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Effect of organizational clearance on moderate financial performance by the COVID-19 pandemic: a study in teaching groups listed in B3

Efeito da folga organizacional no desempenho financeiro moderada pela pandemia da COVID-19: um estudo em grupos de ensino listados na B3

Efecto de la autorización organizacional en el desempeño financiero moderado por la pandemia de COVID-19: un estudio en grupos de enseñanza enumerados en B3

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KEYWORDS

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Abstract: The study aimed to analyze the financial statements of educational business groups listed on the Brazil Stock Exchange - B3, from the perspective of different forms of organizational slack, including available, recoverable, and potential slack, and their relationship with financial performance, considering the pandemic factor, through the lens of Contingency Theory. The sample consists of 6 educational groups with significant participation in the economy, studied over 11 quarters and 66 observations, covering the period from the 1st quarter of 2019 to the 3rd quarter of 2021. Data extraction was done using Economática®, and for analysis, descriptive statistics and Pearson correlation with the SPSS® software were used, along with panel data analysis using the linear regression pooling model through R Studio software. Additionally, a dummy variable was used in the model to analyze pandemic moderation. The results of this research indicate that the COVID-19 pandemic negatively affects organizational slack in performance; in other words, when the value of one variable increases, the value of the other decreases. The recoverable slack variable, when considered in isolation, has a negative influence on performance, but when the pandemic dummy is taken into account, the influence becomes positive "inversely" on the recoverable slack variable. Therefore, it can be concluded that the COVID-19 pandemic

can act inversely on organizational slack and performance. This study contributes to the literature by enriching the existing theory about organizational slack's impact on financial performance and the moderation of the pandemic on organizational slack.

PALAVRAS-CHAVE

Folga Organizacional.
Instituições de ensino.
COVID-19.

Resumo: O estudo objetivou analisar as demonstrações contábeis de grupos empresariais da área educacional listadas na bolsa de valores do Brasil - B3, sob o aspecto de diferentes formas de folga organizacional, folga disponível, recuperável e potencial e sua relação com o desempenho financeiro, frente ao fator pandemia, à luz da Teoria da Contingência. A amostra é composta por 6 grupos educacionais com participação relevante na economia, estudados em 11 trimestres e 66 observações e que compreende do 1º trimestre de 2019 ao 3º trimestre de 2021. Utilizou-se da Económica® para a extração de dados e para análise foi utilizada a estatística descritiva e correlação de Pearson com uso do software SPSS® e análise de dados em painel com regressão linear Pooling model por meio do software R Studio. Além disso, variável dummy foi utilizada no modelo para analisar a moderação da pandemia. Os resultados desta pesquisa indicam que a pandemia da COVID-19 afeta de maneira inversa a folga organizacional no desempenho, ou seja, quando o valor de uma variável aumenta, o valor da outra diminui. A variável folga recuperável isoladamente, tem influência negativa no desempenho, mas, ao considerar a dummy pandemia a influência é positiva "inversa" sobre a variável folga recuperável. Conclui-se, então, que a pandemia da covid-19 pode atuar de forma inversa a folga organizacional no desempenho. Destarte, este estudo contribui para a literatura enriquecendo a teoria já existente sobre a folga organizacional no desempenho financeiro e ainda a moderação da pandemia sobre a folga organizacional.

PALABRAS CLAVE

Holgura organizativa.
Instituciones
educativas. COVID-19.

Resumen: El estudio tuvo como objetivo analizar los estados financieros de grupos empresariales del área educacional listados en la bolsa de valores de Brasil - B3, desde la perspectiva de diferentes formas de holgura organizacional, como holgura disponible, recuperable y potencial, y su relación con el rendimiento financiero frente al factor de la pandemia, a la luz de la Teoría de la Contingencia. La muestra está compuesta por 6 grupos educativos con una participación relevante en la economía, estudiados durante 11 trimestres y 66 observaciones, que abarcan desde el primer trimestre de 2019 hasta el tercer trimestre de 2021. Se utilizó Económica® para la extracción de datos, y para el análisis se utilizaron estadísticas descriptivas y correlación de Pearson con el uso del software SPSS® y análisis de datos en panel con el modelo de regresión lineal Pooling a través del software R Studio. Además, se utilizó una variable dummy en el modelo para analizar la moderación de la pandemia. Los resultados de esta investigación indican que la pandemia de COVID-19 afecta de manera inversa la holgura organizacional en el rendimiento, es decir, cuando el valor de una variable aumenta, el valor de la otra disminuye. La variable de holgura recuperable, cuando se considera de forma aislada, tiene una influencia negativa en el rendimiento, pero al tener en cuenta la variable dummy de la pandemia, la influencia es positiva "inversa" en la variable de holgura recuperable. Por lo tanto, se concluye que la pandemia de COVID-19 puede actuar de manera inversa en la holgura organizacional y el rendimiento. Por lo tanto, este estudio contribuye a la literatura enriqueciendo la teoría existente sobre la holgura organizacional en el rendimiento financiero y también sobre la moderación de la pandemia en la holgura organizacional.

Introduction

Contingency Theory emerged through studies that demonstrated the dependence of companies on the environment and technology (Chenhall, 2003), which, through contingency factors, tend to influence the normal course of organizations, consequently causing an impact on performance of the organization (Weill & Olson, 1989; Sinha & Van de Ven, 2005). The first use of the term “Contingency Theory” was by the authors Lawrence and Lorsch (1967) in order to justify the adaptation of organizations/companies to the environment. The theory has been constantly evolving since 1958, bringing great contributions to the management of organizations in a contemporary context, relating to resilient results (Cavichioli, 2017).

Based on the changes or adaptations that intensified during the pandemic period experienced from March 11, 2020, when the World Health Organization (UN News, 2020) announced the COVID-19 pandemic, which triggered adversities in the health, social, economic and political spheres worldwide, and was also reflected in the context of education (Ribeiro, 2020). This can be considered one of the greatest threats to public health worldwide (Lomoro et al., 2020), due to the need for social distancing and isolation.

The pandemic brought changes and adaptations, especially in the educational context. With regard to groups in the educational sector, they are constantly faced with adversities in the organizational environment in which they are inserted, especially when remote teaching appeared on March 17, 2020, authorized by Ordinance No. 343, which temporarily replaced face-to-face teaching by distance learning, using information technology means.

In the organizational environment, external/internal influences contribute to new adaptations or changes in management processes. This can modify the results of private companies, reproducing possible threats and challenges, in the environment of their operations in an economic

way in general (Klann, Kreuzberg & Beck, 2014). Thus, in order to remain in the market, institutions need to control their resources, so that they can be useful when facing periods of crisis that require necessary adaptations or changes in order to take advantage of investment opportunities (Lima, 2016).

Changes that occur in the organizational context are usually related to changes in the company's external environment. In light of such changes, it is considered that the use of the organization's idle capacity of resources, described as “organizational slack”, is a strategy aimed at protecting and maintaining its resources (Bourgeois, 1981). The author defines organizational slack as an important apparatus of organizational management, in the fight against external and uncertain occurrences, contributing to aid in decision-making in the face of imminent risks and evaluating performance.

Slack is defined by Dimick and Murray (1978) as surpluses of an organization that are not committed to necessary obligations. For Lima, Rocha, Bruni and Dias Filho (2019), organizational slack, which is the difference between available resources and those considered essential and necessary for the functioning of the organization in a normal context, which is presented as a challenge to managers, can be seen as something that either causes the organization's demise or as an excellent factor for results.

Lima et al., (2019) addressed the possible relationship between organizational slack and financial performance of companies listed on the Brazilian stock exchange - B3 (Brasil, Bolsa, Balcão), in various stages of the life cycle of companies from the perspective of Agency and Contingency Theories. As a result, they demonstrate that the association of organizational slack with financial performance does not change through Return On Assets (ROA) analysis. Regarding the theories, the results strongly support the association of available and potential slack, as the authors describe that when there are sudden changes in the environment in which companies are

inserted, the use of organizational slack tends to act as a "shock absorber" of negative impacts.

The present research takes as a research problem: what is the influence of the COVID-19 pandemic on the organizational slack and financial performance of educational institutions listed on B3? With an epistemological foundation in the theory of contingency and articulated to the problem that instigates the research, the objective is to analyze the financial statements of the business groups in the educational area listed on the Brazilian stock exchange - B3 – (Brasil, Bolsa, Balcão), under the aspect of different forms of organizational slack on financial performance in the face of the pandemic factor. The objective is what marks the difference between the other productions of knowledge about organizational slack, since it makes the different types of organizational slack objects of analysis in business groups in the educational field.

As previously mentioned, during the fight against the COVID-19 pandemic, educational groups were hit hard with the stoppage of face-to-face classes and replacement by classes in digital media. This stoppage followed Ordinance No. 343, of March 17, 2020 of the Ministry of Education Brazil.

Therefore, the research becomes relevant, since there is a limitation of scientific research on the national and international education sector, given the pandemic period that caused changes in the educational sector due to social distancing. It is hoped that this quantitative research may contribute to the advancement of information on organizational slack in financial performance in educational institutions listed on B3, leading to contributions to scientific research in this little explored area.

Theoretical elements of the research

Contingency Theory

Contingency Theory is presented through several studies (Marques, Souza & Silva, 2015), which began in the mid-twentieth century, forming the basis of the Contingency Theory (Dutra, 2019).

Espejo (2008) asserts that Contingency Theory emerged through the observations of certain aspects named contingency factors, which guide some decision-making on certain occasions, however, thinkers were inspired by previous theories, especially Systemic Theory.

Contingency Theory suggests that organizations start from the assumption that they are open and living systems, that they have several modifications, that experience influences by both external and internal factors, that organizational success can result in an adjustment of the organization according to its context and its peculiarities (Donaldson, 2015). The theory of contingency presents itself with the preposition that it does not have a specific model in the face of organizations (Dallabona, Nardelli & Fernandes, 2019). Thus, the Theory is constantly used in order to understand organizations (Donaldson, 2015).

Rovaris (2018) suggests that Contingency Theory assumes that an organization needs a structure that is solid with its objectives. In this sense, the Theory shows that the success of entities stands out in terms of disposition to contingent factors, which play a fundamental role in the performance of organizations, which aim to achieve harmony and coherence between the internal environment and external factors of organizations (Fagundes et al., 2010; Bae, 2011; Silva et al., 2019; Kanyua, 2015).

Chandler (1962) conceptualizes the structure of the entity from the admitted strategy; he stated that stipulated long-term goals, internal actions and allocation of necessary values in order to achieve the objectives of a company tend to be determined through its strategy. Woodward (1965) describes that the Contingency Theory has a relationship that: if there is an alteration that changes the environment or technology, in this sense the company will have to adapt its structure.

Environmental variables can be related to managerial controls, that is, companies that find greater influence in environmental terms tend to adhere to organic and less bureaucratic controls (Khandwalla, 1972). The fact that there is nothing

absolute and immutable in companies is the main basis of Contingency Theory. The Theory understands that there are always possibilities to change the reality of organizations (Donaldson, 1999).

The concept of Contingency Theory is not new in organizational research (Sausser, Reilly & Shenhar, 2009). Research based on Contingency Theory is highlighted from the second half of the twentieth century, due to the lack of an organizational structure in which it was actually efficient and effective for various organizations. For Gorla and Lavarda (2012, p. 3) “the fact that there is nothing absolute and immutable in companies is the main basis of the theory of contingency, so there are countless factors with the possibility of changing the reality of organizations”. In this sense, the use of Contingency Theory contrasts with other universalist approaches (Jayaram, Ahire & Dreyfus, 2010).

Contingency Theory emerges as a lens with the aim of exploring links between the alignment of quality and strategic management practices (Garg & Goyal, 2012; Raymond & St-Pierre, 2013), and initially requires identifying the techniques or contingency factors (McAdam, Miller & McSorley, 2019). Otley (2016) classifies contingency factors into dependent (internal) and interdependent (external) variables. The administrative techniques or factors used must be functionally related to the conditions of the environment, technology, size of organizations, strategies and the life cycle (Pereira, Rodrigues & Gessi, 2012; Otley, 2016), hostility, performance measures, budget behavior, among others (Otley, 2016).

It is evident that the basic assumptions of Contingency Theory are that the environment designs the organizational structure. In this sense, researchers such as Cheng & Kesner (1997) and Tan & Peng (2003) suggest that studies on organizational slack adopt Contingency Theory as a theoretical lens to establish the potential of environments on the nature of the relationship

between performance and organizational slack. Thus, while a given company may have an optimal level of organizational slack (Sharfman, Wolf, Chase & Tansik, 1988), these levels may change due to specific circumstances encountered by other companies.

Organizational Slack

Cyert and March (1963) in their work "A Behavioral Theory of the Firm" state that organizational slack is the excess allocation of organizational resources, above the minimum necessary for companies to maintain their activities. For Antle and Eppen, (1985) and Damanpour, (1988) organizational slack represents the difference between existing resources and the demand needed at the time. Also, Cyert and March (1963) define that organizational slack deals with the disparity between the resources available to the organization and the payments needed to maintain the coalition.

Thus, Sender (2004) organized organizational slack resources into three categories; (i) human resources beyond the minimum necessary; (ii) physical resources beyond the minimum necessary; (iii) financial resources beyond sufficient for immediate unforeseen use. Still, the author points out that there are different ways of classifying the excess resources available in organizations and that the criterion for classifying these resources is associated with the ease of access to these resources. Table 1 presents the classification of access, type, and description of organizational slack according to the author.

Table 1
Classification of access, type, and description of organizational slack

Ease of Access	Type	Description
High	Available	Resources that have not yet been assimilated into the organization's technical design, normally associated with excess liquidity (Bourgeois & Singh, 1983; Cheng & Kesner, 1997).

Regarding Availability	Medium	Recoverable	Resources that have already been absorbed by the system design as excess costs, but can be recovered in adverse times through organizational redesign, such as excess overhead (Bourgeois & Singh, 1983; Cheng & Kesner, 1997). These resources can be recovered in the short term or only in the long term (Nohria & Gulati, 1996).
	Low	Potential	Capacity of the organization to obtain extra resources from the environment, such as, for example, raising an additional loan or placing shares in the market (Bourgeois & Singh, 1983; Cheng & Kesner, 1997). Some authors, such as Dimick and Murray, (1978) and Marino & Lange (1983) adopted the criterion of profitability with regard to this type of slack. According to them, a profitable firm is more likely to, in addition to raising loans and attracting capital from its shareholders, negotiate more favorable terms with suppliers and customers and recruit more capable and talented people.
Absorption by the organization	Medium	Absorbed	Resources absorbed through salaries, overhead expenses, and excess miscellaneous administrative costs (Rust & Katz, 2002; Singh, 1986; Thomson & Millar, 2001). Also called Administrative Slack by Riahi-Belkaoui (1998).
	High	Non-absorbed Immediate	Excess, uncommitted liquid resources (Rust & Katz, 2002; Singh, 1986; Thomson & Millar, 2001).
	Low	Non-absorbed Potential	Rust & Katz, (2002) further classify these resources according to the temporal perspective between Potential and Immediate .
Autonomy of Use	Medium	Low autonomy of use	Resources that can only be used as protection in a few specific situations, since administrators have little flexibility in their application and, therefore, few options. These resources can be, for example: inventories of products in process or finished, specialized labor and machine capacity (Sharfman, et al., 1988).
	High	High autonomy of use	Features that can be used in a variety of situations, providing managers with a range of options. These resources can be, for example: cash and liquid investments, lines of credit, stock of raw materials and non-specialized employees (Sharfman et al., 1988).

Source: Sender (2004, pp. 16-17).

The relevance of understanding about the autonomy of use, the absorption by the organization, and the availability of organizational slack resources is observed. Thus, to measure a company's level of organizational slack there are a series of financial and non-financial indicators. Beck (2013) highlights the greater number of studies that investigate financial slack, due to the ease in obtaining and processing data, which mostly refer to accounting indicators.

On the articulations of organizational slack and financial measures, Bourgeois (1981) defined that financial measure is a function of changes in retained earnings, dividends, general and administrative expenses, working capital, percentage of sales and other measures that combined create a linear equation or composite index suitable for analyzing organizational slack. Sharfman et al. (1988) define that slack manifests itself when the organization is not in balance, that is, it has idle resources and managerial behaviors that weaken performance.

Previous research points out that organizational slack is the excess of resources that the company can use in a future moment and its classification is in accordance with the ease of access to these resources (Bourgeois & Singh, 1983). The slack classification represents the degree to which uncommitted resources are available to the organization (Ruiz-Moreno, García-Morales & Llorens-Montes, 2008).

In this context, Wiersma (2017), indicates that studies have adopted the classification of slack given by Bourgeois and Singh, (1983), authors who point to the existence of three types of slack that make it possible to understand the resources and the autonomy of the manager to use of these resources, (i) available, (ii) recoverable, and (iii) potential. Differentiation between these types is based on the location of the slack and the arrangement with which it can be retrieved for alternative use.

Based on this, the available slack is relatively easy to recover since it is within the company and represents the available resources that were not

used in specific objectives, such as, for example, excess liquidity (Moses, 1992; Herold, Jayaraman & Narayanaswamy, 2006).

Recoverable slack is represented by its resources, however already absorbed by the organization, and can be recovered through increases in efficiency (Moses, 1992; Herold, et.al., 2006), and flexibility to deal with environmental uncertainties, such as changes in demand (Wiengarten, Fan, Lo & Pagell, 2017).

Potential slack is the least accessible to managers (Wiersma, 2017). It is represented by the competence that the company has to generate relevant resources related to the environment, such as capital increase (Herold, et.al, 2006), and to generate future resources by increasing or reducing additional debt or equity (Ilbay, 2009).

Some more recent studies that used organizational slack can be cited. Argilés-Bosch, Garcia-Blandon & Martinez-Blasco (2016) indicate a negative impact on recoverable slack and a positive impact on available slack, and suggest that excess resources provide companies with market opportunities when there is a mismatch between supply and demand.

Gruener and Raastad (2018) analyzed slack in periods of financial crisis and found a positive association between high levels of recoverable slack, potential slack, and performance, and a negative association between low levels of recoverable slack, potential slack, and performance. The available slack did not show influence on performance in periods of crisis. The survey results showed that financial slack is important in difficult market conditions such as a crisis.

Wieczorek-Kosmala (2021), analyzed risk preparedness in the period of COVID-19, in hospitality companies, as driven by organizational slack and persistence. Results indicated that most hospitality companies have low or insufficient organizational slack.

Li (2021), based on the behavioral theory of the company, sought to understand the role of organizational slack in the US publicly traded

manufacturing industry during the COVID-19 pandemic, more precisely 12 quarters. The results demonstrated that the COVID-19 pandemic had a negative impact on the performance of manufacturing companies and organizational slack weakens the negative relationship between the COVID-19 pandemic and company performance.

Organizations' Performance

External pressures are factors that challenge organizations in search of improving their performance. In this way, managers seek alternatives to boost organizations to compete and stand out in times of facing challenges. According to George (2005), one of the alternatives is the availability of resources, which allows for: (i) meeting higher goals; (ii) taking risks; and (iii) guaranteeing the organizational objectives.

For Trojan, Danielli & Einsweiller, (2020) in addition to this context of alternatives, the form of evaluating economic performance is also necessary for companies, as it analyzes the weaknesses and strengths of operational processes, especially the articulations of yield and organizational competitiveness. In this way, there is the possibility of efficiently and effectively managing responses and solutions, guaranteeing stakeholders the continuity of the company in the future (Silva, Floriani & Hein, 2018).

The observation and analysis of indicators prior to the current context is relevant, since it is from this analysis that one can understand the current situation and think about the future structure of the company. The indicators illustrate the company's scenario, and also its profitability and liquidity, therefore, making it possible to have a general perspective of organizations (Silva, 2015).

These reflections on the company's past, present, and future make it possible to compare levels of return and risks in different periods, contributing to decision-making (Trojan et al., 2020). Given this context, it is evident that performance indicators are relevant and important

tools used to outline the organization's strategic planning and measure performance (Fischmann & Zilber, 2000).

Measuring the performance of companies plays an important role, as it highlights the rise of managers in the face of company management (Batistella & Einsweiler, 2021). For those authors, financial performance is usually measured based on profitability indicators, such as ROA.

Below we can mention some studies that used performance as a variable. Lee and Zhang (2017) demonstrated the use of ROA, Tobin's q, and return on equity (ROE) as metrics to measure the performance of US healthcare services companies. The results suggested that health policies to increase the demand for health care would positively affect the performance of companies in the health services sector.

Studies by Yu, Guo and Chang (2022) investigated the dynamics of the repercussion between the oil price shock and global economic performance, during the COVID-19 period and the 2008 financial crisis. The study's conclusions showed that both economic activities and oil prices have demonstrated high power during the period of global financial crises. As for COVID-19, it stood out for interfering with greater speed of transmission of oil price information, and economic activities are much greater in COVID-19 than in comparison with other global financial crises.

In research by Ju and Zhao (2009), they observed the relationship between organizational slack and performance in organizations in China, through the analysis of 60,945 organizations. As a result, they showed that the impact of slack on performance is relatively greater in private organizations than in the public sector or in foreign capital.

So far, the seminal studies and other studies on the theory of contingency, organizational slack and financial performance have been discussed. Regarding discussions related to the financial performance of higher education institutions and with regard to organizational slack and crises, we

did not find international or national studies that related these variables to the sector. It is understood that studies using these variables and their relationship with the education sector are still incipient.

Formulation of the hypothesis

Tan (2003) analyzed in Chinese companies whether organizational slack contributes positively or negatively to performance during the transition to a market economy. Based on the theoretical lenses of organization theory and agency theory, the author formulated hypotheses that resulted in the statement that slack can be beneficial for company performance, but can also negatively affect performance. Thus, the author proposed to investigate the linear relationship between slack and performance and to test a curvilinear relationship.

The study by Beuren, Starosky Filho and Krespi (2014) aimed to identify the relationship between different forms of organizational slack with the performance of publicly traded companies in Brazil. The results demonstrated a significant relationship between low slack and financial performance, thus, they found that the greater the low slack, the greater the financial performance, but in the long term this performance shows a downward trend.

Wiengarten et al. (2017) based results from researchers in the area of work safety, where they concluded that reducing operational slack harms workers. In this context, the authors investigated the different impacts of operational slack and financial slack on occupational safety, considering different market conditions. For the authors, in an organization, when trying to adjust to the ideal level of "low level" slack, companies end up forgetting about occupational safety.

Kovach, Hora, Manikas and Patel (2015), investigated and observed in 3,857 companies, whether operational slack produces a more regular performance, in dynamic environments that are marked by instability. To estimate the results, the

authors used panel data analysis, where the dependent variable was performance measured by ROA.

Latham and Braun (2008) assert that, using the Contingency Theory, higher levels of financial slack are expected to cushion the negative recessive effects on company performance. In addition, managers are also expected to reduce efficient use throughout the downturn, resulting in favorable performance effects as the downturn comes to an end.

For George (2005), when companies create financial slack, they aim to have greater freedom and better strategies to respond to the market, thus allowing them to deal with the conditions that the external environment imposes. However, the more slack the company has, the more managers will take it as a reserve for environmental uncertainties and even these uncertainties will be considered as opportunities instead of threats (Sharma, 2000).

Wiersma (2017) states that during a period of crisis, slack can be positive for company performance, but outside of this period slack can be more or less beneficial, depending on a company's set of investment opportunities. Therefore, the author states that managers are more capable of using slack to improve the company's performance when they have many profitable projects to choose from, that is, when the set of investment opportunities is large.

According to the fundamentals presented on organizational slack and the articulations with performance measures in an uncertain environment, it is noted that most of the studies and analyzes took place in companies from different sectors. However, it is not possible to predict how educational institutions maintained or not their performance in the face of the COVID-19 pandemic using organizational slack. Thus, it is possible to propose the central hypothesis of the present study:

Hypothesis 1: There is an inverse relationship between the financial crisis caused by the COVID-19 pandemic and organizational slack (H1a:

available slack; H1b: recoverable slack; and H1c: potential slack) and the effect on the financial performance of educational institutions listed on B3.

Hypothesis 1 presents the breakdown of H1 for each type of slack (H1a, H1b, and H1c), as each slack has a different relationship with performance; Gruener and Raastad, (2018) suggest that slack analyzes be separated by types of slack, because the relationships between slack and performance are heterogeneous, that is, they have a different behavior according to the type of slack.

Methodological elements of the research

The present research is classified as descriptive; as for the procedures, it has a documental characteristic, with a quantitative approach. In this sense, the population of this research is made up of companies in the educational area listed on the Brazilian stock exchange – B3 (Brasil, Bolsa, Balcão). Sample I is composed of six business groups in the educational area (YDUQS, BAHEMA, SER EDUCA, ANIMA, CRUZEIRO EDU, and COGNA).

To determine such samples, the importance of the sector for the country's economy was taken into account. In order to understand the importance of this sector, we can check the data for 2021 (data available in reports on the companies' websites) with the total number of students being approximately 4.48 million and represented in this way: (i) (YDUQS) 1.1 million students; (ii) (BAHEMA) more than 12 thousand students; (iii) (SER EDUCA) 240 thousand students; (iv) (ANIMA) 330 thousand students; (v) (CRUZEIRO EDU) 360 thousand students; (vi) (COGNA) 2.44 million students.

As previously mentioned, during the fight against the COVID-19 pandemic, educational groups were hit hard with the stoppage of face-to-face classes and replacement by classes in digital media. This stoppage followed Ordinance No. 343, of March 17, 2020 of the Ministry of Education Brazil.

In this research, the collection procedures were carried out using the Economática® database, which is a database that enhances access to data. In this way, the collection procedures followed the methodological path of accessing the B3 database in the search for information collection on the financial statements of the educational business groups.

From this path, the analysis was based on the theoretical perspective of the theory of contingency, through the collected data available in Economática covering the period from 2019 to 2021, corresponding to 11 quarters and 66 observations – 4 quarters of 2019; 4 quarters of 2020; and 3 of 2021. Data collection per quarter was due to the fragility of the minimum number of annual observations for sector analysis, since the focus of the study is organizations in the education sector. In this way, due to the number of organizations in the educational area being only six, the annual analysis does not enhance the statistical base, therefore, the observations were carried out considering the quarterly periodicity. For the instrumentation of the research, the research variables are presented according to Table 2.

To investigate the "dependent" performance variable, the ROA was used, which according to Zago, Mello & Rojo (2015) can measure the organization's performance through the return on shareholders' investments, regardless of whether it is originated by own resources or third parties.

In this case, EBITDA divided by Total Assets was used as a metric for ROA (Argilés-Bosch et al., 2016).

Table 2
Composition of research variables

Variables	Description	Metrics	Base Authors
Dependent Variable	Financial Performance (ROA)	$\frac{Ebitda}{Ativo\ total}$	Argilés-Bosch et al. (2016).

Independent Variable	Available Slack (FD)	$\frac{Ativo\ Circulante}{Passivo\ Circulante}$	Bourgeois (1981)
	Recoverable Slack (FR)	$\frac{Desp.\ vend.\ gerais\ ADM}{Vendas\ Líquidas}$	Bourgeois (1981)
	Potential Slack (FP)	$\frac{Exigível\ a\ Longo\ Prazo}{Patrimônio\ Líquido}$	Moses (1992)
	Pandemic (BIN)	1 = Quarter with Pandemic 0 = Quarter without Pandemic	WHO (2020)

BIN= Binary

Source: the authors

To measure the independent variables, (i) for available slack (FD), the metric Current Assets divided by Current Liabilities was used; (ii) for recoverable slack (FR) the metric General selling expenses divided by net sales was used; and (iii) for the potential slack (FP), the long-term liabilities divided by net equity were used.

For the variable Pandemic (BIN), a value of 1 and 0 was used to categorize the pandemic caused by COVID-19. Thus, the BIN variable is a binary categorical variable that received a value of 1 in quarters with a pandemic, and a value of 0 in quarters without a pandemic. Data are shown in Table 3 and comprise 11 quarters for the six groups presented at the beginning of the section.

Table 3
COVID-19 Pandemic

N	YEAR	TRIM	BIN	N	YEAR	TRIM	BIN
1	2019	T1	0	7	2020	T3	1
2	2019	T2	0	8	2020	T4	1
3	2019	T3	0	9	2021	T1	1
4	2019	T4	0	10	2021	T2	1
5	2020	T1	0	11	2021	T3	1
6	2020	T2	1				

N = Number; TRIM = Quarter; BIN= Binary

Source: the authors

It is observed that from the second quarter of the 2020 financial year, there was the beginning of the “pandemic”, and it continues in the subsequent quarters. The COVID-19 pandemic directly affected the world economy, especially that of teaching groups. In Brazil, the pandemic began in mid-March 2020 and gained proportions that impacted, for example, the gross domestic product

(GDP). IBGE data (2022) showed a negative GDP in the service sectors from the second quarter of 2020 to the first quarter of 2021.

With the raw data extracted from the Economática® database, it was categorized according to the proposed variables. For data analysis, SPSS® software was initially used, which allowed us to analyze the descriptive statistics; and the Pearson correlation for the variables. The statistical software R Studio was then used, which allowed us to analyze the data through the panel data method through Pooled regression.

The panel model, according to Gujarati and Porter (2011), allows the possibility of controlling the heterogeneity of each company, allowing the capture of effects of individual shocks, in addition to time-dependent aggregate shocks that affect all companies without distinction. Thus, to test Hypothesis 1 (H1a, H1b, and H1c) the following model was proposed for the panel data:

$$ROA_{it} = \beta_0 + \beta_1 FD_{it} + \beta_2 FR_{it} + \beta_3 FP_{it} + \beta_4 (FD_{it} * BIN) + \beta_5 (FR_{it} * BIN) + \beta_6 (FP_{it} * BIN) + \varepsilon_{it}$$

Where: ROA = Return on Assets; FD = Available Slack; FR = Recoverable Slack; FP = Potential Slack. The model to be tested allows the regression to make the inference that the independent variables in time can interfere with the performance (ROA) of the educational institutions and also considering the binary qualitative variables to identify whether the pandemic interferes with organizational slack.

It is expected that the variable β_1 available slack has a positive and significant effect on the ROA performance variable, and that the dummy variable β_4 has an inverse effect on the available slack. For β_2 recoverable slack and β_3 potential slack, a significant negative effect is expected with the ROA performance variable, and that dummies β_5 and β_6 have an inverse effect on recoverable slack and potential slack respectively.

To estimate the most suitable regression model, it was necessary to carry out diagnostic tests on the models. The first test was the comparison of

the Pooled model with the Fixed Effects model (within), using the F test or Chow's F test. The result had a p value greater than 0.05, and thus the Pooled model is better than the fixed effects model. The second test was by Breusch and Pagan to compare estimates between the Pooled model and the random effects model. The result showed a p value greater than 0.05, so the Pooled model is superior to the random effects model and is the most appropriate. After identifying the most suitable model, the Pooled model regression was run to test Hypothesis 1.

Presentation and discussion of results

Table 4 shows the variability analysis of the variables using descriptive statistics using means, standard deviation, and variance, separated by the pandemic (BIN=1) and non-pandemic (BIN=0) periods, in order to allow the understanding of the behavior of each variable in the analyzed period.

Table 4
Descriptive Statistics for the variables

Var.	Mean		Standard Deviation		Variance	
	Without Pandemic =0	With Pandemic =1	Without Pandemic =0	With Pandemic =1	Without Pandemic =0	With Pandemic =1
ROA	0.04	0.02	0.05	0.03	0.00	0.00
FD	1.64	1.80	0.88	1.06	0.77	1.13
FR	0.38	0.046	0.11	0.18	0.01	0.03
FP	1.22	1.71	0.84	1.50	0.70	2.25

Var. = Variables; ROA = Return On Assets; FD = Available Slack; FR = Recoverable Slack; FP = Potential Slack

Source: Research data (2022)

As shown in Table 4, ROA showed the lowest results in the pandemic period compared to the non-pandemic period. It is understood that in this pandemic period, the ROA is lower than in periods without a pandemic.

As for organizational slack variables, the three slacks showed higher averages in pandemic periods compared to periods without a pandemic. In order of magnitude we have (1st) the potential slack (FP); (2nd) the available slack (FD); and (3rd)

recoverable slack (FR) with little change between periods. In this way, we can conclude that in pandemic periods there is an increase in organizational slack, but we still do not know how much this influences financial performance, as we will see in the regression analysis. Regarding the variance and standard deviation, the available slack (FD) and the potential slack (FP) showed higher values, which means that the data are more irregular than the ROA and the recoverable slack (FR).

Studies by Silva (2019), when analyzing organizational slack in educational sectors with descriptive statistics, showed the opposite, i.e., in the period of crisis, slack decreases. It is possible that in the period of crisis analyzed by Silva (2019), not many changes occurred in this sector. Therefore, for this research, the COVID-19 pandemic factor that changed the format of classes, investments in technology, teachers, and others demonstrates influence on organizational slack.

After the descriptive statistical analysis, Pearson's correlation of the variables was applied because since the three variables of organizational slack are accounting measures that can be correlated, it is important to test the correlation between them. For Silva (2019), the justification is that if the variables are highly correlated, the inferences based on the regression model may be erroneous or unreliable. Furthermore, Gujarati and Porter(2011) explain that collinearity is the existence of a linear relationship between two explanatory variables (correlation matrix) and multicollinearity is the existence of a linear relationship between an explanatory variable and the other variables. Table 5 demonstrates Pearson's Correlation.

Table 5
Pearson Correlation Test

Correlation	ROA	FD	FR	FP
(ROA) Sig.	1.000	0.179	-0.696**	-0.051
(FD) Sig.	0.179	1.000	-0.005	-0.413**
(FR) Sig.	0.150	0.150	1.000	0.001
(FP) Sig.	-0.696**	-0.005	0.966	1.000

Sig.	0.0000	0.966		0.158
(FP)	-0.051	-0.413**	-0.176	1.000
Sig.	0.683	0.001	0.158	

ROA = Return On Assets; FD = Available Slack; FR = Recoverable Slack; FP = Potential Slack

Note: Sig. = significance; * $p \leq 0.01$; ** $p \leq 0.05$.

Source: Research data (2022)

Regarding Pearson's correlation coefficient, Table 5 shows that the variable recoverable slack (FR) is significant, but with a negative correlation with financial performance (ROA). Silva (2019) states that although the existence of correlation does not indicate the effect of causality, it causes a decrease in the chances of companies obtaining a performance above expectations. Regarding the other slack variables, potential slack (FP) and available slack (FD), they demonstrate both low and negative correlation with performance (ROA).

As for the correlation between organizational slack variables, (i) available slack (FD) with recoverable slack (FR), and (ii) recoverable slack (FR) with potential slack (FP), showed a very low correlation (-0.005, -0.176), in addition they were not significant even at the 10 % confidence level. This result means that these variables are not inferring errors in the estimates of the econometric models. The available slack variable (FD) with the potential slack (FP) showed significance with a negative correlation (-0.413), this means an inverse correlation, in which as the value of one variable increases, the value of the other decreases. Furthermore, all variables showed low correlation, which demonstrates a possible absence of biases or outlier effects for the analysis of the results of this research.

After Pearson's correlation, the results of the Pooled model regression are presented in Table 6:

Table 6
Pooled model regression results

	Min.	1st Qu.	Median	3rd Qu.	Max.
	-0.052	-0.020	-0.002	0.016	0.102

Variables	Estimate	Std. Error	T - Val	Pr (> t)
(Intersection)	0.120	0.018	6.500	1.887e-08***
FD	0.016	0.006	2.457	0.017*
FR	-0.281	0.042	-6.663	1.004e-08***
FP	-0.281	0.042	-6.663	1.004e-08***

FDBIN	-0.017	0.007	-2.350	0.0221*
FRBIN	0.088	0.040	2.240	0.029*
FPBIN	-0.000	0.006	-0.067	0.950
<hr/>				
R-Squared	Adj. R-Squared	p-value		
0.576	0.533	1.6571e-09		

BIN = Binary; FD = Available Slack; FR = Recoverable Slack; FP = Potential Slack

Note: Sig. = significance; 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' .

Source: Research data (2022)

The regression results show that the model is highly significant, since the p value is equal to 1.6571e-09, thus less than 5 % of significance and corresponds to a satisfactory adequacy of the proposed model. The R² indicates a level of adequacy of the modeling proposed by the Pooled model at 57.60 % and means that 57.60 % of the dependent variable ROA is explained by the independent or explanatory variables (FD - available slack, FP - potential slack, FR - recoverable slack).

The variables available slack (FD) and recoverable slack (FR) were significant, that is, they are slack variables that influence financial performance (ROA). The available slack (FD) has a positive effect on the ROA, so that a variation of one unit in the FD will influence the ROA, in the same direction, in the magnitude of the estimated coefficient (0.016). This result is in line with the findings of other studies, such as Wiengarten et al. (2017), Heinzen, Sell & Silva (2016), Argilés-Bosch et.al., (2016), Wefald, Katz, Downey, & Rust. (2010), Love & Nohria (2005), Cheng & Kesner (1997), and Bourgeois and Shing, (1983).

The FR has a negative effect on the ROA so that a variation of one unit in the FD will influence the ROA, in the opposite direction, in the magnitude of the estimated coefficient (-0.281). This result is in line with the findings of other studies, such as: Bourgeois and Singh, (1983); Bromiley (1991); Cheng and Kesner (1997); Love and Nohria (2005); Wefald et al. (2010); Wiengarten et al. (2017); Pletsch, Boff, & Lavarda (2018).

Regarding the dummy variable (FDBIN), it

passed the significance test, but with a negative sign, meaning that the pandemic has a negative effect on available slack (FD), that is, it impacts on the reduction of slack. Furthermore, as it is a slope variable, the coefficient will be (-0.017) added to the coefficient associated with the FD variable (0.016) and thus practically nullifying the effect on ROA.

Regarding the dummy variable (FRBIN), it also passed the significance test with a positive sign, meaning that the pandemic has a positive effect on recoverable slack (FR), that is, it impacts on increasing slack. Furthermore, as it is a slope variable, this coefficient will be (0.088) added to the coefficient associated with the FR variable (-0.281).

The potential slack (FP) was not significant and this means that this variable does not influence the financial performance of the analyzed groups. The FPBIN variable did not pass the significance test, which demonstrates that the pandemic period has no influence on the variable (FP) which, in turn, is unrelated to the performance variable ROA. Authors such as Bromiley (1991); Cheng and Kesner (1997); Wiengarten et al. (2017); Pletsch et al. (2018) found a negative coefficient of this recoverable slack variable in relation to financial performance.

The results presented so far corroborate the study by Silva (2019) who, when analyzing the types of slack with the performance of 281 companies in the period from 2007 to 2019 and taking into account the crisis (negative GDP), identified that isolated recoverable slack has a negative effect on performance, but in periods of crisis, it become beneficial to organizations. The author also identified that the available slack decreases during the crisis. The author explains that when the environment changes, there seems to be an average level of available and recoverable slack where companies acquire security.

Beuren and Wienhage (2013) predict that in normal environments, in which companies remain in a comfort zone, they can relax the monitoring of their resources, and thus an amount of slack is

created unconsciously. However, Chiavenato (2003) asserts that when the environment begins to destabilize, bringing to light organizational structure defects, these excessive resources become visible to managers, and then they are quickly converted into strategic responses to the discontinuities of this environment.

Daniel, Lohrke, Fornaciari, & Turner Jr (2004) showed results that confirmed a positive relationship between available, recoverable, and potential slack and performance. In this present research, only the available slack was positive. For George (2005), in his studies, he found positive linear relationships between slack and performance, but highlighted that it is possible that this relationship becomes negative in more complex, more competitive sectors.

Wefald et al. (2010) evaluated the sector's role in the relationship between slack and performance and asserted that the relationship between slack and performance is impacted by the type of sector in which the company operates. In this sense Zhong (2011), corroborates by stating that in certain scenarios and sectors the impact of slack on performance can be substantially different.

Regarding the hypothesis of this research: There is an inverse relationship between the financial crisis caused by the COVID-19 pandemic and organizational slack (H1a: available slack; H1b: recoverable slack; and H1c: potential slack) and the effect on the financial performance of educational institutions listed on B3, was accepted, because in the pandemic periods there was an inverse inference in the organizational slack variables when analyzed separately.

As noted, the teaching groups in this study positively use available slack and negatively use recoverable slack and potential slack in relation to their financial performance. These results contribute to the existing theoretical literature. When analyzing the pandemic (dummy variables) in the slack variables, these showed an inverse coefficient, that is, the pandemic has a negative effect on available slack (FD) and a positive effect on recoverable slack.

Final considerations

In the organizational context, external and internal influences contribute to new adaptations in management processes. With regard to business groups in the educational sector, they are constantly faced with adversities in the organizational environment in which they are inserted.

In this study, the organizational slack was considered in the way that the resources are at the discretion of the managers, thus, organizational slack can start to assume contingency factors in order to explain the reason for the discontinuity in certain environments, developing more competitive strategies, and with that, accelerate and leverage an entity's responses to changes in the environment.

In this sense, based on the Contingency Theory approach, the research reinforces that the environment factor influences organizations. Cavichioli (2017) asserts that uncertainties and risks are directly linked to the components of the business environment. In this case of the present study, the pandemic directly affected both external and internal educational groups, as there was a need, in addition to the environment, for adaptations regarding the structure, technology and strategy of companies in the face of COVID-19.

Regarding the objective, the research sought to analyze the financial statements of the business groups in the educational area listed on B3, under the aspect of organizational slack in the face of the pandemic factor and relationship with financial performance. The sample was based on 66 observations in a time frame from 2019 to 2021 in a quarterly format.

In general, only available slack and recoverable slack were related to performance. As expected, available slack had a positive coefficient and recoverable slack had a negative coefficient. In view of the moderating effect of the pandemic, it could be observed that it reduced the positive effect of available slack almost entirely and even

partially reduced the negative effect of recoverable slack.

Potential slack in this study was not shown to be related to financial performance. According to Wefald, et.al., (2010), they assert that the relationship between slack and performance is impacted by the type of sector in which the company operates.

To achieve the objective of this study, as described above, Hypothesis 1 was proposed and accepted, since during the pandemic the variables inversely influenced the variables of organizational slack. In this way, the great contribution of this work to the literature was to present something new, to join a relationship that has already been studied in great detail, the “organizational slack” with an effect that has not yet been verified, the “pandemic”.

As limitations of this study, there is a small sample of teaching groups (6 groups) that are listed on B3, and many companies in this sector are not, which can influence an altered scenario. For future research, the proposed model can be used by measuring other economic, financial, or macroeconomic indicators, alternating the dependent variable, and independent variables, with the aim of demonstrating relationships with forms of organizational slack in the same teaching sector or in other sectors listed on the Brazilian stock exchange – B3 (“Brazil, Bolsa, Balcão”).

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