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Accounting Choices in the Cash Flow Statement: Analysis in Latin American Companies

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ABSTRACT

Objective: this study analyzed which characteristics of companies may be associated with accounting choices at DFC in 565 publicly traded companies in Latin American countries, from 2012 to 2016.

Method: this study promotes analysis by estimating twelve logistic regression models and using panel data.

Originality/Relevance: the study of DFC's accounting choices provides information about changes in net assets, financial structure and the ability of companies to modify resources.

Results: The results show that the size of the companies, the negative cash flow and the sector may be related to the choices of interest and dividends received, and dividends paid, indicating that the results for the variables in Brazil are similar to those of Chile and Peru, even in different institutional settings.

Theoretical/Methodological contributions: this study contributes by providing an overview of how financial and non-financial companies in different countries show cash flows, especially with regard to DFC's comparability and accounting choices, which can result in increasing operating cash flow. In addition, the study provides evidence of an association between company characteristics and accounting choices at DFC, showing differences in the countries surveyed, in terms of cash flow interests, and, contrary to the objective of regulatory bodies, regarding the standardization of accounting procedures.

Keywords: Accounting Choices; DFC; Associated Characteristics.

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1 INTRODUCTION

Over the past few decades, scholars have sought to relate the studies of Accounting Choices (AC) to the accounting policies of measurement, recognition, classification, presentation and the reasons for the choices, through the analysis of contractual and economic characteristics (Baderstcher, Collins, & Lys, 2012; Baik, Cho, Choi, & Lee, 2016; Fields, Lys, & Vicent, 2001; Gordon, Henry, Jorgensen, & Linthicum, 2013; Watts, 1992).

Consequently, new and important studies on the choice for the adoption of the International Financial Reporting Standards - IFRS were developed. The results show that the AC can be explained by the economic, financial and social contexts in which the companies are inserted, as well as by the institutional characteristics, such as profitability; indebtedness; company size; ownership structure; among others (Nobes, 2011; Stadler & Nobes, 2014).

Thus, researches on the classification choices in the Cash Flow Statement (DFC) used a sample of companies listed on different exchanges. Other researches sought to identify the choices made, including institutional characteristics, such as country of origin of the companies, sector and audit firm. They demonstrated that due to the option allowed by the standard, companies can carry out different classifications, being the subject of studies aspects such as the financial situation of companies, capital market incentives, indebtedness and profitability, in Europe, South Korea and Brazil (Baik *et al.*, 2016; Cole, Branson, & Breesch, 2013; Gordon *et al.*, 2013; Lee, 2012; Maciel, Salotti, & Imoniana, 2017; Scherer, Teodoro, Anjos, & Kos, 2012).

In this sense, when preparing the DFC, cash flows are evident, which can be adapted according to the circumstances and subjectivity of the standard itself. The International Statement of Cash Flows (IAS 7) provides information on changes in net assets, the financial structure and the ability of entities to generate financial resources.

Currently, 150 countries adopt or are in the process of adopting international standards (IFRS, 2018). In Latin America, the (*Grupo Latinoamericano de Emisores de Normas de Informacíon Financiera*) or, in English, Group of Latin American Accounting Standard Setters (GLASS) was created, which includes entities that issue accounting standards from 17 countries (GLENIF, 2018).

Based on this, the main research question in this article is related to the characteristics associated with AC in the DFC of publicly traded companies in Latin America. The research question considers specific characteristics of company size, indebtedness, profitability, if the company has a negative FCO, the price-book ratio and the sector.

Aiming to elucidate the research question, the objective of the study was to analyze the behavior and determining characteristics associated with AC in the DFC of publicly traded companies in Latin America.

Thus, the main contribution of this study is to provide an overview of how companies in different countries show cash flows, especially in terms of comparability and in the management of DFC, opting for choices that can impact on increasing operational cash flow. Thus, new explanations may arise through an approach in different contexts, for accounting choices in DFC.

Therefore, the study of DFC in publicly traded companies allows us to understand whether the flexibility provided in the standard helps in generating reliable information, in view of what each institution can use and adapt the information to its own reality and need (Charitou, Karamanou & Kopita 2018).

Thus, the present study differs from the others in that it presents the characteristics associated with AC in the DFC classifications, in publicly traded companies in Latin America, filling in the gaps that can assist users in decision making regarding the different classifications. The novelty of studies on the subject in Latin America is emphasized, especially with regard to the comparability of information and opportunistic behaviors, and also, regarding the inclusion of publicly traded financial companies, as they are not distinguished from the others in terms of normative aspects.

2 NORMATIVE THEORETICAL REVIEW

2.1 Accounting Choices and DFC

Fields *et al.* (2001) consider that an AC consists of any decision that has the purpose of influencing accounting information. The manager's decision of which method to use, for example, is already configured as an AC (Watts, 1992).

When managers decide to use the organization's resources for their own benefit, they harm shareholders in maximizing their wealth (Jensen, 1986). Therefore, the theories used to explain accounting phenomena must take into account the incentives of individuals (Watts & Zimmerman, 1990).

The first studies on AC were based on the Agency Theory, Contractual Theory of the Firm and the Positive Theory of Accounting. The precursor research sought to explain the AC based on contractual and economic incentives that can justify the agents' objectives in achieving results that justify the entities' efficiency (Badertscher *et al.*, 2012; Fields *et al.*, 2001; Watts, 1992).

Another important theory in the studies on AC is the Institutional Theory, which deals with the organizational scope and factors that involve it. Certain institutional characteristics may reflect the incentives for the use of ACs of measurement, recognition, classification and presentation. The Institutional Theory considers that the universe of firms includes several variables such as institutional, contractual, economic and ACs (Stadler & Nobes, 2014).

Thus, research on AC considers that institutional characteristics are based on Institutional Theory in order to complement the Contractual Theories of the Firm and the Positive Theory of Accounting. In the present study, using the Institutional Theory means considering the influences of the various institutional spheres (internal and external), giving the study more consistency.

In the presentation of the DFC, cash flows are separated by operating, investing and financing activities, an important aspect, since it deals with the investigation of the determining characteristics of the AC in the classification of interest and dividends.

The ACs in the DFC are considered to be classified, as they relate to the form of aggregation and disposition of equity elements, of cash flows in the statements, as is the case with the classification of interest, dividends and interest on equity (paid and received) (Silva, 2016).

In accordance with IAS 7, interest paid and received, and dividends received can be classified in the operating cash flow (FCO) because they are included in the determination of profit and loss, and the dividends paid in the financing cash flow (FCF). Alternatively, interest paid and received, and dividends received can be classified as FCF or in investment cash flow (FCI), and dividends paid in FCO, as they constitute costs of obtaining financial resources or returns on investments, as summarized in Table 1:

Table 1
IAS Classifications and Accounting Choices

Interests	IAS 7	Accounting choice
Paid	FCO	FCF/FCI
Received	FCO	FCF/FCI
Dividends	**IAS 7**	**Accounting choice**
Paid	FCF	FCO
Received	FCO	FCF/FCI

Source: IAS 7 (2018).

However, the classification choices may vary due to situations of profitability, indebtedness, financial situation and capital market incentives (Baik *et al.*, 2016; Gordon *et al.*, 2013; Lee, 2012).

2.2 Studies on Accounting Choices in the Statement of Cash Flows

In the research by Cole *et al.* (2011), the classification of interest paid can be related to the the countries of the companies, auditing companies and the size of the companies (revenues). The classification of interest received may be related to the country, the auditing company and the sector in which the companies operate. And the dividends received were classified by most of the companies surveyed in cash flows from investing activities.

Scherer *et al.* (2012) verified the treatment given to interest and dividends paid and received, the form of presentation and the equality or not of the value of cash and cash equivalents in the DFC and in the balance sheet according to the options of disclosure of these items listed in IAS. The results indicate that the indirect method of presenting the DFC and the classification of dividends paid as cash flows from financing activities was adopted by the vast majority of companies in the sample.

Gordon *et al.* (2013) explored the incentives and factors at the institutional level related to operating cash flow. They found significant variations in classification between industries in most countries, cash flows and operating years vary according to the classification choices, with the results of certain FCO forecast models being sensitive to the choices.

Silva, Martins e Lima (2014) investigated which are the ACs of Brazilian companies in the disclosure of the DFC and explanatory factors of the choices. The results indicate the absence of significant evidence of the use of AC to manage cash flows in Brazilian companies.

Baik *et al.* (2016) stated that companies, when changing interest payments paid from operating cash flow to financing, increase cash flows from operating activities when they have high leverage or when few analysts follow it.

Konraht, Campagnoni, Rover and Ferreira (2016) identified characteristics referring to the classification of DFC items that involve classification discretion and verified explanatory factors for the accounting choice of interest paid between operating cash flow and financing options. No variable was found to be statistically significant to explain the accounting choice for classifying interest paid between 2010 and 2014. Exception is given to the size variable in the years 2012, 2013 and 2014, indicating that size was a factor related to the choice of interest classification paid.

Maciel *et al.* (2017) aimed to identify the choices of classification of interest, dividends and interest on own capital in the DFC of Brazilian companies and incentives related to the choices. The results showed that: the majority of Brazilian companies follow the classifications encouraged by paragraph 34A of CPC 03, except for the item dividends / Interest on Own Capital received, the sectors "Industrial Machines" and "Textiles", there was

no predominance of classification in most sectors, and there are predominant classifications for companies audited by Deloitte and PwC, however, the interest paid and dividends received were not predominantly classified by most auditors.

Silva *et al.* (2018) investigated which factors may be related to the accounting choices in the DFC made in 112 public non-financial companies listed on B3's Novo Mercado in the period from 2010 to 2015. There was evidence that most companies present DFC by the indirect method and follow the recommendations of accounting policies contained in CPC 03 to classify interest and dividends paid and received. The results showed that the size of the company and growth opportunities seem to be related to the choices of classifying the interest paid and dividends received, respectively.

Maciel *et al.* (2020) identified incentives that influence the ACs for classifying interest and dividends received or paid in the DFC, in the period from 2008 to 2014. Two models were developed with panel data, using a sample of 352 companies, 2,290 reports analyzed, and 3,764 data collected. The results indicate that companies with a higher degree of indebtedness, profitability and size select accounting choices in order to disclose a greater FCO in the DFC.

In summary, the focus was on the verification, investigation and identification of the variables that can characterize and determine the possible incentives for interest and dividends to be classified in one of the three activities of the DFC.

3 METHODOLOGY

3.1 Sample Selection and Data Collection

In order to observe the characteristics associated with DFC ACs, countries that belong to GLENIF were selected. GLENIF's main objective is to work in partnership with the IASB. However, not all countries that belong to GLENIF have fully adhered to IFRS.

Thus, countries whose adoption was not mandatory for all companies open until 2013 were excluded: Argentina, Bolivia, Colombia, Costa Rica, El Salvador, Ecuador, Guatemala, Honduras, Mexico, Panama, Paraguay, Dominican Republic, Uruguay and Venezuela, countries with IAS adoption in fiscal years different from the survey parameters: Bolivia, Colombia, Guatemala, Paraguay and Dominican Republic and countries that did not publish the explanatory notes (Ecuador). Finally, the last sample was composed of financial companies that did not belong to Brazil, Chile and Peru.

Thus, the sample is composed of 546 publicly traded companies listed on the stock exchanges in Brazil, Chile and Peru, including financial companies with information available in the period from 2012 to 2016.

The year 2012 was taken as a reference, as it refers to the post-adoption date of international accounting standards in the three countries studied, until the year 2016, the date on which the data were already fully available according to Table 2:

Table 2
Research sample

Country	Brazil	Chile	Peru	Total
Total	446	240	280	966
Excluded	(115)	(129)	(176)	(420)
Sample	331	111	104	546

Source: *Thomson Reuters* (2018).

Financial companies were maintained in this study, as it was discovered that in

relation to the provisions of IAS 7, these companies are in no way different from the others in terms of DFC classifications, although they present particularities regarding legislation. Thus, the present study differed in the sample aspect.

Data collection was carried out in two stages. The first consisted of a detailed analysis of the DFCs ACs and collection of variables corresponding to the size of the entity, indebtedness, profitability, negative operating cash flow, price-book ratio (PB), and sector, in the software (*Thomson*). The second one consisted of confronting the accounting choices observed in the DFC, information was collected on *Thomson.*

3.2 Data Analysis Procedures

The variable of interest that concerns the AC in the classification of the DFC items is a dichotomous qualitative dependent variable, of a single category, and assumes binary values (*dummy*). The analyzes were performed for each DFC activity flow, with two *dummy* variables created, where 0 means the absence of the suggested options, that is, they are different from the options mentioned in IAS-7, and 1 means the presence of the explicit options in the standard.

In addition, considering that there are three DFC activities (operational, financing and investment), and that there are four items with options to choose from (interest paid and received) and (dividends paid and received), it was decided to elaborate twelve econometric models: four models for operational activity, to contemplate the choices for interest paid and received, and for dividends paid and received; four models for financing activity; and four models for investment activity.

3.3 Choice of Variables

The expected relationships between the explanatory variables and the choices that enable the increase in operating cash flows are positive, that is, larger companies, more indebted, more profitable and with greater growth opportunities and with negative operating cash flow, tend to choose classifications that increase cash flows from operating activity (Araújo, Souza, & Lemes, 2015; Badertscher *et al.*, 2012; Botinha, Silva, & Lemes, 2015; Kolozsvari, Marques, & Macedo, 2014; Souza, Costa, & Freitas, 2014; Souza, Silva, & Rech, 2015).

Thus, and based on the studies listed, it was decided to use the following variables: CLASS (dependent variable) and TAM, END, ROE, NFCO, PB. The SET variable represents the sector and was included to test the possible relationship between sectors and ACs in the DFC. All variables were collected in dollars, due to the uniformity between the currencies of the different countries studied.

TAM and SET variables were used as controls. According to Fávero (2014), control variables are necessary to prevent the influence of different factors in the analysis of the relationship between the variables.

Baik *et al.* (2016), Gordon *et al.* (2017) e Lee (2012), used the size variable (TAM) as a control. Maciel *et al.* (2020), included the sector variable (SET), in order to assess the incremental effect of the other variables, as they are variables that can modify the relationship of dependence and independence. Thus, in Table 3, the variables defined in this study are outlined.

Table 3
Definition of the variables used in the research

Variable	Acronym and Description of variables	Proxy	Expected Signal
	Variável Dependente		
Classification	**CLASS** *Dummy*, 0 for the choice of classifications in cash flows from activities and 1 for classifications of the standard;	*Dummy* 0 = when it doesn't follow the norm and 1 = IAS-7	
	Variáveis Independentes		
Indebtedness	**END** Indebtedness, measured by the ratio between Current and Non-Current Liabilities and Total Capital at the Company's disposal;	Total Chargeable / Total Chargeable + PL	Positive
Profitability	**ROE** Measured by net income divided by the final book net equity;	LL/PL	Positive
Negative Operating Cash Flow	**NFCO** *Dummy* 1 if the company presented negative operating cash flow and 0, for positive;	*Dummy*	Positive/ Negative
Price-book ratio	**PB** Market price of the share divided by the equity value of the share, proxy for growth opportunities;	PMA / VPA	Positive
	Control Variables		
Company size	**TAM** Company size measured by natural logarithm of total assets, per year.	Total Assets	Positive
Sector	SET *Dummy*, 1 for the most representative sectors (macro) and 0 for the other sectors (less representative).	*Dummy*	Positive

3.4 Econometric Model

The choice for logistic regression (*LOGIT*) is justified due to the estimation of the probability of occurrence, or not, of AC in DFC. Thus, to test the association of the determinant characteristics of the ACs allowed in the DFC of public companies in Brazil, Chile and Peru in the period from 2012 to 2016, logistic regression was performed. The probability, based on the research model above and the variables presented, was expressed by the following equation:

$$CLASS_i = \frac{1}{1 + e^{-\propto + \beta_1.TAM_{1i} + \beta_2.END_{1i} + \beta_3.ROE_{1i} + \beta_4.N_{FCO1i} + \beta_5.PB + \beta_6.SET + \varepsilon_i}}$$

(Eq. 1)

On what:

- CLASS = Classification – *dummy*, being 0 to represent another choice, and 1 if the classification is the one mentioned in IAS-7;
- TAM = Company size, measured by the natural logarithm of the book value of total assets;

- END = Indebtedness, measured by the ratio between Current and Non-Current Liabilities and Total Capital at the Company's disposal;
- ROE = (Return on Equity) Return on Shareholders' Equity, measured by Net Income divided by Final Book Equity;
- N_{FCO} = Negative Operating Cash Flow, *dummy* 1 whether the company had negative operating cash flow and 0, if positive;
- PB = (Price-to-Book) price-book ratio. Corresponds to the market price of the share divided by the equity value of the share, proxy for growth opportunities;
- SET = *Dummy* which is assumed to be 1 for the most representative sectors (finance and insurance, industry and utilities), defined as the macro sector, and 0 for the other sectors (less representative in percentage level), according to the Thomson Reuters® classification.
- ε_{it} = model error term.

Thus, the general model of this study is presented below:

$$CLASS_i = \beta_0 + \beta_1.TAM_{1i} + \beta_2.END_{1i} + \beta_3.ROE_{1i} + \beta_4.N_{FCO1i} + \beta_5.PB_{1i} + \beta_6.SET_{1i} + \varepsilon_i$$

(Eq. 2)

4 DATA ANALYSIS

4.1 Descriptive statistics

For a better understanding of the behavior of the explanatory variables, the statistics were performed, as shown in Table 4.

Table 4
Descriptive Statistics of Explanatory Variables

	Brazil				Chile				Peru			
Var	Md	Dp	Min	Max	Md	Dp	Min	Max	Md	Dp	Min	Max
TAM	12.85	3.61	0.00	20.15	20.08	2.32	13.06	24.75	10.87	4.53	0.00	16.98
END	1.55	8.21	-0.13	218.22	0.70	1.27	0.00	9.84	0.52	0.99	0.00	11.70
ROE	0.05	3.46	-88.37	86.83	0.16	0.36	0.00	1.00	0.07	0.22	-1.95	0.85
PB	1.67	4.15	0.00	76.99	4.18	21.05	-5.76	245.68	0.64	1.51	0.00	12.59

The values of the measures of central tendency (average) are distant. There is a wide variation between the minimum and maximum values of the variables that measure company size (TAM), indebtedness (END), the variable that measures profitability (ROE) and book price (PB). Despite this, the standard deviation of the variables is not high, and the variable (END) presented the highest value for this measure.

To verify the presence of multicollinearity, the correlation matrix of the explanatory variables for each of the countries was analyzed. It appears that there is a weak correlation between the explanatory variables and the dependent variable (Clas1), considering the parameters of (0.00 < p ^ < 0.30). The correlations of the explanatory variables showed associations to a non-significant degree, with percentages below 50%.

The VIF (*Variance Inflation Factor*) statistic was used to measure the amount of variation in the regression coefficients that may increase due to multicollinearity. The results

are shown in Table 5.

No variable presented VIF above 5, a value considered for the existence of a greater linear relationship between the explanatory variables of the research, which could indicate serious problems of multicollinearity of the models (Fávero & Belfiore, 2015). Tolerance values confirm the absence of multicollinearity and are less than 1.00.

Table 5

Multicollinearity Test – VIF

	Brazil		Chile		Peru	
Variable	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance
TAM	1.05	0.94922	1.43	0.70012	1.36	0.73683
NFCO	1.05	0.94959	1.33	0.75207	1.33	0.75297
PB	1.02	0.98305	1.24	0.80715	1.15	0.86725
SET	1.01	0.98585	1.09	0.92016	1.04	0.95891
END	1.01	0.98692	1.09	0.92127	1.03	0.96859
ROE	1.00	0.99537	1.01	0.99002	1.01	0.98963
Média VIF	1.02		1.17		1.14	

4.2 Model Analysis

First, the models from Brazil were analyzed, then from Chile, and finally from Peru. The analysis was performed first with logistic regression and then the regression models for panel data were estimated: *Pooled Logit*, *PA Logit*, fixed and random effects estimation to identify the best model.

According to Fávero and Belfiore (2015) in the logistic models for panel data, the expression of probability of occurrence of the event of interest is as follows:

$$P_{it} = \frac{e^{(\alpha + \beta_1 . X_{1it} + \beta_2 . X_{2it} + \ldots + \beta_k . X_{kit}}}{1 + e^{(\alpha 1 + \beta_1 . X_{1it} + \beta 2 . X_{2it} + \ldots + \beta_k . X_{ki})}}$$

(Eq. 3)

According to Fávero and Belfiore (2015), regression models for panel data are useful when the objective is to study the behavior of the phenomenon that changes among the research subjects and at the same time, over time. The panels used in this study are balanced.

4.2.1 Analysis of Brazilian Results

In Brazil, the sample was 331 companies, totaling 1655 observations. The sectors followed the *Thomson Reuters* classification. The industry sector represented the majority of companies (26.9%). The sectors Finance and Insurance, Industry and Utilities represented 58% of the sample, being grouped for the use of *dummy* in the regression.

As for the general classification, Table 6 summarizes the behavior of accounting choices, indicating the predominance of options for classifications in Brazil. Most companies do not follow the choices in the classifications of interest paid (60%) and received (59%), dividends paid (41%) and dividends received (92%).

Table 6

AC Classifications – Brazil

IAS 7 Choice	Paid interests		Received interests		Paid dividends		Received dividends	
0	1001	60%	973	59%	681	41%	1519	92%
1	654	40%	682	41%	974	59%	136	8%
	1655	100%	1655	100%	1655	100%	1655	100%

The results of the estimates based on the accounting choices of Brazilian companies are shown in Table 7:

Table 7
Logistic Regression and Pooled Logit - Brazil

	Paid interests		Received interests		Paid dividends		Received dividends	
Var	Reg. Logistics	Pooled Logit	Reg. Logistics	Pooled Logit	Reg. Logistics	Pooled Logit	Reg. Logistics	Pooled Logit
	P |z|		P>|z|		P>|z|		P>|z|	
TAM	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.007
END	0.448	0.522	0.947	0.958	0.000	0.001	0.115	0.261
ROE	0.890	0.939	0.226	0.247	0.897	0.919	0.095	0.012
NFCO	0.984	0.989	0.001	0.023	0.000	0.000	0.112	0.265
PB	0.816	0.862	0.051	0.240	0.643	0.760	0.637	0.706
SET	0.819	0.911	0.407	0.692	0.007	0.157	0.103	0.402
N	1655	1655	1655	1655	1655	1655	1655	1655
R2	0.036	0.003	0.035	0.004	0.091	0.000	0.038	0.185
Prob>Chi2								
LR Chi2/Qui de Wald	80.77	19.92	78.15	19.20	203.71	49.88	35.35	15.24

The results of *Pooled Logit* with grouping by classification and by the Prob > chi2 statistic shows the significance of the estimated model.

The logistic regression for interest received showed significant values for the variables (TAM), (NFCO) and (PB), with *p-value* < 0.05. The variable with the lowest association with the variable (Clas1) was (END), and it had low significance.

The results of interest received show a better adjustment when compared to the estimated model of interest paid. The variables (TAM) and (NFCO) were significant with values of *p-value* < 0.05: 0.0020 and 0.0230, respectively, and indicate the probability of associating these variables with AC for interest received.

In the analysis of the paid dividend model, the variables (TAM), (END), (NFCO) and (SET) are significant, and the other variables did not present significant statistics for dividends paid in Brazil. Pseudo R2 presents an adjustment of the model.

For Dividends Received only the variable (TAM) presented a significant value and the other variables did not show significance. Pseudo R2 showed a low adjustment of 3.76% and for the Prob > chi2 statistic the significance was 0.0185. The variable (TAM) is significant at *p-value* > 0.05 and by the Prob > chi2 statistic, there was significance in the estimated model. Significance was found for the variables (TAM), (END), (NFCO) and (SET) at a *p-value* < 0.05.

By the individual estimates, the best model for the dividends paid in panel was the *Pooled Logit*, which presented a significance of 0.05 for the variables (TAM), (END) and (NFCO), also confirmed by the logistic regression.

4.2.2 Chile Results Analysis

For Chile, the study included 111 companies, totaling 555 observations. Table 8 summarizes the behavior of accounting choices, indicating the predominance of Chilean companies' options.

Table 8
AC Classifications - Chile

IAS 7 Choice	Paid interests		Received interests		Paid dividends		Received dividends	
0	351	63%	313	56%	185	33%	385	69%
1	204	37%	242	44%	370	67%	170	31%
	555	100%	555	100%	555	100%	555	100%

Most Chilean companies did not choose the ratings expressed in IAS-7, and, of these, the dividends received is the classification with the highest percentage of alternative choices (69%). Except in the case of dividends paid (67%), the other options were for alternative choices.

The industry sector represented the majority of companies in Chile (32%), while the sectors administrative services, support and management of waste and remediation, and retail trade had no classified companies. The macrosector in Chile consists of the combination of the finance and insurance sector (18%), industry (32%) and utilities (16.2%) and, together, represented (66.2%) of the sample.

The results of the estimates based on the accounting choices of Chilean companies are shown in Table 9:

Table 9
Logistic Regression and Pooled Logit – Chile

	Paid interests		Received interests		Paid dividends		Received dividends	
Var	Reg. Logistics	Pooled Logit	Reg. Logistics	Pooled Logit	Reg. Logistics	Pooled Logit	Reg. Logistics	Pooled Logit
	P>|z|		P>|z|		P>|z|		P>|z|	
TAM	0.552	0.744	0.000	0.011	0.000	0.000	0.059	0.374
END	0.100	0.302	0.513	0.682	0.106	0.001	0.001	0.096
ROE	0.295	0.209	0.316	0.608	0.049	0.919	0.801	0.770
NFCO	0.986	0.991	0.006	0.106	0.002	0.000	0.244	0.458
PB	0.163	0.127	0.685	0.590	0.017	0.760	0.482	0.288
SET	0.724	0.854	0.281	0.566	0.004	0.157	0.000	0.027
N	555	555	555	555	555	555	555	555
R2 *Prob>Chi2*	0.019	0.366	0.082	0.021	0.176	0.000	0.081	0.000
LR Chi2/Qui de Wald	13.98	6.53	62.20	14.89	124.57	49.88	55.67	18.35

The results of the logistic regression of interest paid showed that none of the explanatory variables are associated with the classification of interest paid for Chile, they were not significant at the *p-value* < 0.05 and for the *Pooled Logit* estimation, using the Prob > chi2 statistic there was no significance of the estimated model.

In the Logistic Regression of interest received, the values were significant for the variables (TAM) and (NFCO) and the variable with the least association with the variable (Clas1) was the variable (PB), as it did not present a level of significance to the *p-value* < 0.05.

For Dividends Received, the variables (TAM), (END) and (SET) presented significance less than 0.05. The other variables did not present significant statistics for the dividends received. Pseudo R2 showed an 8.14% model adjustment.

For the dividends paid, there was a good adjustment of the model. The variables (TAM), (END) and (NFCO) showed significance less than 0.05. Pseudo R2 was 17.63%.

By *Pooled Logit* estimation with robust standard errors with grouping by classification of dividends received for FCO, by the Prob > chi2 statistic, there was significance at 0.0054. The behavior of the variable (SET) was significant at a *p-value* < 0.05.

As in the estimated model for logistic regression, the results of the *p-value* of the variables (TAM), (ROE), (NFCO) were significant at a *p-value* < 0.05.

In the GEE - *Pooled Logit* estimation with robust standard errors with grouping per individual of interest received, only the variable (TAM) showed a significant result, with the Prob > statistic.

4.2.3 Analysis of Peru's Results

The analysis for Peru included 104 companies, totaling 520 observations. Table 10 summarizes the behavior of accounting choices, indicating the predominance of Peruvian companies' options.

Table 10
AC Classifications – Peru

IAS 7 Choice	Paid interests		Received interests		Paid dividends		Received dividends	
0	377	73%	425	82%	218	42%	503	97%
1	143	28%	95	18%	302	58%	17	3%
	520	100%	520	100%	520	100%	520	100%

Most Peruvian companies did not choose IAS-7 options, except in the case of dividends paid (58%), with the remaining options being based on alternative choices.

The industrial sector represents the majority of Peruvian companies (38.5%), while the sectors of administrative support services, waste management and remediation, educational services, retail trade, wholesale trade and arts, entertainment and recreation, have fewer companies. The sectors Finance and Insurance and Industry and Utilities represent 67.3% of the sample, and, for this reason, they were grouped, forming a macrosector.

The results of the estimates based on the accounting choices of Peruvian companies are shown in Table 11:

Table 11
Logistic Regression and Pooled Logit – Peru

	Paid interests		Received interests		Paid dividends		Received dividends	
Var	Reg. Logistics	Pooled Logit	Reg. Logistics	Pooled Logit	Reg. Logistics	Pooled Logit	Reg. Logistics	Pooled Logit
	P>|z|		P>|z|		P>|z|		P>|z|	
TAM	0.192	0.514	0.000	0.073	0.036	0.176	0.027	0.347
END	0.145	0.355	0.045	0.068	0.113	0.353	0.175	0.442
ROE	0.745	0.823	0.410	0.529	0.180	0.292	0.720	0.494
NFCO	0.114	0.257	0.035	0.204	0.000	0.005	0.627	0.594
PB	0.134	0.216	0.012	0.137	0.739	0.845	0.397	0.487
SET	0.322	0.611	0.268	0.599	0.280	0.547	0.181	0.459
N	520	520	520	520	520	520	520	520
R2	0.019	0.680	0.019	0.680	0.039	0.088	0.135	0.120
Prob>Chi2								
LR Chi2/Qui de Wald	11.61	3.98	11.61	3.98	27.26	11.17	20.27	10.12

In the logistic regression of interest paid, none of the explanatory variables were significant at *p-value* 0.05, and the R2 of 1.90%, expressing that the estimated model did not present a probability of association of the explanatory variables with the FCO classification.

For dividends paid, the variables (TAM) and (NFCO) were significant at a *p-value* < 0.05, with the other variables not showing significant statistics.

Pseudo R2 showed a 3.85% model adjustment. As with the estimated model for logistic regression, by the *Pooled Logit*, it appears that the variable (NFCO) is significant to explain the probability of these variables being associated with accounting choices for FCF, according to IAS-7, as they were significant at a *p-value* < 0.05.

As for the dividends received in the analysis of logistic regression, only the variable (TAM) presented a significant value at a *p-value* < 0.05, with the other variables not showing significant statistics for the estimated model.

Pseudo R2 showed an adjustment of the model of 13.54%. According to the Prob > chi2 statistic, the estimated model was significant, but none of the variables showed a significant value at a *p-value* < 0.05.

In the estimation for the interest model received, the values are significant for the variables (TAM), (END), (NFCO) and (PB), with *p-value* < 0.05. And the variable that has less association with the variable (Clas1), is the variable (ROE), presenting a low level of significance, *p-value* > 0.05 = 0.410.

In estimating GHG - *Pooled Logit* with robust standard errors with individual grouping of interest paid, the panel was balanced. An analysis was carried out to check for the existence of considerable differences between the amount of classification, with the persistence of the CLASS variable behavior being considerable, showing that, out of the total of 546 companies, 377 had other types of classifications, different from the FCO.

Prob > chi2 statistics showed no significance for the estimated model. From the results of the *Pooled Logit* estimation for the interest received model, it was found that none of the variables was significant at *p-value* < 0.05, and none of the explanatory variables remained directly associated with the accounting choices of the interest received.

4.3 Discussion of Results

The results show that companies in the three countries presented similar accounting choices in some items, and different in others. Table 12 describes a summary of these choices:

Table 12
DFC ratings choices

Items	Choice Alternative above 50%	Brazil %	Chile %	Peru %
Paid interests	Yes	60	63	73
Received interests	Yes	59	56	82
Paid dividends	No	41	33	42
Received dividends	Yes	92	69	97

The percentages report that Peru was the one that most distinguished itself from the standard option, unlike Chile, which showed lower percentages, showing greater follow-up to the options recommended by the standard. It is also noticed that the item that most distanced itself from IAS 7, for the three countries, was dividends received. The item which represented a percentage below 50% was dividends paid, indicating that there is less option for the AC in this case.

The result of the accounting choices through logistic regression and data estimation in the *Pooled Logit* panel (compared with fixed and random models and effects) points out that the variable (TAM) was significant, with the probability of being associated with the accounting choices of interest paid and received and dividends paid and received in Brazil.

For Chile, this variable shows an association with the choices of interest received and dividends paid and received according to the results of the logistic regression and *Pooled Logit.*

In Peru, the variable (TAM) showed an association with the choices of interest received and dividends paid and received, as estimated by logistic regression. These results corroborate the studies by Cole *et al.* (2011) and Konraht *et al.* (2016) which found a relationship between the variable (TAM) and the probability of association of accounting choices.

As expected, the positive sign found for this variable indicates that the growth of assets positively impacts accounting choices in Brazil, Chile and Peru. For these reasons, it points out the importance of analyzing the institution's growth with other explanatory variables.

The studies by Konraht *et al.* (2016), Maciel *et al.* (2020) e Silva *et al.* (2018) found significance in the relation of the TAM variable and the accounting choices in DFC in the Brazilian context, corroborating with the findings of the present research, suggesting that larger companies select the variables to disclose a greater FCO in the DFC.

It should be noted that, contrary to the studies by Gordon *et al.* (2013), where the TAM variable was not significant, in this research the results show that the larger the size of the company, the more the company tends to follow the IAS-7 standard.

The indebtedness (END) was significant and positive in Brazil and Chile, in the estimation of the dividend paid model, and of the interest received in Peru, both in the logistic regression and in the results for the *Pooled Logit* panel, corroborating the studies by Gordon *et al.* (2013), which showed a relationship between indebtedness and accounting choices and an increase in FCO.

The return on equity (ROE) was significant and positive with the accounting choices of the companies, only for estimating dividends paid in Chile, using logistic regression. This result is related to the other studies of accounting choices, that is, the variable (ROE) has little probability of association with accounting choices in the DFC, which corroborates the studies by Maciel *et al.* (2020) e Silva *et al.* (2018).

The variable (NFCO) was significant and, as for the sign, in some analyzes it was positively and in others negatively significant for the accounting choices of the sample companies. In the literature, the variable can show a positive or negative sign. When positive, it indicates that the company has sufficient resources in the FCO. As it is a liquidity indicator, the sign found was expected to be positive, but in some cases, the results show that an increase in the probability of this variable (NFCO) negatively impacts the probability of association with accounting choices. The signal obtained may be related to the existence of factors external to the companies and which were not raised in this study.

The relationship between the variable (PB) and accounting choices in Brazil was statistically significant, with the probability of an association with the accounting choices of interest paid, corroborating the results of Gordon *et al.* (2013), e Lee (2012).

The result found is consistent with the literature and related to the fact that the relationship between the price and the equity value of the stock market indicates growth opportunities and consequently attracts new investors, that is, the higher the values for this variable, there will be more opportunities for growth and the better the expected return.

The variable (SET) is significant and indicates the probability of being associated with the accounting choices of dividends paid in Brazil and dividends paid and received in Chile, as shown by the result presented by Konraht *et al.* (2016) e de Maciel *et al.* (2016). According to the Cole *et al.* (2011)´s studies, the sector can have an important impact by influencing companies' business models.

Contrary to the studies by Gordon *et al.* (2013) where the SET variable was not significant, they stated that the variable was not relevant to reflect the companies' view. Gordon *et al.* (2013) pointed out that companies that are homogeneous in the sector are less likely to make changes in the classification that increases the FCO.

5 CONCLUSIONS

This research aimed to analyze the characteristics associated with AC in the DFC of public companies in Latin America. The sample included 546 companies (financial and non-financial): 331 Brazilian companies, 111 Chilean and 104 Peruvian, making up the sample, a total of 546 companies, whose annual cash flow statements were available for research in the period from 2012 to 2016.

These countries were selected because they are associated with GLENIF, and the sample was mandatory for all companies as a parameter, as established by the regulatory authorities of each country.

The Theories of Agency Theory, Contractual Theory of the Firm, Positive Theory of Accounting and Institutional Theory, applied to the present study, state that the AC justifies the achievement of results intended by the entities (Badertscher *et al.*, 2012; Fields *et al.*, 2001; Watts, 1992).

To infer the probability of the DFC classifications, variables extracted from the literature from national and international studies were used. For each of the twelve models, six explanatory variables were tested: asset size, indebtedness, profitability, negative operating cash flow, *Book-to-Price* and sector.

Logistic regression was used because it allows the analysis of the DFC's classifications and accounting choices of the surveyed companies. Subsequently, regressions were estimated using panel data. In the analysis of the models, the estimates showed a lot of variability among the results. However, the results presented for Chile and Peru are the ones that are most similar. The research confirmed that there are significant differences in the characteristics associated with the DFC ACs of public companies belonging to the countries analyzed.

The results corroborate previous studies by Cole *et al.* (2011), Konraht *et al.* (2016), Maciel *et al.* (2020) e Silva *et al.* (2018) regarding the significance of the variables: TAM, END, ROE and SET, as well as the relationship of the variable (PB) corroborating the results of Gordon *et al.* (2013) e de Lee (2012).

In Brazil, the Tam and End variables are the most likely to be associated. In Chile, the Tam and End variables are also the ones most associated with AC, and, in Peru, the variables TAM and NFCO.

In addition, it was found that most companies in the three countries do not follow the recommendations expressed by IAS-7, revealing that the dividends paid are less influenced by the AC in the three countries, which may indicate opportunism regarding the ratings in the DFC, and that, overall, the ratings are similar for the three countries.

This research brought differentiated contributions when considering the analysis of DFC in financial and non-financial companies. It is worth highlighting the presentation of an

overview of how companies in different countries show cash flows. In addition, the study provides evidence of an association between company characteristics and accounting choices at DFC, as there are differences in the countries surveyed. Thus, the results appear to indicate that the recommendations of regulatory bodies regarding the standardization of procedures are not followed due to interests related to cash flows.

It is suggested for future research the extension to other emerging markets and the inclusion of other accounting and market variables, including future models, since one of the advantages of DFC is related to the forecast of future cash flows.

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Escolhas Contábeis na Demonstração dos Fluxos de Caixa: Análise em Empresas da América Latina

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RESUMO

***Objetivo**: Este estudo analisou quais características das empresas podem estar associadas às escolhas contábeis na demonstração dos fluxos de caixa (DFC) em 565 empresas abertas de países da América Latina, no período de 2012 a 2016.*

***Método**: A análise foi realizada por meio da estimação de doze modelos de regressão logística e com dados em painel.*

***Originalidade/Relevância**: O estudo das escolhas contábeis da DFC proporciona informações acerca das mudanças nos ativos líquidos, na estrutura financeira e na capacidade das empresas de modificarem recursos.*

***Resultados**: Os resultados apontam que o tamanho das empresas, o fluxo de caixa negativo e o setor podem ter relação com escolhas de juros e dividendos recebidos e pagos, o que indica que os resultados para as variáveis, no Brasil, são semelhantes aos do Chile e do Peru, mesmo em ambientes institucionais diferentes.*

***Contribuições teóricas/metodológicas**: Este estudo contribui para a área contábil por fornecer um panorama a respeito de como as empresas financeiras e não financeiras, em países diferentes, evidenciam fluxos de caixa, principalmente no que tange à comparabilidade e às escolhas contábeis da DFC, que podem aumentar o fluxo de caixa operacional. Ademais, evidencia associação entre as características das empresas e as escolhas contábeis na DFC, apresentando, nos países pesquisados, diferenças referentes aos interesses de fluxo de caixa e, contrariamente ao objetivo dos organismos reguladores, à padronização de procedimentos contábeis.*

***Palavras-chave**: Escolhas contábeis; DFC; Características associadas.*

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