Revista Ibero-Americana de Estratégia
Iberoamerican Journal of Strategic Management

e-ISSN: 2176-0756
doi.org/10.5585/riae.v21i1.18548
Received: 22 Oct. 2020 / **Approved:** 12 Dec. 2021
Evaluation Process: Double Blind Review

C O P E
JM14473

Check for updates

ECONOMIC VALUE CREATION AND FINANCIAL SUSTAINABILITY IN BRAZILIAN HIGHER EDUCATION INSTITUTIONS

Ronaldo Lamounier Locatelli[1] **Alan Sales da Fonseca**[2] **José Edson Lara**[3] **Wendel Alex Silva**[4]

[1] *Doutor em Economia pela University of London. Londres – Inglaterra. ronaldo.locatelli@yahoo.com.br*
[2] *Mestre em Administração. Fundação Pedro Leopoldo – FPL, Diretor de Finanças do Centro Educacional Integrado. Campo Mourão, PR – Brasil. alansfonseca@yahoo.com.br*
[3] *Doutor em Economia de Empresas pela Universitat Autònoma de Barcelona – ES, Professor da Fundação Pedro Leopoldo – FPL. MG – Brasil. jedson.lara@hotmail.com*
[4] *Doutor em Administração de Empresas pela Universidade Federal de Lavras, Professor da Fundação Mineira de Educação e Cultura – FUMEC. Belo Horizonte, MG – Brasil. castrosilva1307@gmail.com*

Abstract
Objective: The article aims to analyze the creation of economic value, as well as the value vectors and the impacts caused by the number of students, value of tuition and costs on the economic results achieved in a higher education institution (HEI).
Methodology/approach: This is a case study with adaptation of the EVA (Economic Value Added) model and the use of multivariate econometric analysis.
Relevance/originality: Despite the representativeness of private organizations in the educational sector in the Brazilian economy, academic articles were not identified dealing with their capacity to create value, which is one of the necessary conditions for self-sustained growth of an organization.
The main results: The University Center was able to generate value in the recent period. The disaggregated analysis showed the good performance of engineering and that most courses in the business area have destroyed the organization's value.
Theoretical/methodological contributions: An incursion into the theory of corporate finance made it possible to adapt methods and procedures that led to an adequate application to the study of value generation in a HEI. The study can be replicated and contributes for HEIs to incorporate the dimension of value generation in their management model.
Social contributions to management: Two segments were identified that demand differentiated strategies to improve the HEI's market position. In the business area, given the competition, a policy of low prices is imposed, with revision/consolidation of the offer of courses. In the healthcare and engineering segment, the strategy to be followed is not price competition, but differentiation, with the pursuit of excellence being crucial.

Keywords: Higher education institutions. Value creation. Financial sustainability.

GERAÇÃO DE VALOR ECONÔMICO E SUSTENTABILIDADE FINANCEIRA EM INSTITUIÇÕES DO ENSINO SUPERIOR BRASILEIRO

Resumo
Objetivo do estudo: O artigo tem por objetivo analisar a geração de valor econômico, bem como os vetores de valor e os impactos provocados pelo número de alunos, valor das mensalidades e custos nos resultados econômicos alcançados em uma instituição de ensino superior (IES).
Metodologia/abordagem: Trata-se de um estudo de caso com adaptação do modelo EVA (Economic Value Added) e uso de análise econométrica multivariada.
Originalidade/relevância: Não obstante a representatividade das organizações privadas do setor educacional na economia brasileira não se identificou artigos acadêmicos versando sobre a sua capacidade de criar valor, que é uma das condições necessárias para o crescimento autossustentado de uma organização.
Principais resultados: O Centro Universitário foi capaz de gerar valor no período recente. A análise desagregada evidenciou o bom desempenho das engenharias e que a maioria dos cursos da área de negócios tem destruído valor da organização.
Contribuições teóricas/metodológicas: Procedeu-se a uma incursão na teoria de finanças corporativas adaptando métodos e procedimentos que ensejaram uma aplicação adequada ao estudo da geração valor em uma IES. O estudo pode ser replicado e contribui para que as IES incorporem a dimensão da geração de valor em seu modelo de gestão.
Contribuições sociais para a gestão: Foram identificados dois segmentos que demandam estratégias diferenciadas para melhorar a posição de mercado da IES. Na área de negócios, haja vista a competição, impõe-se uma política de preços baixos, com revisão/consolidação da oferta de cursos. No segmento de saúde e das engenharias a estratégia a ser seguida não é a de competição de preços, mas sim a da diferenciação, sendo crucial a busca pela excelência.

Palavras-chave: Instituições de ensino superior. Geração de valor. Sustentabilidade financeira.

GENERACIÓN DE VALOR ECONÓMICO Y SOSTENIBILIDAD FINANCIERA EN INSTITUCIONES DE EDUCACIÓN SUPERIOR BRASILEÑAS

Resumen
Objetivo del studio: El artículo tiene como objetivo analizar la generación de valor económico, así como los vectores de valor y los impactos que ocasiona el número de estudiantes, matrículas y costos sobre los resultados económicos alcanzados en una institución de educación superior (IES).
Metodología/Enfoque: Este es un caso de estudio con adaptación del modelo EVA (Valor Económico Agregado) y uso de análisis econométrico multivariado.
Originalidad/Relevancia: A pesar de la representación de las organizaciones privadas del sector educativo en la economía brasileña, no se identificaron artículos académicos sobre su capacidad de crear valor, que es una de las condiciones necesarias para el crecimiento autosostenido de una organización.
Resultados principals: El Centro Universitario supo generar valor en el período reciente. El análisis desagregado mostró el buen desempeño de la ingeniería y que la mayoría de los cursos en el área de negocios han destruido el valor de la organización.
Contribuciones teóricas: Se realizó una incursión en la teoría de las finanzas corporativas, adaptando métodos y procedimientos que dieron lugar a una adecuada aplicación al estudio de la generación de valor en una IES. El estudio puede ser replicado y contribuye a que las IES incorporen la dimensión de generación de valor en su modelo de gestión.
Contribuciones sociales y a la gestion: Se identificaron dos segmentos que demandan estrategias diferenciadas para mejorar la posición de mercado de IES. En el área empresarial, dada la competencia, se impone una política de precios bajos, con revisión / consolidación de la oferta de cursos. En el segmento de la salud y la ingeniería, la estrategia a seguir no es la competencia de precios, sino la diferenciación, siendo crucial la búsqueda de la excelencia.

Palabras claves: Instituciones de educación superior. Generación de valor. Sostenibilidad financiera.

Cite as / Como citar

American Psychological Association (APA)
Locatelli, R. L., Fonsenca, A. S., Lara, J. E., & Silva, W. A. (2022). Economic value creation and financial sustainability in Brazilian higher education institutions. *Iberoamerican Journal of Strategic Management (IJSM), 21*, 1-25, e18548. https://doi.org/10.5585/riae.v21i1.18548.

(ABNT – NBR 6023/2018)
LOCATELLI, Ronaldo Lamounier; FONSENCA, Alan Sales da; LARA, José Edson; SILVA, Wendel Alex. Economic value creation and financial sustainability in Brazilian higher education institutions. *Iberoamerican Journal of Strategic Management (IJSM),* v. 21, p. 1-25. 2022. https://doi.org/10.5585/riae.v21i1.18548.

1 Introduction

Education has been undergoing a major transformation, both from an academic and business opportunities perspective. In Brazil, this movement gained momentum from the year 2000 onwards, with the control of higher education institutions (HEIs) becoming an object of interest to large capital, receiving a strong inflow of resources in the sector, which come from both national and international investors (Oliveira, 2009; Cunha, 2007; Mian, Salah, Ameen, Mioduddin & Alkhalefah, 2020).

In the domestic sphere, from 2003 onwards, the injection of new capital was facilitated by the policies implemented by the federal government which aimed to diversify the courses offered and increase the number of places in higher education. New public educational institutions were created and incentives were introduced for the expansion of private institutions, including distance education, which began to fill the gaps left by the public sector (Meleu, Bandeira & Farenzena, 2019). With public resources, a large number of scholarships were awarded under the University for All Program (Prouni) and financing with reduced interest rates through the Student Financing Fund (Fies) to facilitate entry into private higher education institutions (Almeida, Almeida & Teixeira, 2017). However, due to the fragility of public finances, the FIES underwent several structural changes, the most recent being implemented in 2018. From then on, this Fund can include different modalities, allowing zero interest rates for low-income students and a scale of financing that varies according to the economic situation of the beneficiary of the program.

The growth of the Brazilian economy from 2003-2013 and government policies to support students and educational institutions enabled the expansion and the good economic-financial results achieved by private HEIs. In view of the expansion in the demand for higher education courses and the ease of access by companies to the capital market, the largest private educational groups in the country were able to resort to going public - IPO (*Initial Public Offering*) - to make their business plans viable, and they began to have shares listed on B3 (Brasil, Bolsa, Balcão), formerly BM&FBovespa, Only between March and October 2007, four HEIs went public (Anhanguera Educacional, Kroton Educacional, Estácio Participações and SEB - Sistema Educacional Brasileiro), and together they raised in the initial offer around R$1.2 billion (Federal University of Campina Grande, 2009).

With increased competition, gaining *market share* in the education sector was the main move planned by large educational groups, which increasingly sought to grow the student base, either organically or through acquisitions (Sguissardi, 2015; Gaspar & Fernandes, 2014). This situation also happened in other regions of the world, forcing the integration of institutions with other economic groups in the search for cooperation and competitiveness (Davey, Meerman, Muros, Ozazbayeva & Baaken, 2018). Also, from the point of view of the dimension of a country's regional markets, educational innovations in the field of distance learning (EAD) broke down natural geographic barriers and further intensified competition.

Institutions of different sizes and with different legal formats are competing in the Brazilian private educational market, from public and privately held companies, as well as those represented by associations and foundations that act without the objective of being profitable. With the onset of the crisis in the Brazilian economy beginning 2013, and more restrictive rules for public financing of students, there was a drop in demand for higher education, affecting the financial health of HEIs and intensifying competition between them.

No matter the size and form of organization of an HEI, it submits to the rules of the market and, in order to maintain and expand its student base, it must be well managed and enjoy good financial health. Therefore, as with any private organization, comes the need to properly manage the value provided by the investment, a theme that is the main challenge for administrators and executives who lead these educational companies (Parente et. al., 2012; Assaf, Araújo & Fregonesi, 2006).

In recent decades, studies have been carried out covering theoretical discussions and the development of adequate instruments to identify the capacity to generate value in organizations (Tudose, Rusu & Avasilcai, 2021; Hall, 2016; Shah, Haldar & Rao, 2015). Also, this form of management directed towards creation has been receiving more and more attention in the corporate environment and a growing number of companies (among others, Coca Cola, DuPont, Eli Lilly, Polaroid, Pharmacia and Whirlpool) that use the EVA instrument (Economic Value Added) to measure the organization's performance and to delimit the remuneration of top management (Annamalah, Raman, Marthandan & Logeswaran, 2018; O'Byrne, 2014; Kaiser & Young, 2014).

However, academic articles dealing with the capacity to generate value within the scope of private HEIs in the domestic market were not identified in the main research databases. Thus, this article seeks to partially fill this gap by presenting the necessary methodological adaptations to the theoretical framework to address the issue of value generation in HEIs, as well as the results achieved from its application in an institution. The question that is intended to be answered is whether an HEI can present financial sustainability and adequately remunerate its sponsors. Therefore, the general objective of the study is to analyze the value generation capacity of an HEI.

To address this issue, the aforementioned EVA instrument was selected, which, when adopted by organizations, provides a compass for designing strategies aimed at gains in competitiveness, for obtaining increased wealth and, consequently, more social delivery by the organization as a whole.

This article is based on the microeconomic level and, in addition to quantifying the value generation capacity of an HEI, identifies the critical success factors substantiated in the value drivers of each of its operating units.

2 Theoretical framework

In this section, we briefly present two topics that could contribute to support the objective of the study: the search for increased competitiveness and strategies for creating value in organizations.

2.1 Competitiveness and value creation

In a market characterized by intense competition between organizations, the adoption of competitive strategies becomes necessary for the sustainability of the vast majority of companies, as classically presented by Ansoff (1965). Recent studies, such as those carried out by Gama, Bandeira-de-Melo and Spuldaro (2018), expand the approaches towards contemplating structuring, including that of large corporations. Thus, studies on competitiveness have grown substantially in recent decades and, as highlighted by Cyrino, Yelpo, Storopoli and Serra (2021), this topic has been studied in the national/regional, industry and firm dimensions.

Still, among the classics, Porter (1990) states that the main objectives of a strategy are protection against competitive forces and the search for a return-on-investment superior to those of competitors, in such a way that companies need to deal with competition and find a differentiator to stand out from competitors.

The structure-conduct-performance paradigm refers to the way in which companies, individually, orient themselves and focus their actions on the market, in a process that exchanges externalities with effective internal attitudes in all decision-making elements, given the conditions of market and sectorial concentration (Baye, 2010; Lopes, 2016).

The causal view applied to this paradigm ensures that a concentrated market structure allows the company to charge higher prices, earning a greater return on invested capital. However, a more recent interpretation – the *feedback* critique – proclaims the non-unique causal relationship between structure-conduct and performance. Conduct can affect market structure, and performance can affect both conduct and market structure (Hasenclever & Torres, 2013; Farjoun, 2002). In any case, it is necessary to recognize that, in the short term, a company's strategy faces some restrictions imposed by the structure of the sector, which includes either a small or a large number of companies.

When it comes to educational business strategies, some studies have contributed a lot to the evolution of the literature, such as Marlina and Tjahajdi (2020), Chulkov and Wang (2020) and Parker (2020). The emphasis proposed in the literature is to determine the company's focus of action, what type of consumers it intends to serve, how it will participate in the sector, and what is the best way for this company to obtain the best performance in the chosen segment of activity. It is common knowledge that the business environment in its rivalry and dynamism dimensions exert substantial effects on the competitive position of firms (Dias, Sousa, Silva & Silva, 2020).

Two types of markets are of interest to the present study: the market with perfect competition and the one with monopolistic competition, since the company object of this study sells two types of services. In one of them, the company is just one of several educational institutions that offer courses in social and human sciences, whose characteristics allow students to be served by an EAD platform. In this segment, the company operates with a *commodity* in a regime close to that of perfect competition. The other segment served by the Educational Center consists of courses that have a barrier to entry, and

this is because a significant part of the curriculum must be offered locally due to the relevant practical loads in the process of training students. The courses in the areas of engineering and those in the health area are on this list, and they differ in this process as they demand greater investments in laboratory equipment and structures, as well as in different technologies. These characteristics make the commoditization process and competition smaller in this segment, thus characterizing a monopolistic competition structure.

In the case of a *commodity* market, the strategy used to fix the price only supports one situation: adopting the same price as other companies. Trying to charge less makes no sense, and if you charge more, nothing will sell (Baye, 2010). In a market characterized by monopolistic competition, a company's advantage lies in convincing buyers that its brand is better than that of its competitor. In such a situation, the company has a demand curve for its product, which is inclined, in such a way that the lower the price that can be charged, the greater will be its production achieved (Varian, 2010).

In this context of monopolistic competition, competitive advantage can come from the ability to produce at lower costs, or to differentiate, highlighting the company in the eyes of customers and, thus, managing to operate at higher prices (Brito & Brito, 2014). However, maintaining this competitive position does not appear to be easy, and it may require substantial effort in innovation, marketing and advertising to ensure brand differentiation. The arrival of new companies in this market niche is possible, in such a way that a company's market position may not be maintained in the medium and long term (O'Shannassy, 2008).

It can be said that, in short, managers need to identify the critical success factors, which influence their competitiveness, and that need to be monitored so that the company can perform well (Castro, Martins, Muiura & Silva, 2015; Rosseto, Verdinelli, Rossetto & Carvalho, 2014; Roman, Piana, Lozano, Mello, & Erdmann, 2012).

Nevertheless, Brito and Brito (2012) warn that obtaining a competitive advantage is not simply the attainment of superior profitability, as this is usually addressed in the literature, but it is the company having the capacity to create value above the average of its competitors.

2.2 The generation of value

The financial sustainability of organizations has led companies to adopt management based on value creation and the topic has been highlighted both in academia and in the corporate world. Copeland, Koller and Murrin (2012) and Kaiser and Young (2014) draw attention to the need to disseminate this culture, including within the scope of third sector organizations, which according to the authors should aim not only to meet the wishes of owners, but also to enable organizations to become increasingly attractive to their creditors and other stakeholders

Obtaining a company's EVA requires the verification of three main pieces of information, which are: operational returns, as well as the volume and cost of invested capital (Young & O'Byrne, 2003).

Companies that generate value to shareholders are those that manage to present an operating return (Net Operating Profit Less Adjusted Taxes - NOPLAT) higher than the cost of invested capital, as explained in equation 1.

$$EVA = NOPLAT - Cost\ of\ Invested\ Capital \quad (1)$$

Equation 1 can be rewritten as:

$$EVA = (ROIC - WACC)\ x\ Invested\ Capital \quad (2)$$

The ROIC (Return on Invested Capital) shows the return on invested capital, being obtained by the NOPLAT/invested capital ratio, and the WACC (Weighted Average Capital Cost) represents the opportunity cost of the capital employed.

It can be seen from equation 1 that obtaining the EVA is carried out in two stages: the first refers to the calculation of operating results, and the second to the pricing of invested capital, which must cover both internal sources (equity) and to external sources (debt).

Operating results can be obtained using basic information (with some adjustments) provided by the company's Income Statement (Figure 1).

Figure 1

Operating results of an organization

= Gross Operating Income
(-) Deductions (Indirect Taxes and Refunds)
= Net Operating Revenue
(-) Cost of Goods/Services Sold
= Gross Profit
(-) Operating and Administrative Expenses
= Earnings Before Interest, Depreciation and Amortization (EBITDA)
(-) Depreciation and Amortization
= Operational Result (EBIT)
(-) Operating Tax (Adjusted Income Tax)
= Net Operating Income After Adjusted Income Tax (NOPLAT)

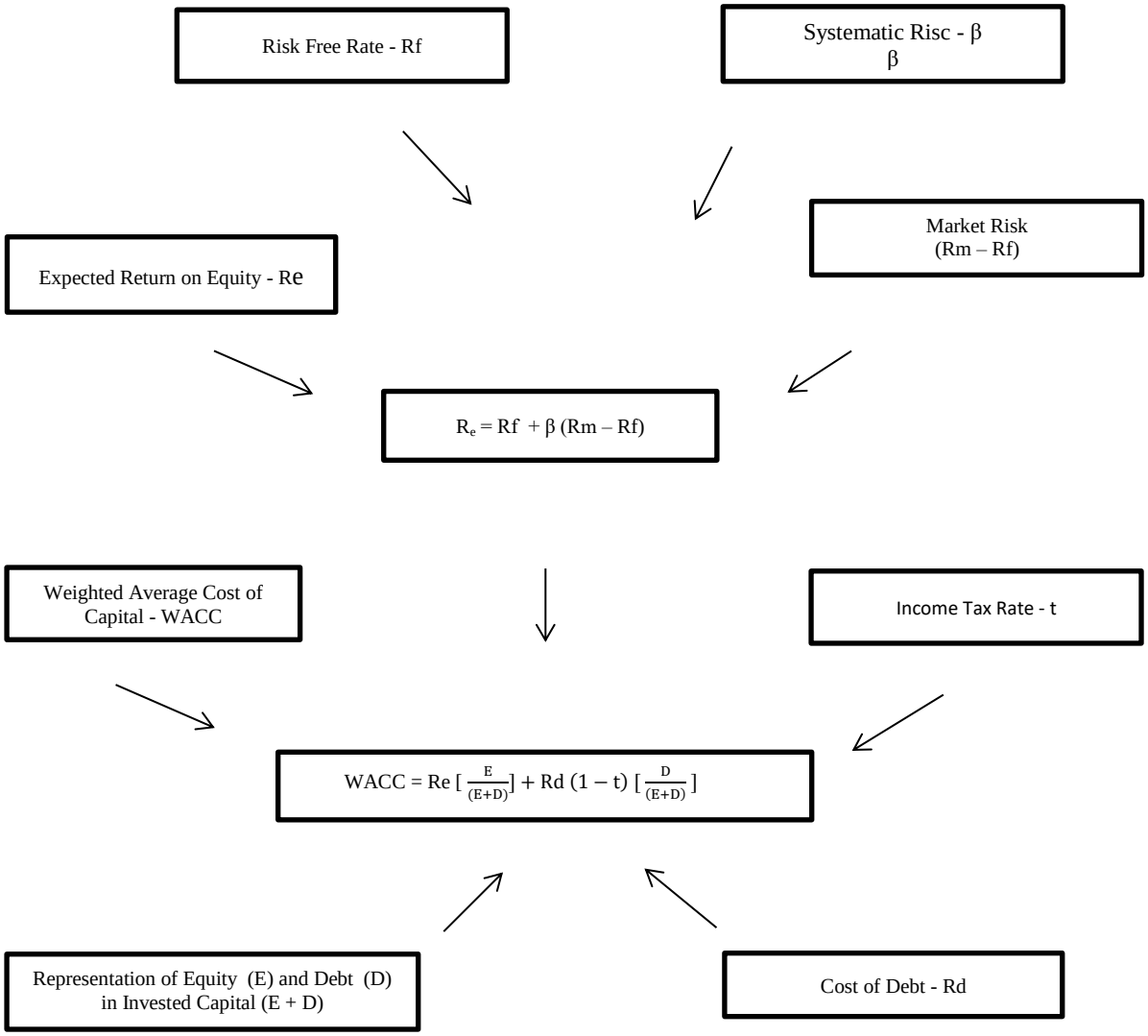
Source: Prepared by the authors.

In turn, the WACC calculation involves considerations about the capital structure, which comes from two sources: Equity (Equity – E) and Debt (Debt – D). There are several theories explaining how the cost of equity (Re) is priced, with special emphasis on the CAPM (Capital Asset Pricing Model) (Sharpe, 1964; Lintner 1965). Despite criticism (Fernandez, 2018; Fama & French, 2004), the CAPM remains the most used approach to price the cost of equity capital (Pratt & Grabowski, 2014), as it has the best cost-benefit ratio in its applicability (Da, Guo & Jagannathan, 2012; Damodaran, 2010). This

theory establishes the return of any asset as a function of the risk assumed, constituting a central element for estimating the opportunity cost of capital, as shown in Figure 2.

Figure 2

Weighted average cost of capital (WACC)



Source: Adapted from E. Kislingerová (2000). Using of the economic value-added model for valuation of Company, Biatec, 8 (1), p. 39.

The capital structure acquires strategic importance in generating value as it expands the company's growth possibilities and enables the company to obtain tax benefits (Modigliani & Miller, 1963). However, as debt increases the company's risk, it can be said that the greater the debt, the greater the systematic risk (leveraged beta), which places limits on this source of financing (Avelar, Cavalcanti, Pereira & Boina, 2017; Silva, Locatelli & Lamounier, 2016).

From the discussions presented, three components emerge that are extremely important in the management of business risk and in the use of capital, such initiatives being required for the economic and financial success of an organization. They are: first, to optimize cost and revenue management in order to maximize operating results; second, define the optimal financing structure; and third, to manage the flow of invested capital, channeling it to ventures that are capable of showing positive free cash flow values.

Thus, this section can be concluded considering that the use of EVA as a management and results monitoring tool is capable of bringing several benefits to corporations. This tool provides important support in the formulation of corporate strategies, and that allow rational decision-making, focusing on the selection of those priority investments, contributing to the creation of wealth, higher salaries and increasing the firm's competitiveness (Lai & Shad, 2017; Nagarajan, 2015).

3 Methodology

The research developed here is descriptive and can also be considered exploratory (Matar, 1977), as it contemplates the important issue of value generation in Brazilian educational companies, for which systematic academic studies were not identified. It refers to a case study (Yin, 2010), and takes a quantitative approach. The analysis covers the period from 2014 to 2017, and the data collection was carried out in the last semester of 2019.

Primary data collected at the researched HEI were used regarding revenues, operating costs and its capital structure. Furthermore, according to the procedures adopted in studies of this nature, secondary data on the financial market were obtained from reliable sources (Banco Central do Brasil - BCB and Brasil, Bolsa, Balcão - B³) to portray the business risk.

3.1 The unit of analysis

The unit of analysis consists of the Central Campus of a University Center (Centro Universitário), in this research also referred to as HEI. The aforementioned University Center is located in the State of Minas Gerais, in Brazil, being maintained by a private foundation constituted by state law in the first half of the 60s of the 20th century, and develops its activities in three campuses.

On its Central Campus, located in a city in the south of the state, there are on-site graduation courses - bachelor's, technologists and licentiate degrees - in the areas of business, health and engineering. The vast majority of courses are offered at night, and architecture and urbanism, civil engineering, agronomic engineering, physical education and veterinary medicine have classes both in the morning and in the evening.

The number of students regularly enrolled in this unit had an annual average of about 3,500 students, in the period from 2014 to 2017. In the last year, 28% of students were enrolled in business courses, 30% in engineering and 42% in the area of health (Table 1). During this period, there was a

sharper retraction in enrollments in engineering (16%) and a significant increase in courses in the health area (+33%).

Table 1

Number of students and tuition at the Central Campus

Course	Number of Students		Tuition in 2017 (in reais - BRL)
	2014	2017	
Business Area	**1063**	**970**	**808**
Administration - Foreign Trade	207	205	986
Accounting Sciences	164	196	700
Computer Science	50	38	890
Social Communication - Advertising	126	106	1117
Social Communication - Journalism	34	91	879
Pedagogy	122	92	751
Information System	29	72	844
Analysis and Systems Development	52	19	681
Human Resource Management	80	55	681
Logistics	73	21	681
Management Processes	126	75	681
Engineering Area	**1684**	**1444**	**1286**
Architecture and Urbanism	219	238	1327
Agronomic Engineering	171	246	1026
Civil Engineering	537	429	1327
Control and Automation Engineering	--	18	1327
Electrical Engineering	163	106	1327
Mechanical Engineering	409	297	1355
Production Engineering	185	110	1315
Health Area	**778**	**1037**	**1136**[2]
Biomedicine	139	110	1259
Physical Education - Bachelor's Degree	34	85	988
Physical Education - Degree	152	150	988
Nursing	71	79	1044
Physiotherapy	110	210	1379
Veterinary Medicine	--	108	1762
Nutrition	88	148	1014
Aesthetics and Cosmetics	184	147	681
Total	**3525**	**3451**	**--**

Source: Prepared by the authors.

Given the heterogeneity of the courses, there are marked differences in their tuition and fees, with higher values for veterinary medicine and lower values for business courses, whose average was R$ 808.00 per month in 2017. Engineering fees are more homogeneous, with an average monthly value of around R$ 1300.00 in that year.

3.2 Methodological procedures

The opportunity cost of capital (WACC) was obtained by the weighted average of the cost of equity (Re) and third-party capital (Rd), as shown in Figure 2. The first component was estimated using the CAPM, and the following information: average nominal rate (Rf) provided by NTN-B Principal in

the years 2014 to 2017 (12.39% p.a.); leveraged beta (1.67); risk premium (6.67%) and a liquidity premium (1.5%).

The first rate was collected from information available on the website of the Central Bank of Brazil, and the last two rates are suggested by Damodaran (2010) and Póvoa (2012), due to country risk and a premium for company size.

The beta used in the analysis, which portrays the sensitivity of a stock's return (from the education sector) in relation to the return of a market portfolio (Ibovespa index), was estimated by the authors of the research according to the *bottom-up* method (Felix, Locatelli, Fernandes & Ramalho, 2016; Damodaran, 2010; Pereiro, 2010). The beta estimates are found in section 4, using data from Brazilian companies in the same segment with shares traded on B[3]. This procedure was necessary due to the fact that the analysis unit does not have assets traded on the stock exchange.

The betas of companies in the education sector were unlevered and relevered using equation 3, considering that the unlevered beta of the organization is equal to that of the sector. This approach has also been the object of criticism (Renzi, Sancetta & Orlando, 2013), but it continues to be widely used in applied works (Levi & Welch, 2016; Copeland et al., 2012; Damodaran, 2010), having been used in this article.

$$B_U = B_L / [1+ (1 – t) (D/E)] \qquad (3)$$

Being:

B_U = unlevered beta;
B_L = levered beta;
D/E = debt/equity ratio;
t = tax rate.

Regarding the information on the capital structure and the tax rate used for leverage/deleverage purposes, they were obtained from the Income Statements and Balance Sheets of the companies, with the necessary adjustments. In the case of the University Center, this information corresponds to that of its sponsoring entity.

The HEI that is the object of this research is organized by cost centers and management units, which made it possible to raise the NOPLAT for each of the courses offered by the unit of analysis. However, some expenses, as they are common, are not individualized and, therefore, it was necessary to apportion them, which was done according to the representativeness of the gross revenues of each course.

Scholarships and discounts granted were deducted from the gross revenue of the courses. This budget line includes scholarships granted by the institution itself, scholarships from the University for

All Program (PROUNI), from the federal government, scholarships provided for in a collective convention of the professional bodies of professors and administrative assistants, agreements signed with companies several, and the discounts used to reduce defaults.

The costs include all the labor costs of professors, coordinators and laboratory assistants. The extra-class and night hours bonus, where applicable, and the Severance Indemnity Fund, the Social Integration Program on payroll, as well as any bonuses, are added to the amount of labor funds. The employer's share of the National Institute of Social Security is not paid, given the immunity that the sponsor has. In addition to these costs, two categories of expenses were taken into account: specific and corporate, excluding all those of a non-recurring nature. Specific expenses consolidate all administrative and operating expenses of the courses, and this item includes the provision for bad debt losses for all receivables overdue for more than 180 days. The corporate expenses related to the services that the sponsor provides to the Central Campus were also quantified, which were allocated by an assessment carried out based on the gross operating revenue of each course. This group of expenses includes labor expenses in areas such as: rectory, administrative and financial directors, personnel, accounting, communication, marketing, legal advice, information technology and other support areas. In addition, outsourced services, administrative travel, office materials, advertising, among others, are included in the apportionment of expenses.

Depreciation and amortization take into account the Foundation's equipment and properties, in compliance with the rules established by the Brazilian Internal Revenue Service. Depreciation and amortization expenses were allocated to courses according to the same criteria for apportioning corporate expenses, using gross revenues from courses as a parameter.

As the object of this study is the University Center of a private non-profit foundation, which has tax immunity, there is no charge of income tax on its results. Thus, NOPLAT is of the same magnitude as EBIT.

The invested capital was raised considering the need for working capital, expressed by the difference between operating assets and liabilities. The average volume of capital invested in the University Center was estimated at R$40.62 million, coming from internal sources (R$20.22 million) and debt (R$20.40 million).

It was possible, with the information referring to operating results and the cost of capital, to estimate the creation/destruction of value at the Central Campus and its courses. Then, we sought to analyze the influence of important variables (value drivers) on the results obtained by the various courses. For this, a multivariate econometric analysis was used, with the EVA of each course as the dependent variable, and the following value drivers as independent variables: school fees, number of students and the commitment of net revenues to direct costs. Thus, the estimated equation took the following form:

$$eva = \alpha_0 + \alpha_1 vm + \alpha_2 na + \alpha_3 cd + \varepsilon_i \qquad (4)$$

Being:

eva - economic value added;
vm - monthly fee;
na – number of students;
cd – direct cost/net revenue ratio;
α – coefficient that indicates the relationship between the independent and the dependent variable;
ε – sampling error.

Equation 4 was estimated with stacked data (*pooled time series*), containing information on courses in full operation in the four years analyzed. Moreover, versions of equation 4 were adjusted, which included dummy variables (binary, 0 and 1) in order to capture the influence exerted on EVA by each of the three areas of concentration. The regressions were estimated using the method of ordinary least squares (OLS), using the EViews 9.0 software.

4 Analysis of results

To price the cost of equity using the CAPM, it was necessary to estimate the business risk, reflected by the beta. In this study, for the reasons already mentioned in the methodology, and because it is the method recommended by reputable experts (Copeland et *al*., 2012; Damodaran, 2010), the *bottom-up* method was used. Thus, betas of companies in the same sector were estimated, which was done by estimating a regression by the method of ordinary least squares, and the results are shown in Table 2. This table also contains information on the unlevered betas of companies from the same sector and the levered beta of the IES, both calculated according to equation 3.

Table 2

Levered and unlevered beta of Brazilian HEIs

IES	Levered Beta	Relationship D/E[2] (%)	Income Tax Rate (%)	Unlevered Beta
Kroton Educacional S/A	0.87[1]	2.04	34.0	0.86
Estácio Participações S/A	0.90[1]	20.48	34.0	0.79
HEIs Unlevered Beta				0.83
Unit Levered Beta	1.67			

Note: [1]Statistically significant coefficient, with probability of significance close to zero. Autocorrelation and heteroscedasticity were not observed. [2] Debt (D)/Equity (E).
Source: Basic data obtained from B[3] and adjusted by the authors using regression and methods presented in Felix, Locatelli, Fernandes and Ramalho, 2016.

The unlevered beta – sector *proxy* – was obtained by the simple average of the unlevered betas of the companies Kroton and Estácio, and stood at 0.83. This beta was leveraged to reflect the systematic

risk, using information from the capital structure of the Foundation (D/E = 1.0085), the entity that maintains the Educational Center. As a result, the leveraged beta used in the analysis was estimated at 1.67 (Table 2).

Using the CAPM and the values of the risk-free rate (12.39% per year), beta (1.67), risk premium (6.7%) and liquidity premium (1.5%) it was estimated the cost of equity capital of the Educational Center at 25.08% per year. This rate is a quite high figure, but compatible with the Brazilian economic situation at that time. Considering the third-party capital used in the activity and the contractual interest rates, the cost of debt for the period was obtained, resulting in an average annual rate of 17.46%.

With the determination of the cost of equity capital, the cost of debt and the representativeness of each source of resources in the capital invested, it was possible to estimate the WACC, whose rate was situated at 21.26 % per year. This weighted average cost of capital applies to the IES as a whole, as well as to the unit of analysis and its respective courses, as detailed in the methodology.

4.1 The creation of value at the HEI

The operating return on invested capital (ROIC) was relatively high and exceeded the opportunity cost of capital (WACC) in the years analyzed. Consequently, there was a creation of economic value by the University Center provided by the operation of its courses. The results obtained in 2016 were very good, but the downturn in the economy and changes in government policy in the area of private education caused a pronounced drop in the EBITDA margin and in the EVA in the following year (Table 3).

Table 3

Value creation at the HEI: 2014 - 2017

Indicator	2014	2015	2016	2017
EBITDA[1]	11857	12391	14685	11895
EBITDA Margin[2]	36.20%	33.80%	37.20%	30.80%
NOPLAT[3]	10651	11169	13471	10673
Cost of Invested Capital[1]	8684	9107	8813	7940
ROIC	26.10%	26.10%	32.50%	28.60%
WACC	21.30%	21.30%	21.30%	21.30%
EVA[1]	1967	2061	4658	2732

Note: [1]Current values in thousand reais. [2]Margin = EBITDA/Net Revenue.
Source: Prepared by the authors.

In 2017, the Central Campus provided the sponsoring entity with a value generation of R$ 2.7 million. This result is quite significant, but it could be even better with the development of a plan that includes some adjustment measures, as will be discussed below.

When disaggregating the results, it was observed that the performance of courses in the business area was frustrating, and destroyed value over the period (Table 4). Of the eleven courses offered in the

area, only administration-foreign trade, accounting science, journalism, social communication-advertising and advertising showed positive, but modest, operating results in the four years analyzed. The other courses in the portfolio exhibited low operating results, being negative at different times (Table 5).

Table 4

Value generation in the business area

Indicator	2014	2015	2016	2017
EBITDA[1]	1608	1233	1817	1396
EBITDA Margin[2]	23.20%	16.80%	23.10%	18.10%
Cost of Invested Capital[1]	2026	1898	1841	1647
ROIC	13.50%	09.10%	16.30%	12.80%
WACC	21.30%	21.30%	21.30%	21.30%
EVA[1]	-740	-1083	-431	-659

Note: [1]Current values in thousand reais.
[2]Margin = EBITDA/Net Revenue
Source: Prepared by the authors

The worst result occurred in 2015, and measures were taken to reverse this situation. But they were not enough to avoid the destruction of value, given the deterioration of the economy, retraction in demand, and an increase in defaults by students. The results obtained leave no room for doubt and, if one of the management focuses is based on the generation of economic value, the business area urgently demands correction of directions. Cost management and student acquisition policies are necessary to improve the segment's operating results and broader actions should be appreciated by managers, as will be discussed further ahead.

Table 5

EVA in business courses: current values in thousand reais

Courses	2014	2015	2016	2017
Administration - Foreign Trade	62	19	197	111
Accounting Sciences	18	67	193	84
Computer Science	-143	-150	-58	-78
Social Communication - Advertising	2	-5	86	4
Social Communication - Journalism	13	49	98	36
Pedagogy	-272	-359	-317	-302
Information System	-51	-134	-153	-138
Analysis and Systems Development	-83	-120	-86	-30
Human Resource Management	-59	-64	-15	-78
Logistics	-58	-79	-107	-66
Management Processes	-169	-307	-270	-200
Total Business Area	**-740**	**-1,083**	**-431**	**-659**

Source: Prepared by the authors.

By contrast, the engineering courses showed excellent performance and consistent generation of value over the years, with volumes exceeding R$ 2.5 million/year. The EBITDA margin was

highlighted, and revealed figures of 40% in average terms (Table 6). Because there are great synergies in the engineering area, it was possible to carry out several combinations of disciplines, thus reducing the direct cost of the courses. In addition to this performance in the cost area, tuition fees exceeding the figure of one thousand reais allowed the operating results of these courses to reach relevant values.

Table 6

Value generation in the engineering area

Indicator	2014	2015	2016	2017
EBITDA[1]	7936	8429	9063	6934
EBITDA Margin[2]	43.4%	40.5%	42.3%	35.9%
Cost of Invested Capital[1]	4762	5089	4698	3865
ROIC	33.6%	33.5%	39.2%	35.9%
WACC	21.3%	21.3%	21.3%	21.3%
EVA[1]	2766	2932	3966	2661

Note: [1]Current values in thousand reais.
[2]Margin = EBITDA/Net Revenue
Source: Prepared by the authors

Through the calculation formula, the invested capital proved to be very significant in relation to engineering courses. It should be noted, however, that the method of calculation adopted is not far from the reality observed in capital expenditures in the area, given that engineering courses use physical capital more intensively, as they require more technologically sophisticated equipment and laboratories. However, the higher amounts of investments allocated to the area did not compromise operating returns, which have been quite high, as illustrated by the ROIC of 36% in 2017 (Table 6).

Due to the adverse situation and the change in the way the government acts in the private educational sector in the country, discussed here, there was a significant drop in the number of students, which negatively impacted the area's operating results in the last year of the series. Civil and mechanical engineering courses were the ones that suffered the most from the effects of the crisis, but they continue to be the ones that generate the highest EVAs (Table 7). In contrast, the control engineering and industrial automation course presented negative value generation, and is being discontinued.

Table 7

EVA in engineering courses: current values in thousand reais

Course	2014	2015	2016	2017
Architecture and Urbanism	369	468	579	242
Agronomic Engineering	114	62	249	306
Civil Engineering	995	990	1384	890
Control and Automation Engineering	0	169	-13	-85
Electrical Engineering	354	380	400	435
Mechanical Engineering	729	797	881	641
Production Engineering	366	298	484	231
Total Engineering Area	**2766**	**2932**	**3966**	**2661**

Source: Prepared by the authors

The courses in the health area occupy an intermediate position in terms of economic-financial performance: they did not destroy value, but the EVA provided by the area as a whole was not as significant as that of engineering (Table 8).

Table 8

Value generation in the health area

Indicator	2014	2015	2016	2017
EBITDA[1]	2233	2739	3805	3565
EBITDA Margin[2]	30.80%	31.90%	37.30%	30.80%
Cost of Invested Capital[1]	1896	2120	2274	2428
ROIC	20.60%	23.40%	31.80%	27.60%
WACC	21.30%	21.30%	21.30%	21.30%
EVA[1]	-59	212	1123	730

Note: [1]Current values in thousand reais.
[2]Margin = EBITDA/Net Revenue.
Source: Prepared by the authors.

As expected, compared to courses in the humanities, the capital invested in health courses is much greater, given the requirements of laboratories and equipment used in practical classes for students. The calculation formula adopted in this article allowed us to realize this specificity, and the more intense use of investment impacted the area's capital cost, resulting in negative EVA in 2014 (Table 9).

Table 9

EVA in health courses: current values in thousand reais

Course	2014	2015	2016	2017
Biomedicine	129	167	193	135
Physical Education	81	150	388	188
Nursing	(231)	(218)	(114)	(101)
Physiotherapy	(16)	43	418	452
Veterinary Medicine	0	0	21	(180)
Nutrition	19	23	145	252
Aesthetics and Cosmetics	48	47	72	(16)
Total Health Area	(59)	212	1023	730
Total Health Area	(59)	212	1023	730

Note: [1]The automation engineering course that is being discontinued does not appear in this list.
Source: Prepared by the authors.

The negative result of the total EVA in the healthcare area observed in 2014 was reversed in subsequent years. The courses with the highest EVA in the area in the period were physiotherapy, physical education and biomedicine, which together provided the Foundation with approximately R$ 900 thousand in 2017. Of the seven courses in the area, only nursing and veterinary medicine failed to show a positive cumulative result of value generation. It should be noted, however, that the veterinary

medicine course is very recent, starting in 2016, and it is premature to make any consideration about its economic and financial performance.

4.2 *EVA and value drivers*

Based on the different EVA results in the various areas and in their respective courses, an attempt was made to identify the reasons for this behavior, as well as to analyze the variables that impact the creation of value at the HEI.. Table 10 presents the descriptive statistics of the variables used in the econometric analysis.

Table 10

Descriptive statistics of used variables[1]

Statistics	Annual EVA per Course (in reais)[2]	Monthly Tuition (in reais)[2]	Students per Course	Direct Costs/Annual Net Revenue
Mean	137897	986	150	43.5
Median	55850	999	124	35
Maximum	1425191	1390	537	102
Minimum	-393346	633	16	17

Note: [1]Number of Courses = 23, the Veterinary Medicine Course, which started in 2016, was excluded from the sample.
[2]In 2017 constant values.
Source: Prepared by the authors.

On average, the 23 courses analyzed generated R$ 137,897.00 of added economic value each year. The engineering courses were, as already discussed, the ones that stood out, led by mechanical, civil and architecture engineering. In the opposite situation are the pedagogy and nursing courses, with great destruction of economic value. Engineering courses are also the ones with the highest monthly fees and enrolled students, and the lowest cost/net revenue ratios. The average direct cost/net revenue ratio of the courses held by HEI was 43.5%, but there was a wide dispersion in this measure of efficiency. Courses that exhibited rates above 45% destroyed value and, in some cases, direct costs exceeded their own net revenues. Several courses in the business area had rates above 60%, and deserve special care from managers, as their results interfere with the institution's financial sustainability.

As described in the methodology, regressions were estimated using stacked data (*pooled time series*) and the results are described in Table 11. Estimates reveal that there is a positive relationship between EVA, tuition fees charged and the number of students enrolled per course, and an inverse relationship between EVA and revenue commitment, expressed by the direct cost/net revenue ratio.

Table 11

Value drivers at the HEI: dependent variable - EVA[1]

Variable	Coefficient	Standard Error	Statistics t	Prob Sig
Constant	306541.3	98262.42	-3.1196	0.0024
Monthly Tuition	290.11	70.45	4,1177	0.0001
Student	2066.71	165.7	12.4726	0.0000
Direct Cost/ Net Revenue	-3515.32	905.12	-3.88238	0.0002
R^2 = 0.8494	R^2 Adjusted = 0.8442	F = 165.37		

Note: [1]EVA and montlhly tuition in 2017 reais constant values. Number of observations = 92. Heteroscedasticity was not observed.
Source: Prepared by the authors.

A good fit of equation 4 to the data can be seen. It can be seen that the estimated coefficients are statistically significant, with a probability of significance close to zero, with the variables tuition fees, number of students and the direct cost/net revenue ratio explaining 84% of the variation in the EVA of the courses.

The results obtained indicate that, if the number of students per course and the cost/revenue ratio were kept fixed, for each R$ 1.00 increase in tuition fees, the generation of value per course would increase by an average of around R$ 290.00. On the other hand, for every 1 percentage point increase in the direct costs/net revenue ratio, and everything else kept constant, there would be a destruction of about R$ 3.5 thousand on average per course. This result reveals how sensitive the EVA is in relation to the amounts spent for the functioning of the courses, requiring a very careful look at the operational efficiency of the various academic departments of the institution.

With regard to enrollments, for each new student, keeping the monthly fee and the cost/revenue ratio constant, the generation of value per course would increase by an average of around R$ 2 thousand. Thus, to achieve, for example, an increase in EVA of one million reais, without altering the value of tuition fees and the net cost/revenue ratio, the HEI should be able to attract and retain 484 new students.

The influence of each area on value generation was also analyzed, which is reflected by the coefficients of the *dummy* variables of the estimated equation, and the results are presented in Table 12.

Table 12

Influence of areas of concentration on value creation: dependent variable EVA[1]

Variable	Coefficient	Standard Error	Statistics t	Prob Sig
Constant	-268599.3	100024.2	-2.6853	0.0088
MonthlyTuition	243.58	79.39	3.068	0.0029
Student	1801.41	176.87	10.1849	0.0000
Direct Cost/ Net Revenue	-2992.19	93515	-3.1996	0.0020
Dummy Engineering	135121.9	551190.31	2.4482	0.0165
Dummy Health courses	-24949.33	428850.26	-0.5822	0.5620
R^2 = 0.8693	R^2 Adjusted = 0.8616	F = 149,40		

Note: [1]Estimate using the pooled time series, with data from the Business, Engineering and Health courses. Number of observations = 88. The Nursing Course have been removed from the sample, as it presents a different pattern from its peers in the Health Area. EVA and montlhly tuition in 2017 reais constant values.
Source: Prepared by the authors.

It appears that the relationships between the variables maintained the same sign and statistical significance, with the coefficient referring to the engineering dummy being positive, and with a probability of significance lower than 5%. It is observed that the result supports the analyzes presented and reveals that engineering courses provide greater value generation when compared to those in the areas of business and health.

The health *dummy* indicates an inverse situation, that is, when comparing the EVA of health courses to those of engineering and business, considered together, a destruction of value is observed. However, the coefficient is not statistically significant, and the result may come from the fact that engineering projects were included in the "base category". Therefore, to resolve this issue, a new regression was adjusted, considering a sub-sample with information referring only to business and health courses (Table 13).

Table 13

Influence of business and health courses on value creation: dependent variable EVA[1]

Variable	Coefficient	Standard Error	Statistics t	Prob Sig
Constant	88981.32	11217.5	0.7932	0.4276
Monthly Payment	86.78	70.74	1.2268	0.2199
Student	319.83	268.85	-5.7895	0.0000
Direct Cost/ Net Revenue	-4627.57	799.30	-5.7895	0.0000
Dummy Health Courses	76989.58	37188.65	2.0702	0.0384
R^2 = 0.7194 R^2 Adjusted = 0.7004				

Note: [1]Estimate using the pooled time series, with data from the Business, Engineering and Health courses. Number of observations = 64. The Nursing Course have been removed from the sample, as it presents a different pattern from its peers in the Health Area. EVA and montlhly tuition in 2017 reais constant values.
Source: Prepared by the authors.

When removing engineering from the sample, and adopting business courses as the "base category", a positive coefficient was obtained for the *dummy* health courses, with a significance probability below 5%. Therefore, it can be stated that, excluding the nursing course from the sample, health courses generate relatively more value than those in the business area.

4.3 Implications of the results on the financial sustainability of the HEI

Often, studies in strategy have focused on the task of identifying the business environment, which has been considered one of the main influences on the way companies operate. Therefore, it is interesting to contrast the results obtained with what is presented in the literature shown in sections 1 and 2 of this article.

According to what was discussed, the courses in the business area have been showing adverse economic and financial results, which are related to the characteristics of these courses and the development of the sector. The introduction of EAD (distance learning) broke the protection that was imposed by natural (geographical) barriers, giving rise to the offer of these courses by large private

educational groups throughout the country. The increase in competition, through the offer of distance learning courses has caused a great reduction in the average ticket of tuition and fees and a drop in the number of students enrolled in classroom-based courses. In the case analyzed, it can be seen that the current number of students enrolled in courses in the business area does not provide gains in scale, causing high unit costs. The factor that aggravates the situation is that there is no room to even maintain the tuition fees historically charged in real terms and, therefore, it is not possible to expand the student base in this area of concentration with the tuition fees currently charged. The intense competition requires a large reduction in school fees for the University Center to increase its student base in this area of knowledge, which is essential for the institution to be able to generate value in this educational segment.

According to what was discussed in section 2, this segment is associated with a competitive market, whose product is similar to a "commodity". To compete in this market, the quality of the service provided is not enough. It is essential to have prices compatible with those of competitors. Thus, the strategy that must be followed by the University Center is to strive for cost reductions, given that the results obtained point to this variable as one of the important drivers of value in an educational institution. Cost reduction can be achieved through technological innovations with the intense adoption of courses with remote technology, which also allows for greater flexibility and reduced expenses on the part of students, such as transportation and food expenses.

It becomes necessary, moreover, to review the scope of the offer of courses, consolidating related courses with positive impacts on cost reduction, as well as introducing an interdisciplinary, modern and attractive curricular structure for students, and in line with the demands of the work market. Such initiatives will drastically reduce unit costs and, consequently, will allow the institution to offer attractive courses, with much lower annual fees, making it possible to increase the student base, generating greater revenues and added value to the University Center.

In the health and engineering segment, the strategy to be adopted is not price competition (lower tuition fees), but differentiation, seeking to make students see that their products (courses) are superior to those of the competition. The search for excellence is imperative, with investments in fixed capital (equipment and technology) and human capital (very qualified professors) being fundamental. Along with the improvement and updating of the infrastructure of the laboratories and technology in the classrooms, the investment in the quality of the courses stands out as a critical success factor. The opening of (few) master's courses is an initiative to be pursued, not because these courses will generate financial profitability. On the contrary, this will result in the need for subsidies for their survival, especially in their initial phases. But all this is justified by the synergy with undergraduate courses, and should be an attraction to retain outstanding professionals in the area. These more qualified professionals will help the Educational Center train and requalify its undergraduate professors, in addition to being mentors for major changes in the structure and curriculum of the various undergraduate courses offered.

These initiatives will be important for the University Center to build a distinguished educational image and, therefore, to establish and consolidate the recommended differentiation strategy.

Following in the same direction, another initiative that would reinforce the outlined strategy, and that should be implemented, is the establishment of a project of excellence of university-company integration, involving, in particular, those companies located in the region that explore or develop restricted domain technologies. Such an initiative whose objective is to foster local and regional technological entrepreneurship can acquire more consistency with the integration into more sophisticated scientific, technological and business development chains, and with the support of government and private institutions of national and international scope.

5 Conclusions

The educational sector has been undergoing major transformations, with new behavior patterns of its target audience, in addition to strong competition between institutions for market shares. In this scenario, acting with a focus on results is a condition for survival and a driving force for the growth of the companies that operate in it.

In the case analyzed, when the operational performance is compared to the cost of capital of the HEI, it was identified that, as a whole, the courses provided value to the institution, and from 2014 to 2017 the EVA was always positive. However, it was also observed that the institution has been feeling the negative effects of the crisis in the Brazilian economy and the profound changes in the sector, which points to the need to develop consistent strategies to ensure its sustainability in the near future.

Regressions were estimated that showed the importance of the value drivers of the educational sector, and that allowed simulating the impacts of changes in these vectors and in the ability to generate value by the HEI. The research highlighted that the courses in the business area deserve special attention from managers, as a considerable number were unable to add economic value to the educational entity, and some even showed negative values of operational returns on invested capital.

The reduction of operating costs, the readjustment of the offer of courses in view of their economic and financial performance, and the attraction of students focused on courses that add value, were identified as recommended measures. It was also found that the company is relatively leveraged, and it is recommended that financial resources obtained in periods of economic heating be treated with caution, and part of them should be used for debt reduction, since the HEI enjoys tax immunity, which makes the use of third-party capital less attractive.

Based on the results achieved, and in a brief literature review, alternatives for the University Center were suggested. In courses in the areas of social sciences and humanities, the intense competition demands a reduction in school fees, flexibility and updating of courses, requiring a lot of emphasis on technologies and subjects offered remotely. In health and engineering courses, the strategy to be followed is not price competition, but differentiation. The initiatives should seek to invigorate and also

improve the courses, which involves investments in laboratories/clinics, and the establishment of a strong academy-company relationship as a way of attracting highly educated professionals, who will be important to raise the quality of the courses. With this, the institution's image would be strengthened. However, even in these segments, costs cannot be neglected and, therefore, the introduction of disciplines, especially those of a theoretical nature, supported by a remote teaching platform, should be part of the strategy to be adopted.

At the conclusion of this article, it is worth emphasizing its importance in bringing to the discussion the issue of value generation applied to the educational sector, whose managers, as a rule, do not apply the techniques and instruments presented here, which can support more efficient decisions. It is noteworthy, however, that the results of this study have their limitations, and must be interpreted with due caution, as it is based on the experience of only one HEI in a relatively short period of time. However, the authors understand that the concepts, methods and procedures presented here are adequate, and could be used in further research. Other studies should work with representative samples of Brazilian HEIs, stratified, for example, by size, areas of activity and regional presence of the units, covering longer periods of time, which would make it possible to identify weaknesses and strengths with regard to financial sustainability of HEIs in the different segments. Another suggestion offered is that future studies should explore in depth the sectoral configuration of education, as well as its implications for the design of competitive strategies.

References

Almeida, D.R., Almeida L. R., & Teixeira A. R. (2017, novembro). *Massificação do ensino superior brasileiro: um modelo de privatização a partir dos programas FIES e PROUNI*. XVII Colóquio Internacional de Gestão Universitária, Mar del Plata, Argentina, 17. Recuperado em 10 de setembro, 2019, de https://repositorio.ufsc.br/xmlui/bitstream/handle/123456789/181131/101_00066.pdf?sequence=1&isAllowed=y

Annamalah, S., Raman, M., Marthandan, G., & Logeswaran, A. (2018). Implementation of enterprise risk management (ERM) framework in enhancing business performances in oil and gas sector. *Economies*, 6 (1), 1-12.

Ansoff, I. (1965). *Corporate strategy: An analytic approach to business policy for growth and expansion*. Michigan: McGraw-Hill.

Assaf, A. Neto., Araújo, A., & Fregonesi, M. (2006). Gestão baseada em valor aplicada ao terceiro setor. *Revista Contabilidade & Finanças,* 17(spe), 105-118.

Avelar, E., Cavalcanti, J., Pereira, H., & Boina, T. (2017). Determinantes da estrutura de capital: um estudo sobre empresas mineiras de capital fechado. *Revista Evidenciação Contábil & Finanças,* 5(2), 23-39.

Baye, M. R. (2010). *Economia de empresas e estratégias de negócios*. (6ª Ed.). Porto Alegre: Bookman.

Brito, R. P., & Brito, L. A. L. (2012). Vantagem competitiva, criação de valor e seus efeitos sobre o desempenho. *Revista de Administração de Empresas*, *52*(1), 70-84.

Brito, R. P., & Brito, L. A. L. (2014). Dynamics of competition and survival. *Brazilian Administration Review*, 11(1), 64-85.

Castro Junior, D. F. L. do, Martins, E. S., Muiura, M. N., & Silva, M. P. P. (2015). O processo de formulação de estratégias e os recursos intangíveis da empresa: reflexões teóricas sobre esta relação. *Revista Capital Científico – Eletrônica*, 13(1),150-164.

Chulkov, D. & Wang, X. (2020). The Educational Value of Simulation as a Teaching Strategy in a Finance Course. *e-Journal of Business Education & Scholarship of Teaching*, 14(1), 40-56.

Copeland, T., Koller, T., & Murrin, J. (2012). *Avaliação de empresas valuation: calculando e gerenciando o valor das empresas* (3a ed.). Pearson: São Paulo.

Cunha, L. A. (2007). *A universidade crítica: o ensino superior na república populista*. (3a ed.). Unesp: São Paulo.

Cyrino A., Yelpo, P., Storopoli, J., & Serra, F. (2021). Comentário editorial - Edição especial: Microeconomia da Competitividade. *Revista Ibero-Americana de Estratégia*, 20(1), 1-2.

Da, Z., Guo, R., & Jagannathan, R. (2012). CAPM for estimating the cost of equity capital: interpreting the empirical evidence. *Journal of Financial Economics*, 103(1), 204-220.

Damodaran, A. (2010). *Introdução à avaliação de investimentos: ferramentas e técnicas para a determinação do valor de qualquer ativo* (2a ed.). Qualitymark: Rio de Janeiro.

Davey, T., Meerman, A. Muros, V. G., Orazbayeva, B. & Baaken, T. (2018). *The state of university-business cooperation in Europe.* Publications Office of the European Union. Luxembourg, 179.
Recuperado em 15 de março, 2020, de https://www.ub-cooperation.eu/pdf/final_report2017.pdf.

Dias, A., Sousa, E., Silva, J., & Silva, W. (2020). Analysis of the effects of rivalry and dynamism on the firm's competitive position. *Brazilian Business Review – BBR*, 17(4), 362-380.

Fama, E. F., & French, K. (2004). The capital asset pricing model: theory and evidence. *Journal of Economic Perspectives*, 18(3), 25-46.

Farjoun, M. (2002). Towards an organic perspective on strategy. *Strategic Management Journal*, 23(7), 561-594.

Felix, F. S., Locatelli, R. L., Fernandes, F., & Ramalho. (2016). Construção civil no Brasil: criando ou destruindo valor? *Revista de Gestão e Projetos*, 7(1) 70-82.

Fernandez, P. (2018). *8 topics badly explained by many finance professors*. IESE Business School, University of Navarra, 23. Recuperado em 11 de junho, 2019, de https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3270268

Gama, M. A. B., Bandeira-de-Mello, R., & Spuldaro, J. D. (2018). Political strategy and the growth of business groups. *RAUSP Management Journal*, 53(1), 35-48.

Gaspar, R. F., & Fernandes, T. C. (2014). Mercantilização e oligopolização no ensino superior privado. *Educação & Realidade*, 28(3), 945-966.

Hall, J. H. (2016). Industry-specific determinants of shareholder value creation. *Studies. Economics & Finance*, 33(2), 190-208.

Hasenclever, L., & Torres, R. (2013). *O modelo estrutura, conduta e desempenho e seus desdobramentos.* In D. Kupfer & L. Hasenclever (Orgs). Economia industrial: fundamentos teóricos e práticas no Brasil. Rio de Janeiro: Campus.

Kaiser, K., & Young, S. D. (2014). Managing for value 2.0. *Journal of Applied Corporate Finance*, 26(1), 8-19.

Kislingerová, E. (2000). Using of the economic value added model for valuation of company. *Biatec*, 8(1), 38-39.

Lai, F., & Shad, M. K. (2017). Economic value added analysis for enterprise risk management. *Global Business & Management Research*. 9(1), 338-347.

Levi, Y., & Welch, I. (2016). *Best practice for cost-of-capital estimates.* Marshall School of Business. University of Southern California. Working Paper, 60. Recuperado em 25 de maio, 2019, de https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2667735

Lintner, J. (1965). The valuation of risk assets and the selection of risky invetimentes in stock portfolios and capital budgets. *Review of Economics and Statistics*, 47, 13-37.

Lopes, H. C. (2016). O modelo estrutura-conduta-desempenho e a teoria evolucionária neoschumpeteriana: uma proposta de integração teórica. *Revista de Economia Contemporânea.* 20(2), 336-358.

Marlina, E. & Tjahjadi, B. (2020). Strategic management accounting and university performance: a critical review. *Academy of Strategic Management Journal*,19(2), 1-5.

Mattar, F.N. (1977). *Pesquisa de Marketing; metodologia, planejamento* (4a ed.). Atlas: São Paulo.

Meleu, R., Bandeira, L., & Farenzena, N. (2019). FIES: uma análise crítico-histórica. In W. D. Guilherme (Org.). *Avaliação, políticas e expansão da educação brasileira 12*. Ponta Grossa: Atena Editora.

Mian, A. H., Bashir Salah, B., Ameen, W., Moiduddin, K. & Alkhalefah, H. (2020). Adapting universities for sustainability education in industry 4.0: channel of challenges and opportunities. *Sustainability*, 31. Recuperado em 10 de março, 2021, de https://ww.mdpi.com/2071-1050/12/15/6100

Modigliani, F., & Miller, M. (1963). Corporate income taxes and the cost of capital: a correction. *American Economic Review*. *53*(3), 433-443.

Nagarajan, K. (2015). Economic value added (EVA): a performance measure of strategic finance. *International Journal of Research in Commerce & Management*. 6(11), 89-91.

O'Byrne, S. F. (2014). Three versions of perfect pay for performance (or the rebirth of partnership concepts in executive pay). *Journal of Applied Corporate Finance*, 26(1), 29-38.

O'Byrne, S. F. (2016). *A better way to measure operating performance (or Why the EVA math really matters).* Journal of Applied Corporate Finance, 28(3), 68–86.

Oliveira, R. P. A. (2009). Transformação da educação em mercadoria no Brasil. *Educação & Sociedade*, 30(180), 739-760.

O'Shannassy, T. (2008). Sustainable competitive advantage or temporary competitive advantage: improving understanding of an important strategy construct. *Journal of Strategy and Management*, 1(2), 168-180.

Parente, T. C., Tiscoski, G. P., Rosolen, T., Silva, M. F., Campos, A. A., & Sakamuto, D. A. (2012). Gestão de mudanças nas organizações do terceiro setor: o desafio da sustentabilidade financeira. *Gestão e Regionalidade,* 28(84), 89-102.

Parker, S. (2020). *The future of higher education in a disruptive world*. KPMG International, 26. Recuperado em 05 de março, 2021, de https://assets.kpmg/content/dam/kpmg/xx/pdf/2020/10/future-of-higher-education.pdf.

Pereiro, L. E. (2010). The beta dilemma in emerging markets. *Journal of Applied Corporate Finance.* 22(4), 110-122.

Porter, M. E. (1990). *The competitive advantage of nations*. New York: The Free Press.

Póvoa, A. (2012). *Valuation: como precificar ações.* Rio de Janeiro: Campus.

Pratt, S. P., & Grabowski, R. J. (2014). *Cost of capital* (5th Ed.). Hoboken, New Jersey:Wiley.

Renzi, A., Sancetta, G., & Orlando, B. (2013, September). *The unlevered systematic risk analysis: a new bottom up approach*. Proceedings of European Business Research Conference, Rome, 10. Recuperado em 27 de maio, 2019, de http://web.uniroma1.it/dip_management/sites/default/files/Roma%20Renzi_Sancetta_Orlando_A%20new%20bottom%20up%20approac_Conference.pdf

Roman, J. D., Piana, J., Lozano, M. A., Mello, N. R., & Erdmann, R. H. (2012). Fatores de competitividade organizacional. *Brazilian Business Review*, *9*(1), 27-46.

Rosseto, C., Verdinelli, M., Rossetto, A., & Carvalho, C. (2014). Relação entre orientação estratégica e ambiente no setor de hospedagem em Florianópolis. *Revista Turismo & Desenvolvimento,* 21(4), 275-285.

Sguissardi, V. (2015). Educação superior no Brasil: democratização ou massificação mercantil? *Educação & Sociedade,* 36(133), 867-889.

Shah, R., Haldar, A., & Rao, S. (2015). Economic value added: corporate performance measurement tool. *Corporate Board: Role, Duties and Composition.* 11(1), 47-58.

Sharpe, W. F. (1964). Capital asset prices: a theory of market equilibrium under conditions of risk. *The Journal of Finance.* 19(3), 425-442.

Silva, T. V., Locatelli, R. L., & Lamounier, W. M. (2016), Abertura de capital e retornos aos acionistas: o caso da Companhia de Saneamento de Minas Gerais S/A. *Revista de Gestão & Tecnologia*, 16(1), 7-32.

Tudose, M. B., Rusu, V. R., & Avasilcai., S. (2021). Performance management for growth: a framework based on EVA. *Journal of Risk Financial Management* . 2021, *14*(3), 1-19.

Universidade Federal de Campina Grande. (2009). *IES privadas abrem capital para ampliar alcance*. Campina Grande, PB, 2. Recuperado em 08 janeiro, 2019, de http://ufcg.edu.br/prt_ufcg/assessoria_imprensa/mostra_noticia.php?codigo=9632

Varian, H. R. (2010), *Intermediate microeconomics: a modern approach.* (8th Edition). New York: W. W. Norton & Company.

Yin, R.K. (2010). *Estudo de caso: planejamento e métodos*. (4ª Ed.). Bookman: Porto Alegre.

Young, D. S., & O'Byrne, S. F. (2003). *EVA e gestão baseada em valor: guia prático para implementação.* Bookman: Porto Alegre.