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ARTICLE

Explanatory Factors of the NGM Disclosure Related to the Cash Flow by European Listed Entities

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ABSTRACT

This paper aims to assess the transparency of information on cash flows and its potential explanatory factors, using for this purpose, the disclosures on non-generally accepted accounting principles (non-GAAP) measures (NGM) related to cash flows. The explanatory factors were assessed in the light of different theories, namely the institutional theory, the theory of agency, and the positive theory of accounting. The data was based on the reports and accounts of 121 Euronext entities between 2018 to 2021. Based on the linear regression model, the findings identified that the disclosure of NGM on cash flows in the entities reports, with emphasis on free cash flow (FCF), as well as the presentation of the NGM calculation formula and the possibility of reconciliation with the GAAP information disclosed. In addition, it was identified that location, industry, size, indebtedness, and corporate governance variables were explanatory factors for the disclosures around cash flows, and overall, providing support for the different theories. This research contributes to the discussion around NGM transparency, especially regarding cash flows. Furthermore, the paper contributes to the academic and business environment by assessing current references related to the statement of cash flow. It also assesses the potential explanatory factors for the disclosure of such information.

KEYWORDS

Explanatory factors, Cash flows, IASB, NGM, Transparency

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Fatores Determinantes das Divulgações Relacionadas com os NGM Relativos aos Fluxos de Caixa das Entidades Europeias Cotadas

RESUMO

Este artigo tem como objetivo analisar a transparência da informação sobre os fluxos de caixa e os seus potenciais fatores explicativos, utilizando para o efeito as divulgações sobre as *non-generally accepted accounting principles* (non-GAAP) *measures* (NGM) relativas aos fluxos de caixa. Os fatores explicativos foram analisados à luz de distintas teorias, nomeadamente a teoria institucional, a teoria da agência e a teoria positiva da contabilidade. Os dados tiveram por base os relatórios e contas de 121 entidades cotadas na Euronext durante o período de 2018 a 2021. Com base no modelo de regressão linear, os resultados identificaram que é recorrente a divulgação de NGM sobre os fluxos de caixa nos relatórios e contas das entidades, com destaque para o *free cash flow* (FCF), bem como a apresentação da fórmula de cálculo das NGM e a possibilidade de reconciliação com a informação baseada nas GAAP divulgadas. Adicionalmente, identificou-se que a localização, o setor de atividade económica, a dimensão, o endividamento e variáveis de *corporate governance* são fatores explicativos das divulgações sobre os fluxos de caixa, obtendo-se, globalmente, suporte para as distintas teorias. Esta investigação contribui para a discussão em torno da transparência das NGM, em particular no que diz respeito aos fluxos de caixa. Além disso, contribui para o universo académico e o meio empresarial pela análise das referências atuais relacionadas à demonstração do fluxo de caixa e os potenciais fatores explicativos da divulgação de tais informações.

PALAVRAS-CHAVE

Fatores explicativos, Fluxos de caixa, IASB, NGM, Transparência

1. INTRODUCTION

Financial reporting has a relevant role for internal and external decision-making, as it allows to provide information the economic and financial situation of the entities (Coelho, 2016; Daga et al., 2015; Gope, 2017; Oliveira, 2017). In particular, within the process of assessing a given entity, the statement of cash flows (SCF) allows, among others, the identification of the viability and continuity of an entity, since it allows one to assess, in a timely manner, the ability of an entity to meet its obligations in the short and long term (Nguyen & Nguyen, 2020). In addition, the SCF allows the entity to adapt to market changes and, consequently, predict financial difficulties or even prevent bankruptcies (Nguyen & Nguyen, 2020).

In this context—as well as meeting the market needs—despite the usefulness of information based on generally accepted accounting principles (GAAP) measures, the analysis of further information from the non-GAAP measures (NGM) disclosed is also recurrent (Souza, 2020). References to NGM have been of relative prominence in recent decades (Brown, 2020), and such measures are considered relevant to the various stakeholders (Silva et al., 2018). The use of such measures allows, among other factors, the improvement of an entity's assessment, due to the exclusions of certain items of GAAP information (Charitou et al., 2018; Cormier et al., 2017; Huang & Skantz, 2016). Thus, NGM related to cash flows also contribute positively to this analysis (Güleç & Bektaş, 2019)—especially free cash flow (FCF). According to Ajmal et al. (2022), the FCF is one of the most important instruments for evaluating the financial results of a given entity since it allows one to assess an entities' level of liquidity.

The International Accounting Standards Board (IASB) is the international standard-setter that issues the globally accepted International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS). In its Conceptual Framework for financial reporting, IASB includes understandability as a qualitative characteristic of financial information reinforcement (IFRS Foundation, 2018). Nevertheless, the need for improving the disclosure of alignment in terms of disclosure of related information, is still controversial. On the one hand, the understandability achieved through the transparency of the financial information disclosed is assumed to be a crucial element for the analysis of an entity (Kanoujiya et al., 2023). On the other hand, despite the benefits identified in the disclosure of NGM, there are also problems related to the discretion of information, since it is subject to criteria defined by each entity making it difficult to assess and compare such data (Black, 2016; Cardeira, 2012; Grandson, 2020).

Entities with greater transparency in the financial information disclosed are potentially identified as more attractive to investment (Ali et al., 2018; Girão, 2012). However—taking the FCF as an example of an NGM related to cash flows usually disclosed by entities—there have been divergences between entities in the calculation of the indicator together with the opacity of such disclosure, since entities tend not to present information that allows understanding its content (Chen et al., 2021).

In this regard, the IASB has recognized the importance of NGM, as well as the need to improve disclosures related to such measures. Most recently, the IASB issued in December 2019 an *Exposure Draft* (ED) called *General Presentation and Disclosure*, with a comment period until September 2020 (IFRS Foundation, 2019). The document includes different aspects related to the income statement and the statement of cash flow, not neglecting, however, the promotion of improvements to the information disclosed on NGM. The comments received showed that, overall, the proposals received positive responses, indicating that the proposed changes could have a positive impact on the transparency of the NGM disclosed (IFRS Foundation, 2020). Following the comments received, the IASB has been discussing and releasing the progress of this project, which it expects to conclude in the first half of 2024, with entry into force scheduled for the beginning of 2027 (IFRS Foundation, 2023).

With these elements present, the empirical study carried out in this paper emerges from the opportunity of the discussion on the transparency of NGM disclosure associated with cash flows, also considering the need to assess the potential impacts resulting from this process. To this aim, the following research question is proposed regarding the understandability, in the sense of transparency, of the disclosure of such information, "what is the level of transparency and the explanatory factors associated with disclosures on NGM relating to cash flows"?

In more specific terms, the following specific objectives (SO) were defined from the general objective (GO) of research:

- **GO:** To analyse the understandability (in the sense of transparency) of the information disclosed on the NGM related to cash flows, based on the following aspects:
    - **SO1:** Identify, as suggested in the IASB's ED on the subject, whether there are additional explanations of the NGM related to the disclosed cash flows.
    - **SO2:** Identify the factors that potentially explain the transparency of NGM disclosure related to cash flows from the respective selected independent variables, in the light of the underlying theories.

As explanatory factors, elements related to the country, industry, size, indebtedness, and profitability, as well as aspects related to corporate governance were included, and analyzed in the light of different theories on disclosure of financial information, namely institutional theory, agency theory, and positive accounting theory.

The data were obtained from the annual consolidated reports and accounts of European entities listed on the European New Exchange Technology (Euronext) that use IFRS—except for entities from the financial and insurance industries. Thus, 121 entities were assessed, totalling an analysis of 484 reports, during the years of 2018 to 2021. The study used documentary research as a method, and content analysis as an investigation technique, as well as univariate descriptive analyses complemented by a linear regression model.

The results showed that location, industry, size, indebtedness, profitability, as well as elements relating to corporate governance (percentage of shares held by directors and percentage of free float [FF]), influenced the transparency of the information disclosed on the subject matter (NGM on cash flows). Overall, regarding the underlying theories, support was found for the institutional theory, regarding the explanatory factors location and industry, as well as for the theory of agency and the positive theory of accounting, in regards to size and indebtedness.

This study is opportune for the academic and business universe for different reasons, differing from previous research by using the proposals in progress in the ED developed by the IASB as a reference for the proposed dependent variable, which is presented as an element of novelty. As such, it contributes to the identifying the potential impacts and benefits of the changes proposed by the ED, within the scope of the objectives it proposes. In addition, it seeks to assess different aspects related to NGM information related to cash flows, using an approach that considers the classically explored explanatory factors, also including different European countries and industries. It should be noted that studies of this nature have focused on NGM related to variables arising from the income statement (namely, Isidro & Marques, 2008; Jacinto, 2019; Lougee & Marquardt, 2004; Wright, 2019). The study thus adds new data to the literature around the understandability (transparency) of NGM related to the cash flows disclosed by the entities, a theme that, although emerging, is still considered little explored (Jacinto, 2019).

2. LITERATURE REVIEW

Understandability is a qualitative characteristic that must be present in the financial information disclosed in the entities' reports, so that the message conveyed is easily understood by stakeholders (Souza, 2020). To this purpose, NGM are often used as a complement to mandatory disclosure under IFRS in order to clarify the entity's strategy (Souza, 2020). NGM have their importance in this context, as the information requirements of IFRS may not be sufficient to draw conclusions about their financial position and performance (Ebaid, 2011; Mendes et al., 2020).

In addition to understandability, it is also important to mention the characteristic of transparency that allows for the disclosure of information to be disclosed with greater clarity (less opacity) and reliability to stakeholders (Thapar & Sharma 2017). In the same perspective, entities need to disclose more transparent financial information, thus becoming more competitive and, consequently, attracting more investments (Kanoujiya et al., 2023). Chau and Gray (2002) corroborates this understanding, suggesting that greater transparency improves the financial stability of entities.

However, since NGM are alternative and additional measures or indicators, they may be subject to sometimes discretionary criteria, i.e. defined by each entity (Black, 2016; Cardeira, 2012). For this reason, the disclosure of such measures is controversial in the literature, since, despite providing relevant information, they may reflect an opportunistic view on the part of the reporting entities (Black, 2016). Thus, on the one hand, they provide useful information that helps in the analysis of financial statements and translates into improvements in the quality of the report presented (Arena et al., 2021; Silva et al., 2018). On the other hand, its subjective and flexible nature may result in difficulty in comparing this information, either between entities or between reporting periods, since there is no specific guidance on its disclosure (Nascimento Neto, 2020). There may also be inconsistencies in the calculation and presentation of such indicators, including their possible non-compliance with the other information disclosed, which is an issue that has also been the subject of study in the literature (Black, 2016).

In this sense, the literature identifies the need for greater regulation and the possibility of reconciling *non-GAAP information* with that which is required by IAS and IFRS, in order to promote greater transparency and relevance in the disclosure of these measures (Black, 2016; Marques, 2010). From the perspective of investors, it would also be important for NGM to be accompanied by an additional explanation, indicating how they are useful to complement the financial statements (Marques, 2010).

Despite such constraints, NGM are well accepted by investors as a means of evaluating an entity, as they have additional explanatory power in relation to the information presented in relation to information present under IAS and IFRS (Arena et al., 2021; Huang & Skantz, 2016; Silva et al., 2018). Among the existing NGM, EBITDA from the income statement is most frequently used (Moreira et al., 2014; Smith, 2020). Regarding cash flows, in particular, FCF stands out as the most widely used NGM (Brown, 2020), although, as with NGM in general, there is no specifically defined and harmonized formula for its calculation, allowing for some variations between the entities that report it (Bhandari & Adams, 2017).

According to Ali et al. (2018) and Girão (2012), entities with higher FCF are usually more attractive to investors. In turn, Almeida (2019) states that FCF is more valued by investors in short-term analysis, while EBITDA is more relevant for long-term analysis. However, it also states that, eliminating ambiguities in its calculation, FCF could be more relevant than EBITDA in terms of the different perspectives of temporal analysis that it enables.

More recently, the Covid-19 pandemic has further highlighted the importance of the frequent use of cash flow information due to its direct implications for business (Fahlenbrach et al., 2021; Ferreira et al., 2020; Gonçalves & Muniz, 2021), which includes the related NGM. Thus, entities that value cash flow information tend to ensure its sustainability in the market (Gaboardi et al., 2020; Gonçalves & Muniz, 2021).

There are still few studies that empirically analyze the transparency or quality of the information related to the NGM reported according to different explanatory factors, focusing mainly on the more descriptive analysis of the most commonly indicators and used for this purpose. Nevertheless, it is possible to identify, from the small amount of existing literature, the identification of some explanatory factors of the level of NGM disclosure identified in the entities' reports, although with greater emphasis on variables related to the income statement (namely, Isidro & Marques, 2008; Jacinto, 2019; Lougee & Marquardt, 2004; Wright, 2019). Such studies include as explanatory factors, location, size, indebtedness, and profitability (namely, Bhattacharya et al., 2004; Cardeira, 2012; Christensen, 2007; Isidro & Marques, 2008; Lougee & Marquardt, 2004; Murcia & Santos, 2009). In addition, the industry in markets subject to greater regulation, as well as corporate governance variables, also positively influence the level of transparency of such indicators, since they avoid more opportunistic disclosures (Arena et al., 2021; Baik et al., 2008; Isidro & Marques, 2008; Young, 2014).

The next section is thus dedicated to the presentation of the theories and their explanatory factors that led to the identification of the hypotheses formulated in the present study.

3. UNDERLYING THEORIES AND PROPOSED HYPOTHESES

The proposed study aimed to analyze the references to NGM related to cash flows, as well as the potentially explanatory factors and theories underlying the level of transparency of this information. It is considered that the theme of NGM is still under discussion internationally, as there is still little evidence of the factors that influence their level of disclosure (Jacinto, 2019).

Nevertheless, it is possible to identify different theories that help to explain the issues underlying the objectives proposed in this study, which include institutional theory, agency theory and positive accounting theory. Such theories are also useful in explaining the explanatory factors relating to the transparency of NGM disclosures and underlie some of the studies identified in this subsection.

Institutional theory is based on the idea that there are external factors that influence agents' decisions (Nascimento & Zanolla, 2020; Silva et al., 2018), namely the social environment of the entity (Dimaggio & Powell, 1983). This theory argues that the society in which the entities operate influences managers' attitudes, since the entities need to adapt to local social norms, such as country's beliefs and values (Filho, 2003; Silva et al., 2018) to ensuring their continuity (Dimaggio & Powell, 1983). Thus, the institutional theory helps to explain the influence that the social environment can exert on the information contained in the entities' reports (Araújo et al., 2021; Silva et al., 2018).

In addition, agency theory also contributes to the explanation of some explanatory factors for certain accounting practices. This theory is based on a contract in which the principal hires the agent to perform functions and provide different services on his behalf, with autonomy in decision-making (Jensen & Meckling, 1976). However, there can be divergences in decision-making between the perspective of the agent and the principal, since the agent can make decisions contrary to those initially intended by the principal (Filho, 2003; Jensen & Meckling, 1976; Nascimento & Zanolla, 2020). Similarly, through incentives to agents, the principal can influence the agent's decisions and thus limit potentially existing divergences of interest (Jensen & Meckling, 1976). The theory of the agency is thus related to disclosure issues, since the agent has autonomy for decision-making when preparing entities' reports, and divergences may arise in matters of NGM disclosure (Ferreira et al., 2021).

In turn, the positive theory of accounting, defended by Watts and Zimmerman (1986), is based on the premise that managers can act in their own interests and that they choose alternatives that allow maximizing the value of the entity (Holthausen, 1990; Santos et al., 2017; Watts & Zimmerman, 1986). For Watts and Zimmerman, (1986), certain incentives can therefore lead to a certain decision to the detriment of another. Thus, the positive theory of accounting is based on the prediction and explanation of some accounting phenomena that contribute as support for decision making (Buchweitz et al., 2019; Nascimento & Zanolla, 2020).

In turn, the still incipient studies relating the level of NGM disclosure to explanatory factors include, in particular, location (Cardeira, 2012; Isidro & Marques, 2008), the industry (Baik et al., 2008; Cardeira, 2012; Isidro & Marques, 2008; Murcia & Santos, 2009), size (Isidro & Marques, 2008; Murcia & Santos, 2009), indebtedness (Isidro & Marques, 2008; Lougee & Marquardt, 2004), profitability (Isidro & Marques, 2008; Lougee & Marquardt, 2004), and variables related to corporate governance (Isidro & Marques, 2008; Samaha et al., 2012; Wright, 2019)—though not necessarily dedicated to the analysis of NGM relating to specific cash flows.

Table 1 summarizes the explanatory factors identified, in the light of these theories, with potential influence on the NGM disclosures.

Table 1
Explanatory factors of the NGM disclosures

Studies	Explanatory factors					
	Location	Industry	Size	Indebtedness	Profitability	Corporate governance
Baik et al. (2008)		X				
Cardeira (2012)	X	X				
Isidro and Marques (2008)	X	X	X	X	X	X
Lougee and Marquardt (2004)				X	X	
Murcia and Santos (2009)		X	X			
Samaha et al. (2012)						X
Wright (2019)						X

Source: Prepared by the authors (2023).

Thus, and regarding the location of entities, institutional theory makes a contribution by proposing the existence of external factors that influence the decisions of agents (Dimaggio & Powell, 1983; Nascimento & Zanolla, 2020; Silva et al., 2018). In this sense, the social environment can increase the transparency of disclosures about NGM, through greater existing regulation (Cardeira, 2012; Isidro & Marques, 2008). This is due to the greater pressure from stakeholders to meet their expectations regarding a good performance in the market where it operates (Isidro & Marques, 2008). As such, the following study hypothesis was defined:

- **H1:** The location of the country of the entities influences the level of transparency of information on NGM.

Direct competition between entities is also considered an important element for the NGM disclosures, and the industry is, therefore, a factor with potential influence on the transparency of the information disclosed. For Isidro and Marques (2008), namely, industries with less competition tend to exclude some information that may be essential to the understanding of certain information disclosed. They also note that, in more competitive industries, there are usually reconciliations between GAAP and non-GAAP information. In the same sense, Cardeira (2012) identified the need for disclosure of more information by entities that are part of more competitive industries, to meet the expectations of financial analysts. Consequently, and despite the non-identification in studies on the subject of a theory justifying the potential influence of the industry as regards the NGM disclosure, the arguments of the institutional theory regarding location also seem to justify the inclusion of this explanatory factor. Thus, the following hypothesis was defined:

- **H2:** The industry of the entities influences the level of transparency of information on NGM.

Another potentially relevant explanatory factor is the size of the entities. In the light of agency and positive accounting theories, the size of the entity can positively influence the voluntary disclosure of information, since larger entities seek to present greater and better quality of NGM disclosure, with a view to obtaining benefits such as, for example, attracting more investments (Ali et al., 2018; Diamond, 1985; Diamond & Verrechia, 1991; Isidro & Marques, 2008). In this sense, the following study hypothesis was defined:

- **H3:** The size of the entities positively influences the level of transparency of information on NGM.

Indebtedness can also be explained in the light of the theories of agency and positive accounting, since more indebted entities tend to voluntarily disclose more information in order to convey an image of financial stability of the entity and objectives achieved (Murcia & Santos, 2009). Lougee and Marquardt (2004) found that entities with lower GAAP results tended to manipulate non-GAAP information. Thus, it is expected that entities with higher levels of indebtedness have a better level of non-GAAP disclosure, to make more information available to different stakeholders, including financiers (Isidro & Marques, 2008; Jensen & Meckling, 1976). As such, and given the greater evidence in the literature in this regard, the following study hypothesis was defined:

- **H4:** The level of indebtedness of the entities positively influences the level of transparency of information on NGM.

Like indebtedness, profitability, based on agency and positive accounting theories, has an influence on the transparency of NGM disclosures, since less profitable entities tend to voluntarily disclose more information, to be equally competitive (Lougee & Marquardt, 2004). On the other hand, more profitable entities may tend to increase their NGM disclosures, to differentiate themselves from other entities (Akerlof, 1978; Isidro & Marques, 2008). Considering, therefore, the different perspectives on the signal of the relationship between profitability and the disclosures related to NGM, the following hypothesis was formulated without a previously defined sign of association:

- **H5:** The level of profitability of the entities influences the level of transparency of information on NGM.

Elements relating to the corporate governance of entities, indicative of the independence of the members of the entity's management board, have more recently been included as an explanatory factor for the transparency of NGM disclosures. When well structured, such elements can act as a guarantee of greater independence among board members, mitigating agency problems and potentially restricting the opportunism inherent in the NGM disclosures, ensuring greater transparency regarding the information provided on such measures (Isidro & Marques, 2008; Wright, 2019). Thus, considering that the variable selected as a proxy for this factor is associated with a potentially lower level of transparency, the following study hypothesis was defined:

- **H6:** The percentage of shares held by the entities' directors negatively influences the level of transparency of information about NGM.

Another variable related to corporate governance is the level of FF, which represents the participation of minority shareholders. According to Samaha et al. (2012), the FF can have an impact on the transparency of the information disclosed, since the existence of more shares in circulation improves the understandability of the financial information reported. This can be justified, according to the authors, by the entity's need to satisfy the demand for higher quality information from a greater number of potential minority investors in the capital, who do not have the resources or incentives to participate in monitoring management actions. Thus, the following study hypothesis was defined:

- **H7:** The FF of the entities positively influence with the level of transparency of information on NGM.

Following on the hypotheses presented in this section, the next one is dedicated to the empirical study carried out.

4. EMPIRICAL STUDY

This section is divided into three subsections. The first concerns the methodology, the second is dedicated to the presentation and analysis of the results and the third, finally, discusses the results obtained in the light of the existing literature on the subject.

4.1. Study methodology

The present study is eminently quantitative in nature. Its quantitative nature is evidenced by the analysis of different economic and financial indicators extracted from the data sources used for this purpose. As a method of investigation, documentary research was used, using content analysis of the documents above as technique.

More specifically, the data source under analysis in this study includes the annual consolidated reports and accounts of European entities with shares listed on European regulated markets and which, consequently, use IAS and IFRS in the preparation of this information.

Among the European entities that use international accounting standards, the entities belonging to the Euronext index were selected: Euronext Paris (CAC-40), Euronext Lisbon (PSI-20), Euronext Amsterdam (AEX), Euronext Brussels (BEL-20), Euronext Dublin (ISEQ-20) and Euronext Oslo (OBX). To ensure the comparability of data, financial and insurance sector entities were excluded as they are part of institutional sectors subject to specific local and European regulation and supervision.

The collection of information comprised four years of reporting, specifically the period from 2018 to 2021. Thus, at the end of the selection process, 121 entities belonging to the various Euronext indices were assessed, thus totalling 484 reports collected for the four years proposed as a study period. The entities included in these indices were identified from the Euronext website. In turn, the reports were collected from the official website of the entities.

The statistical analysis previously used univariate descriptive statistics, complemented with a multivariate linear regression model performed with the support *software* IBM ® SPSS *Statistics*.

For the location explanatory factor, in particular, a classification of the entities was made according to the reference country of the indices in which the sample entities are listed.

Table 2 summarizes the coding assigned to the different countries.

Table 2

Distribution of selected entities by location

Euronext Index	Classification	Number of entities	% of entities
CAC-40 (France)	Country 1	35	28.93%
PSI-20 (Portugal)	Country 2	17	14.05%
AEX (Netherlands)	Country 3	20	16.53%
BEL-20 (Belgium)	Country 4	14	11.57%
ISEQ-20 (Ireland)	Country 5	14	11.57%
OBX (Norway)	Country 6	21	17.36%
Total	**–**	**121**	**100%**

Source: Prepared by the authors (2023).

In turn, the explanatory factor related to the industry was based on the Industry Classification Benchmark attributed to the entity.

Table 3 summarizes the coding assigned to the different industries.

Table 3

Distribution of selected entities by industry

Industry	Classification	Number of entities	% of entities
Telecommunications and Technologies	Industry 1	21	17.36%
Health	Industry 2	9	7.44%
Consumer Goods	Industry 3	37	30.58%
Industrials and basic materials	Industry 4	39	32.23%
Distribution of energy, gas and water	Industry 5	15	12.40%
Total	**–**	**121**	**100%**

Source: Prepared by the authors (2023).

Table 4 summarizes, the identification of the remaining independent variables used as proxies of the remaining explanatory factors underlying the proposed hypotheses, related to the understandability of the information on the NGM.

Table 4
Synthesis of the proposed explanatory factors and independent variables

Explanatory factor	Independent variable	Reference studies
Location	Depending on the reference country of the index where they are listed (country)	Cardeira (2012), Costa et al. (2019), Isidro & Marques (2008), Silva et al. (2018)
Industry	Main economic activity sector (industry)	Isidro & Marques (2008), Nascimento & Zanolla (2020),
Size	Total assets (Assets_Ln)	Isidro & Marques (2008), Murcia & Santos (2009)
Indebtedness	Ratio of equity to total liabilities (Indebt)	Isidro & Marques (2008), Lougee & Marquardt (2004)
Profitability	Ratio of profit before tax to total assets (Return on assets [ROA])	Isidro & Marques (2008), Lougee & Marquardt (2004)
Percentage of shares held by directors	Ratio between the number of shares held by directors and the total number of shares (SbD)	Isidro & Marques (2008), Samaha et al. (2012), Wright (2019)
Free float	Ratio of number of outstanding shares to total shares (FF)	Samaha et al. (2012)

Source: Prepared by the authors (2023).

For the analysis of the proposed hypotheses (H1 to H7), the proposed dependent variable was based on the identification and collection of items related to the disclosure and presentation of financial information on the NGM of cash flows (namely the FCF), which were subsequently coded and compiled into a transparency index on the subject.

Thus, it was identified, in a first step, whether the entities reported NGM related to cash flows. For the purpose, the value "1" was assigned if any NGM related to cash flows were disclosure and the value "0" otherwise.

Subsequently, variables associated with the items of disclosure and presentation of such measures were defined. Thus, the following items were identified for each entity under analysis, which they were properly coded with the value "1" if the information was disclosed and the value "0" if there are no references to such information:

- the identification and justification of NGM's relevance to the proposed cash flows.
- additional references to the NGM used, namely the information it is intended to complement.
- presentation of the proposed NGM calculation formula.
- the possibility of reconciliation of NGM with the information present in the entities' financial statements (GAAP information).

Finally, the henceforth designated, by simplification, of the transparency index was developed, then included in the proposed linear regression model, which was based on the four variables associated with the above disclosure and presentation items, according to the formula presented below.

$$\text{Transparency Index} = \frac{\sum_{i=1}^{m} di}{\sum_{i=1}^{n} dp} \quad (1)$$

Where:

d = 1, when the element is disclosed and 0 when not disclosed by the entity.
m = number of items disclosed.
n = number of items susceptible to disclosure.
i = observed disclosures.
p = total disclosures that can be observed.

Thus, the linear regression model (M) was used, with the transparency index, previously calculated, as the dependent variable and, as an independent one, the previously mentioned explanatory factors, as presented in equation 1.

$$M\text{: Transparency Index} = \beta_0 + \beta_1 BAssets\_Ln + \beta_2\, Indebt + \beta_3\, ROA + \beta_4\, FF + \beta_5\, SbD + \beta_6\, Country\_1 + \beta_7\, Country\_3 + \beta_8\, Country\_4 + \beta_9\, Country\_5 + \beta_{10}\, Country\_6 + \beta_{11}\, Sector\_1 + \beta_{12}\, Sector\_2 + \beta_{13}\, Sector\_3 + \beta_{14}\, Sector\_4 + \varepsilon \quad (2)$$

Presented above the methodological lines underlying the proposed study, the next subsection is dedicated to the presentation and analysis of the results obtained.

4.2. Analysis of the results

To analyze the understandability of NGM, and starting with the descriptive analysis, Table 5 presents the data collected in relation to NGM related to the identified cash flows, which includes the FCF, a leading indicator in this context.

Table 5
Frequencies: NGM and FCF Disclosures

	Observations		%	
	0	**1**	**0**	**1**
NGM Disclosure	179	305	37	63
Disclosure of FCF	69	236	22	78

Source: Prepared by the authors (2023).

Table 5 shows 305 (63%) references to NGM related to cash flows out of the 484 reports assessed (total observations), of which 236 (78%) specifically related to FCF.

In addition, the four items associated with the proposed transparency index were assessed for the 305 cases previously mentioned, based on the data identified in Table 6.

Table 6
Frequencies: Disclosures on NGM related to cash flows

	Observations		%	
	0	**1**	**0**	**1**
Explanation of NGM's relevance	196	109	64	36
Information intended to complement	281	24	92	8
Presentation of the calculation formula	28	277	9	91
Possibility of reconciliation	28	277	9	91

Source: Prepared by the authors (2023).

Regarding of explaining the relevance of NGM, table 6 identifies that only 36% of the observations contained such information. In regards to the explanation of the information which NGM seeks to complement, it was found that only 8% of the observations contained such justification. On the other hand, the best results were observed regarding the calculation formula and its reconciliation with GAAP information, which could be performed in 91% of the observations. It should be emphasized, that in all cases in which the formula is presented it has become equally possible to derive the values associated with the NGM relative to the cash flows proposed by the entities.

Table 7 shows the average values for the total, by country and industry of the continuous independent variables included in the regression model.

Table 7
Descriptive statistics for the proposed continuous independent variables

	Assets	Indebt	ROA	SbD	FF
Total Geral	**33,964,25**	**44%**	**5%**	**4%**	**54%**
By country					
Country_1	58,521.76	39%	6%	2%	65%
Country_2	7,109.97	37%	5%	16%	33%
Country _3	37,563.42	41%	9%	2%	67%
Country _4	23,895.48	46%	5%	1%	58%
Country _5	6,448.09	50%	4%	3%	60%
Country _6	36,565.79	53%	2%	4%	37%
By Industry					
Industry_1	25,279.76	48%	8%	5%	55%
Industry _2	24,806.59	56%	2%	1%	66%
Industry _3	33,075.80	44%	7%	5%	52%
Industry _4	29,390.13	39%	4%	6%	57%
Industry _5	65,701.34	40%	3%	1%	46%

Source: Research data (2023).

Table 7 shows that, overall, there is greater variability in the data when distinguishing by country, despite the differences that can also be identified for some variables depending on the industry. What stands out, however, is the high level of shares held by the directors of listed entities in Portugal, resulting, on the other hand, in a low level of FF.

Table 8 presents the descriptive statistics related to the transparency index for the set of 305 observations.

Table 8
Descriptive statistics of the transparency index

Variable	Observations	Average	Median	Standard deviation	Minimum	Maximum
Index	305	0.56	0.50	0.23	0.00	1.00

Source: Research data (2023).

The data in Table 8 therefore present a mean value of 0.56, relatively close to the median of 0.5, with a standard deviation of 0.23. These values are explained, as mentioned above, by the higher incidence of disclosures of two of the four items that make up the index, namely the presentation of the calculation formula and the possibility of reconciliation of the NGM indicator disclosed by the entities.

Prior to the presentation of the results of the linear regression, it should be noted that correlation analyses were performed between the proposed independent variables to identify possible collinearity problems.

Table 9 shows the correlation between the continuous independent variables included in the different models.

Table 9
Correlation between the independent variables of the regression model

	Indebt	ROA	SbD	FF
Assets_Ln	-0.24	0.14	-0.21	0.24
Indebt	1.00	0.03	-0.07	-0.17
ROA		1.00	-0.04	-0.00
SbD			1.00	-0.22

Source: Research data (2023).

Table 9 shows that there are no significant collinearity problems between the variables, since the correlations are between weak and moderate, with values lower than 0.5 for most of the cases under analysis (Eregno, 2014). Regarding the dichotomous variables associated with each of the countries and industries, and although not presented in Table 9, the absence of significant correlations was also confirmed.

It should also be noted that multicollinearity tests were developed between the independent variables through the analysis of the variance inflation factor (VIF). Correlation values lower than 0.7 are considered weak or moderate, while a VIF greater than 10 indicates the existence of multiple correlation between variables (Eregno, 2014). The test performed on most of the independent variables presented in Table 8, as well as the dichotomous variables related to countries and industries, identified a valid VIF, as they did not exceed the value of 5.

The Durbin-Watson test, in turn, allowed to assess the reliability of the model and the absence of independent errors (Field, 2009), with the model identifying the absence of autocorrelation in the residuals for values between 1.5 and 2.5 (Martins, 2017).

Subsequently, the linear regression model was disclosed, with the transparency index as the dependent variable and the various factors previously identified as independent variables, to answer to the hypotheses formulated (H1 to H7).

Table 10 presents the results of the regression model (M).

Table 10
Linear regression: Explanatory factors of NGM disclosures

Dependent variable: transparency index (M)					
Independent variables		**Independent variables**		**Independent variables**	
Assets_Ln	0.026**	Country_1	0.135***	Industry_1	0.163***
Indebt	0.003***	Country_3	0.225***	Industry _2	0.234***
ROA	-0.002	Country_4	0.032	Industry _3	0.079
FF	-0.002***	Country_5	0.308***	Industry _4	-0.059*
SbD	-0.005***	Country_6	0.238***	(Constant)	0.103
R^2					0.35
Adjusted R^2					0.32
ANOVA Significance					<,001

Note: *Significance level at 10%; **Significance level at 5%; Significance level at 1%
Source: Research data (2023).

Considering the data in Table 10, it is observed, from the adjusted R2 of the model, which allows one to identify the explanatory capacity of the proposed models (Santos et al., 2017), an explanatory power of 32%. In turn, and to verify the global significance of the model, the Analysis of Variance (ANOVA) test was used. The ANOVA test allowed to verify, through the level of significance, whether, or not, the models can be used for statistical inference, that is, whether they have explanatory capacity (Tulcidas, 2018).

Regarding the explanatory factors, it is verified that only profitability is not presented as a statistically significant variable of the model. Size and indebtedness ("Indebt") have a positive association with the level of transparency of entities in the disclosure of such information. On the other hand, the variables related to corporate governance show the opposite association. Finally, the remaining variables, the location and the industry are globally significant and explanatory of the model, despite some exceptions in this context.

Having assessed the data collected, the next subsection is dedicated to the discussion of the results obtained.

4.3. Discussion of results

In the context of the objectives proposed for this study, it was found that the NGM disclosures related to cash flows is recurrent (63%), with emphasis on the FCF, corresponding to 78% of the NGM disclosed, in line with the evidence of Brown (2020). However, few entities (less than half) provide additional explanations in conjunction with the proposed NGM. Conversely, it is observed that most entities (91%) present a formula for the calculation of the proposed indicator, being, at the same time, possible to reconcile the values related to NGM with the GAAP information disclosed, contrary to the studies of Black (2016) and Marques (2010).

Seven hypotheses (H1 to H7) were defined that sought to identify the potentially explanatory factors of the level of transparency of the NGM disclosures related to cash flows by the entities analyzed in this study.

Regarding the location, the results obtained demonstrated the influence of this factor for most cases, so that H1 can be validated. Thus, the institutional theory and studies of Cardeira (2012) and Isidro and Marques (2008) are corroborated, which identify that the social environment influences the level of disclosure about NGM, through greater pressure from stakeholders in order for entities to meet their expectations regarding a good performance in the market where they are located (Isidro & Marques, 2008).

In addition, the influence of the industry was verified in most cases, also confirming the proposed H2. The justification can be found in the studies of Cardeira (2012) and Isidro and Marques (2008), as well as the assumptions of institutional theory, which highlight the potential existence of higher levels of NGM disclosures in more competitive industries, as a way of attracting investors.

Regarding the positive influence of the size, the results obtained also confirmed the proposed H3, corroborating the studies of Isidro and Marques (2008) and Murcia and Santos (2009). In addition, based on agency theory and positive accounting theory, the association is justified by the fact that larger entities seek to present more and better non-GAAP disclosure, with the aim of obtaining more benefits and attracting more investments (Ali et al., 2018; Diamond, 1985; Diamond & Verrechia, 1991; Isidro & Marques, 2008).

The positive influence of indebtedness confirms the proposed H4. Based on the theories of agency and positive accounting, Isidro and Marques (2008), Lougee and Marquardt (2004) and Jensen and Meckling (1976) highlighted that entities with higher indebtedness have a better level of *non-GAAP disclosure,* to present a wider set of information that satisfies the needs of their different stakeholders, including financiers.

On the other hand, in the light of the results obtained, the profitability was not significant, rejecting, as such, the proposed H5. In this way, the results contradict the studies of Akerlof (1978), Lougee and Marquardt (2004) and Isidro and Marques (2008), as well as the theory of agency and the positive theory of accounting.

Finally, elements of *corporate governance* were proposed as a potentially negative and positive influence on the transparency of the NGM reported, through the percentage of shares held by the entities' executives and the FF, respectively. In the light of the results obtained, these variables showed a negative sign in both cases, thus confirming H6 and rejecting H7. In this way, the results of this study are in line with the considerations made by Isidro and Marques (2008), Samaha et al. (2012) and Wright (2019), by reducing the opportunism inherent in this disclosure. However, the results do not corroborate the suggestion proposed by Samaha et al. (2012) in relation to the FF variable, which can also be explained by the lower levels of robustness of the corporate governance of entities with high levels of share dispersion, as also identified by these authors.

The next section is dedicated to the presentation of the general conclusions obtained about the study carried out, as well as its limitations and proposals for contributions to future research.

5. CONCLUSIONS, LIMITATIONS, AND FUTURE PERSPECTIVES

The empirical study focused on the analysis of a qualitative feature of strengthening financial information within the scope of cash flow information, the understandability, in the sense of transparency of disclosures regarding NGM related to cash flows and their explanatory factors regarding the proposed GO. More specifically, sought to assess the information reported on this matter by European listed entities, namely the existence of additional explanations on NGM related to disclosed cash flows (SO1) and the potential influence of different explanatory factors identified in the literature in this regard (SO2).

In summary, and in relation to SO1, the results obtained showed that entities often disclose NGM related to cash flows, especially the FCF, also presenting their calculation formula, which allows reconciliation with the SCF. As suggested in the IASB ED, it was found that, regarding the relevance of the indicator and the existence of additional explanations, less than half of the entities assessed had such references in their reports.

Regarding SO2, the study identified that location, industry, size, indebtedness, and corporate governance variables are explanatory factors for cash flow disclosures. Thus, support was obtained for the institutional theory, regarding the explanatory factors location and industry, as well as for the theory of agency and the positive theory of accounting, in what concerns size and indebtedness.

In summary, the study also presents evidence regarding the level of transparency of disclosure on NGM related to cash flows. It thus contributes to the academic and business environment due to its approach focused on the analysis of financial information on cash flows, a matter considered of great relevance for entities in general. In the same sense, the study also made it possible to identify the current references related to cash flows in the context of the current disclosure of NGM related to this matter, thus contributing to standardizing bodies, including the IASB, but also supervisory board, auditors, as well as local regulators.

The conclusions reached in this study should, however, consider some limitations, namely the fact that there are only a small number of studies looking at the relationship between explanatory factors and the transparency of the NGM information disclosed. In this sense, it is suggested that additional studies be carried out which could contribute to the identification of new explanatory factors for the transparency of non-GAAP information disclosed. More specifically, it is thought that there may be an opportunity to explore other explanatory factors, particularly associated with other variables related to corporate governance, exploring differences in the composition of the board of directors according to gender. Exploring elements relating to the country in which the entities are located, whether in terms of their macroeconomic characteristics, such as the level of development, or cultural or contextual variables, such as the legal system, could also contribute to broadening the discussion on the subject proposed in this study. In addition, the use of measures relating to the degree of competition or business competition, namely industry concentration, could be a more accurate measure of the influence of the industry on the transparency of the non-GAAP information disclosed, to the detriment of the industry classifications carried out for this study.

Finally, new studies could develop analyses from the perspective of other qualitative characteristics of financial information, using the NGM related to cash flows disclosed by the entities as the object. In this sense, relevance could be explored through the analysis of value relevance and predictive value, while comparability could be assessed through the analysis of the entities' accounting choices in this matter.

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AUTHOR'S CONTRIBUTION

AV: Construction of the theoretical text, literature review research, data collection, data analysis. **FA:** Suggestion of the theme, construction of the theoretical text, data analysis, final general revision of the text. **VP:** General revision of the theoretical text.

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CONFLICTS OF INTEREST

The authors declare that they have no conflict of interest.