKES, 2013).

In relation to the most critical stage of the investment analysis process, 84% of participants suggested that the project definition and cash flows forecast are the most critical, similar to the African service companies surveyed by Brijlal and Quesada (2009).

It was noticed that supermarkets could always or partially predict the behavior of suppliers, competitors, customers, government and trade unions. This means that these companies are able to identify and define their external audiences.

Finally, information is eventually or rarely available. In other words, managers of supermarket companies in the sample do not have a system with information available when needed and this may be the cause of losses in the budgeting process.

For future research, it is recommended to examine a broader data set, both in terms of number of supermarkets and budgeting practices. It is also proposed that the questionnaire should be applied in other sectors and that a comparative study between Brazilian companies should be carried out.

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