

## RESEARCH ARTICLE

# Comparison of the effects of earnings management on the financial cost between companies in developed and emerging European countries

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## Abstract

Empirical studies found that earnings management (EM) explains firms' cost of capital both in companies in emerging and developed countries, but until now, it has not been analyzed whether the effect of EM on the financial cost is different among emerging countries inside or outside an economic area (Eurozone). Our results show that the cost of debt and the idiosyncratic component of the cost of equity are related to discretionary accruals and abnormal values of operating cash-flows, that the emerging country effect is more relevant on the cost of debt, that there is a Eurozone effect that makes discretionary accruals more relevant than abnormal values of operating cash-flow and that firms in emerging countries inside the Eurozone benefit from a lower EM penalty on the cost of debt than firms in other emerging European countries.

## KEYWORDS

cost of debt, cost of equity, earnings management, idiosyncratic risk, systematic risk

## JEL CLASSIFICATION

G14, G32, M41

## 1 | INTRODUCTION

The literature shows that cost of capital for companies in emerging countries is higher than that for companies in developed countries (González-Sánchez, 2022; Narayan et al., 2014). This means that investments in emerging countries have to achieve higher returns to compensate for this extra financial cost. In this context, our aim is to test whether the earnings management (EM) explains this extra financial cost of capital and, if the EM effect is different for companies in emerging countries if the country is inside or outside of Eurozone.

EM is the ability of the company's management to manipulate the company's results, with the intention of

obtaining some private gain, but reducing the quality of financial reporting. The literature has analyzed whether EM has a negative impact on the quality of financial reporting, which may reduce the value of the company, causing stakeholders to lose confidence. More specifically, EM has also been analyzed in relation to issues such as the supervisory role of the majority owner in mitigating managers' opportunistic behavior in EM (Mellado & Saona, 2005), insider trading (Sawicki & Shrestha, 2008), mergers and acquisitions (Zhu & Lu, 2013), debt issuance (Mellado et al., 2017), or bankruptcy risk (Agustia et al., 2020).

EM can take two nonexclusive forms: accrual-based earnings management (AEM) and real earnings management (REM). AEM occurs when managers control

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reported earnings by exploiting accounting discretion (Dechow et al., 1995, 2012; Fields et al., 2001; Healy & Wahlen, 1999; Kothari et al., 2005; Schipper, 1989). Managers use REM to manipulate results and deliberately mislead external investors (Al-Shattarat et al., 2022; Ayers et al., 2006; Gunny, 2010; Roychowdhury, 2006; Zhao et al., 2012)

Managers can also use both practices simultaneously. Zang (2012) analyzes the trade-offs between AEM and REM and concludes that high (low) real activities manipulation realized is directly offset by a lower (higher) amount of AEM. In addition, executive surveys conducted by Graham et al. (2005) suggest that managers emphasize real economic actions rather than exercise accounting discretion to hit earnings benchmarks.

There is a vast literature on the relationship between EM and the potential effects of EM on the capital market. Chung et al. (2015) found that firms receiving warnings preferred to use REM than accounting EM to avoid potential litigation and penalties. Cohen et al. (2018) pointed out that the market considers managers' earnings forecasts with bad news to be more credible than forecasts with good news, not because forecasts with good news are biased. Beckmann et al. (2019) showed that firms actively manage earnings around cross-listing events. Chen et al. (2020) conclude that firms in countries with a strong legal system, strengthened outside investor rights, more institutional shareholders, and more monitoring by financial analysts are less likely to engage in EM, while firms with low stock market liquidity tend to manipulate earnings compared to those with high liquidity. Huang and Ho (2020) find that, in a sample of Chinese listed firms, an increase in stock liquidity is associated with a decrease in the degree of EM. Bansal et al. (2021) test for an asymmetrical perception of EM by investors, since, stocks returns are negatively related to the EM sign. Le and Trinh (2022) find that limited analyst's attention may negatively affect corporate financial reporting quality as these firms covered by distracted analysts manage their earnings more intensively. Espahbodi et al. (2022) show that firms that appear to manage their earnings more intensively are more likely to increase their dividends, but standard EM metrics do not explain changes in firm value around dividend change announcements.

More relevant for our purpose, however, are the empirical papers that study whether EM cannot be effectively identified by investors and, as a consequence, the company could easily obtain capital market financing and reduce its cost of equity and debts due to its excellent performance masked by EM manipulation.

So, Francis et al. (2004, 2005) found that, based on a sample of US firms, accruals quality influences the cost of equity. Gray et al. (2009) found the same results in a sam-

ple of Australian firms. For the US sample, Kim and Sohn (2013) showed that REM has a positive relationship with the cost of equity. Strobl (2013) found that the relationship between EM and the cost of capital is conditioned by the timing of the economic cycle. Hsu and Yu (2005) using Taiwanese listed companies, found that AEM increases the cost of equity, but REM decreases it.

On the other hand, in terms of the cost of debt, Kim et al. (2020) is the first empirical study on the relationship between REM and the cost debt capital and found that the relation varies depending on the institutional environment of the country in which a firm is headquartered. Similarly, the literature also shows a causal relationship between EM and corporate financing characteristics. Fields et al. (2018) find that firms have higher discretionary accruals during periods of increasing short-term debt and this relationship is stronger for firms that ultimately obtain new loan financing. Pappas et al. (2019) show that greater EM is related to higher bond yield spreads and more intensive covenants, but this does not affect maturity or collateral requirements. Thanh et al. (2020) find nonlinear effects of debt ratio on EM: positive effect with low debt and negative effect with high debt. Mughal et al. (2021) note post-merger acquirers' underperformance, as a consequence of the acquiring firm's EM. Shoaib and Siddiqui (2022) find an effect of EM on the relationship between firm performance and capital structure.

Additionally, the literature has found that EM occurs in companies in both developed and emerging countries (Chen et al., 2020; Leuz et al., 2003; Li et al., 2014; Viana et al., 2021), but the perception of EM among countries is different (Kliestik et al., 2021).

In this context, however, despite the vast literature on the relationship between EM and company financing, to the best of our knowledge, there is no empirical study that analyzes whether the higher financing cost (both debt and equity) suffered by companies in emerging countries compared to companies in developed countries is explained by a different investor interpretation of EM and a different regulatory framework (according to inside vs. outside a developed economic zone). To do so, first, we construct a sample composed of companies from 16 developed countries and 21 emerging countries, all belonging to the same geographical area (Europe) with a sample period from 2012 to 2020; also, there are 11 developed countries and seven emerging countries among the countries in the sample, that use the euro as their currency. Next, we test whether the EM effect on financing cost is different between companies in emerging and developed countries and, furthermore, whether the effect is different when the country is inside or outside the Eurozone. This last objective of the study closes the existing gap in the literature and would allow us to check whether investors penalize

EM differently depending on whether or not an emerging country belongs to an economic group integrated with developed countries.

The rest of the paper is organized as follows: the second section reviews the literature and formulates the hypotheses. The third section presents the methodology for testing the hypotheses. The fourth section describes the sample data. The fifth section presents the results. The last section presents the main conclusions of the study.

## 2 | LITERATURE REVIEW AND DEVELOPMENT OF HYPOTHESES

The literature shows a positive relationship between EM and financial cost of companies, that is, the financial cost increases when EM do it. Kim and Sohn (2013), using a large sample of U.S. firms, found that real EM activities exacerbate the information quality of earnings used by outside investors, and thus the market demands a higher risk premium for these activities, which is incremental to the risk premium for the AEM. The literature has not only studied the effect of EM on the cost of equity, but has also analyzed the effect on its components; for example, Datta et al. (2017) relate idiosyncratic risk to EM, finding a positive relationship through the analysis of 44,599 observations over 1988–2009. Also, Abad et al. (2018), for a sample of listed Spanish firms, found that firms' strategies of increasing earnings through real EM are associated with higher information asymmetry in those firms that meet last year's earnings.

This extra financial cost caused by EM occurs not only in the cost of equity, but also in other components of the financial cost of companies. For cost of debts, Bharath et al. (2008) found that poorer accruals quality is associated with higher interest spreads. Ge and Kim (2014) analyze the association between real EM and the cost of new U.S. corporate bond issues and found that credit rating agencies and bondholders perceive real EM as a credit risk increasing factor and thus require high risk premiums. Pappas et al. (2019) find that greater EM is related to higher bond yield spreads.

The literature has also found different causes and effects of EM between companies in developed and emerging countries. Gaio and Raposo (2011) relate earnings quality and firm valuation in 38 countries (22 developed and 16 emerging), over the 1990–2003 period and conclude that there is a positive relationship between firm valuation and earnings quality, and that this relationship is particularly strong for firms with higher investment opportunities and more need for external financing and for firms in countries with limited investor protection. Fan and Yu (2013) analyze 43 countries (27 developed and 16 emerging) and find a positive association between abnor-

mal accrual and idiosyncratic risk, with a smaller impact in developed countries than in emerging countries. Li et al. (2014) analyzed markets in Brazil, Russia, India, and China and found a significant and systemic signs of misreporting of financial information there, particularly in China and Russia, which are further examined to understand the possible reasons behind their more severe misreporting. Lin and Wu (2014) compare U.S. and Taiwanese listed companies from 1990 to 2011 and found that the phenomenon of cosmetic EM exists in developed and emerging markets, but corporate managers of emerging markets have stronger incentives to manipulate earnings. Enomoto et al. (2018) examine the relationship between financial development and EM using 56,830 observations in 37 countries covering the 2009–2012 period, and find that EM is more constrained in countries with greater financial development. Saona and Muro (2018) analyzed at firm and country level determinants of EM for a sample of Latin American companies from 1997 to 2015 and found that dividend pay-outs positively impact EM, that inefficient financial markets give managers more room to manipulate financial statements, while the legal and regulatory system reduces manager's manipulation. Lourenço et al. (2020) using a sample of foreign firms with American Depositary Receipts in the U.S. market, analyzed the positive association between the countries' corruption level and the level of EM and found that higher corruption perception is related to higher incentives for firms to manipulate earnings in the case of emerging countries, but not for developed countries where the level of minority investors' protection is higher. These results indicate that in developed countries EM is negatively related to investor protection, which is not the case for emerging countries. Munóz Mendoza et al. (2020) analyzed 983 Latin American companies between 1995 and 2017 and found that mandatory IFRS adoption reduces EM practices in emerging markets. Viana et al. (2021) studied firms from 11 emerging markets and from 22 developed countries and found that EM in emerging country firms is due to different reasons than in developed markets. The international analysis of earnings manipulation has been associated with different corporate aspects, including in recent years climate risk. Ding et al. (2021) find that companies in countries with higher climate risk are more likely to engage in EM, with this association being more pronounced in developed country firms.

However, Gao et al. (2020) for listed high-tech firms in China from 2008 to 2017, found a significant negative correlation between EM and the cost of equity indicating that, in China, REM cannot be effectively identified by external investors, and the company could easily obtain financing from the capital market and reduce its cost of equity due to its masked excellent performance by manipulating the REM. Kim et al. (2020) examine a sample of 14,654

observations across 18 countries from 1987 to 2013 and found that REM is positively associated with the cost of capital so it suggests that the association between the extent of REM and the financing cost vary depending on the institutional environment of the country in which a firm is located. According to the above literature, there is an extra-cost due to the opacity of earnings, that is, the EM misrepresents the firm's true performance and increases the information asymmetry between stock-holders, stakeholders (financial creditors) and managers. So, empirical research found a positive relation between EM and financial cost in countries with greater financial development. Conversely, there is no clear empirical evidence of this positive relationship in emerging countries (e.g., Gao et al. (2020) found a negative correlation and Kim et al. (2020) showed that the effect is different for each country or institutional environment).

In this context, first we test whether EM (accounting and real) in developed and emerging countries is able to explain the higher financial cost of the latter, both equity (including systematic and idiosyncratic components as Fan and Yu (2013) and Datta et al. (2017)) and debts. To test this, we formulate the following hypothesis:

**H1.** The earnings management effect on financial cost of firms in emerging countries is different from that of companies in developed countries within the same geographical area

Thus, if H1 is accepted then, we find empirical evidence that support the same results as the literature, but in the same geographical area (Europe including Eurozone and non-Eurozone).

Also, and to the best of our knowledge, the literature has not analyzed whether the EM effect on financial cost depends on whether the company's country belongs to the Eurozone. Thus, our second hypothesis is:

**H2.** The effect of earnings management on the financial cost of Eurozone companies is different from that of non-Eurozone companies.

So, if H2 is accepted then, our results support the empirical evidence of Kim et al. (2020) as we would find that the effect depends on the institutional environment and regulatory framework of the countries.

In emerging countries, Klietk et al. (2021) show that EM effects on the cost of capital differs depending on the political and financial characteristics of each country, then, and as a consequence of the two previous hypotheses, we test whether there is a joint effect as an emerging country and also as a member of the Eurozone. To the best of our knowledge, this is the first time that we test whether investors penalize emerging countries differently, through

the cost of debt and equity, depending on whether they are subject to a common legal framework with developed countries. For this purpose, Europe is a perfect laboratory as it is composed of developed and emerging countries, and at the same time the Eurozone integrates emerging and developed countries that are subject to a common legal framework and integrated markets. Then, our third hypothesis is:

**H3.** The effect of earnings management on the financial cost of firms from emerging countries inside the Eurozone is different from that of firms in emerging countries outside the Eurozone.

Therefore, if H3 is accepted, our results would show, for the first time in the literature, that the effect of EM on the financial costs of companies in emerging countries varies when the latter are subject to the regulatory framework of a developed economic zone (in our case the Eurozone).

### 3 | METHODOLOGY

Since EM is not directly observable, in this empirical study we follow the usual approaches in the literature (Cohen & Zarowin, 2010; Dechow et al., 2012, 1995; Jones, 1991; Kothari et al., 2005; Peasnell et al., 2000; Roychowdhury, 2005) to estimate discretionary accruals, abnormal cash-flows, and abnormal expenses from operations as these are the three components of total EM.

First, we define the following models for total accruals (expression-1), operating cash-flows (expression-2), and operating expenses (expression-3):

$$\frac{TA_{i,t}}{Assets_{i,t-1}} = \alpha_{0,i} + \alpha_1 \cdot \frac{1}{Assets_{i,t-1}} + \alpha_2 \cdot \frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} + \alpha_3 \cdot \frac{TDA_{i,t}}{Assets_{i,t-1}} + \alpha_4 \cdot RoA_{i,t} + \sum_{t=1}^T \delta_t \cdot D_t + \varepsilon_{i,t}^{TA} \quad (1)$$

$$\frac{CFO_{i,t}}{Assets_{i,t-1}} = \omega_{0,i} + \omega_1 \cdot \frac{1}{Assets_{i,t-1}} + \omega_2 \cdot \frac{Sales_{i,t}}{Assets_{i,t-1}} + \omega_3 \cdot \frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} + \sum_{t=1}^T \delta_t \cdot D_t + \varepsilon_{i,t}^{CFO} \quad (2)$$

$$\frac{EXP_{i,t}}{Assets_{i,t-1}} = \gamma_{0,i} + \gamma_1 \cdot \frac{1}{Assets_{i,t-1}} + \alpha\gamma_2 \cdot \frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \sum_{t=1}^T \delta_t \cdot D_t + \varepsilon_{i,t}^{EXP} \quad (3)$$

where for firm  $i$  in fiscal year  $t$ ,  $TA$  is the total accruals defined as income from continuing operations minus cash-flow from operations;  $Assets$  is the total assets;  $CFO$  represents the operating cash-flows;  $Sales$  are sales for the fiscal year;  $EXP$  is the difference between operating revenues and operating income (EBIT);  $\Delta Sales$  is the difference in sales between two consecutive fiscal years or sales growth;  $TDA$  shows the total depreciable assets; and  $RoA$  denotes the total return on assets.  $D_t$  is a dummy for each year and shows temporary effects. Then,  $\alpha_{0,i}$ ,  $\omega_{0,i}$ , and  $\gamma_{0,i}$  are the constants and represent the individual effect for each firm. Finally,  $\varepsilon_{i,t}^{TA}$ ,  $\varepsilon_{i,t}^{CFO}$ , and  $\varepsilon_{i,t}^{EXP}$  are the residual terms and, these are also our proxies for EM; so, the discretionary accruals ( $DA_{i,t} = \varepsilon_{i,t}^{TA}$ ) are a usual proxy for accounting EM, while abnormal values of operating cash-flows ( $DCFO_{i,t} = \varepsilon_{i,t}^{CFO}$ ) and abnormal values of operating expenses ( $DEXP_{i,t} = \varepsilon_{i,t}^{EXP}$ ) are usual proxies for REM.

Note that expressions (1), (2), and (3) allow to obtain discretionary and abnormal estimates independent of temporary and individual effects.

Besides discretionary accruals, abnormal operating cash-flows, and abnormal operating expenses, we also

$$y_{i,t} = \lambda_0 + \lambda_1 \cdot \varepsilon_{i,t}^{TA} + \lambda_2 \cdot \varepsilon_{i,t}^{CFO} + \lambda_3 \cdot \varepsilon_{i,t}^{EXP} + \lambda_4 \cdot DM_i \cdot \varepsilon_{i,t}^{TA} + \lambda_5 \cdot DM_i \cdot \varepsilon_{i,t}^{CFO} + \lambda_6 \cdot DM_i \cdot \varepsilon_{i,t}^{EXP} + \lambda_7 \cdot DE_i \cdot \varepsilon_{i,t}^{TA} + \lambda_8 \cdot DE_i \cdot \varepsilon_{i,t}^{CFO} + \lambda_9 \cdot DE_i \cdot \varepsilon_{i,t}^{EXP} + \lambda_{10} \cdot DM_i \cdot DE_i \cdot \varepsilon_{i,t}^{TA} + \lambda_{11} \cdot DM_i \cdot DE_i \cdot \varepsilon_{i,t}^{CFO} + \lambda_{12} \cdot DM_i \cdot DE_i \cdot \varepsilon_{i,t}^{EXP} + \sum_{c=1}^C \theta_c \cdot control_{i,t} + \psi_{i,t} \quad (5)$$

define another regressors:  $DM_i$  is a dummy variable with value 1 if firm  $i$  is from an emerging country and value 0 if it is from a developed country. We include  $DE_i$  as a dummy variable with value 1 if firm  $i$  is from a country into Eurozone and value 0 if not. That way we can test whether the effects of EM on financial cost between companies in developed and emerging countries are different when they are subject to a common legal framework and currency. Finally, as in the literature reviewed, we include the usual control variables<sup>1</sup> of size ( $\ln(Assets)$ ), growth options measured by book-to-market ratio ( $BtM$ ), and level of indebtedness measured by debt-to-book value ratio ( $DEBT$ ).

Then we define our dependent variables. First, we calculate the cost of debt as  $k_{i,t} = \frac{Int_{i,t}}{Debt_{i,t-1}}$ , where  $Int_{i,t}$  is the interest from the income statement for firm  $i$  in year  $t$  and  $Debt_{i,t}$  is the financial debt from the balance sheet for firm  $i$  in year  $t - 1$  (similarly to Bharath et al., 2008). Also, we calculate the cost of equity as the annual stock market return ( $r_{i,t} = \frac{P_{i,t}}{P_{i,t-1}} - 1$ ), where  $P_{i,t}$  is the stock market price for firm  $i$  in year  $t$ . Additionally, we estimate the decomposition of the cost of equity into systematic and idiosyncratic

components (see among others, Sharpe, 1964). To do so, we run monthly rolling regression of the CAPM model as:

$$r_{i,j} - rf_j = \beta_{i,j,0} + \beta_{i,j,M} \cdot (r_{M,h,j} - rf_j) + u_{i,j} \quad (4)$$

where  $r_{i,j}$  is the monthly stock market return for firm  $i$  in month  $j$ ,  $rf_j$  is the monthly risk-free rate for both markets (emerging and developed),  $r_{M,h,j}$  is the monthly return of the market portfolio for developed ( $h = 0$ ) and emerging ( $h = 1$ ) markets. Then for the cost of equity, we define the systematic component for  $i$  in year  $t$  as  $SYS_{i,t} = \beta_{i,t,M} \cdot (r_{M,h,t} - rf_t)$ , where  $\beta_{i,t,M}$  is the average of monthly  $\beta_{i,j,M}$  in year  $t$ ,  $r_{M,h,t}$  is the annual return of the market portfolio in year  $t$  and  $rf_t$  is the annual risk-free rate in year  $t$ . Also, we define idiosyncratic component for firm for  $i$  in year  $t$  as  $IDI_{i,t} = r_{i,t} - \beta_{i,t,M} \cdot r_{M,h,t} - (1 + \beta_{i,t,M}) \cdot rf_t$  (see Angelidis (2010) and Fan and Yu (2013)). Note that the sum of two components is the excess market return on risk-free rate.

Then, we test our hypotheses on the following expression:

where  $y_{i,t}$  is dependent variable, that is,  $(k_{i,t} - rf_t)$  and the excess market return of the cost of equity spread ( $k_{i,t} - rf_t$ ) with the decomposition into the systematic ( $SYS_{i,t}$ ) and the idiosyncratic ( $IDI_{i,t}$ ) components for  $i$ -firm in year  $t$ .

We estimate expression (5) for each dependent variable to contrast the hypotheses H1, H2, and H3, respectively. So, if  $\lambda_1$ ,  $\lambda_2$ , and  $\lambda_3$  are statistically significant then discretionary accruals, abnormal cash-flows and abnormal expenses from operations, respectively, explain the dependent variable corresponding to each expression and for both types of countries, that is, we find the EM effect on the financial cost of all companies. As in the literature, we expect a positive sign for these parameters.

But if  $\lambda_4$ ,  $\lambda_5$ , and  $\lambda_6$  are statistically significant then accruals, abnormal operating cash-flows, and abnormal operating expenses (respectively) show a different impact on companies in emerging countries than on those in developed countries and then, we accept H1 as we find a different effect of EM on the financial cost for companies in emerging and developed countries. So, if these parameters are positive (negative) the effect of EM on the financial cost

for firms in emerging countries would be higher (lower) than that of companies in developed countries.

Additionally, if  $\lambda_7$ ,  $\lambda_8$ , and  $\lambda_9$  are statistically significant, we accept H2 as we find empirical evidence on the different effect of EM on the financial cost of companies subject to the same regulatory framework and the same currency (Eurozone) than those outside this economic zone.

Moreover, if  $\lambda_{10}$ ,  $\lambda_{11}$ , and  $\lambda_{12}$  are statistically significant then, we find that the effect of EM on the financial cost of firms in emerging Eurozone countries is different from both the effect of developed Eurozone countries and the effect of emerging non-Eurozone countries, therefore, we accept H3 and we show first time in the literature that when an emerging country is subject to a regulatory framework and a currency equal to that of other developed countries, the effect of EM on the financial cost of its companies is different from both developed countries firms and companies from other emerging countries outside the economic zone.

## 4 | DATA

Europe is chosen as the laboratory in which to test our hypotheses on the relationship between EM and the cost of capital of companies because it is a geographic-economic area in which, in addition to the coexistence of emerging and developed countries, there is an area (Eurozone) that is also made up of these types of countries and which also uses the same currency, with a common regulatory framework and a high level of market integration.

In addition, to create the study sample, we have used the classification of countries (emerging vs. developed) proposed by the World Bank, the International Monetary Fund, and the MSCI indexes, that is, a country belongs to the developed group if it is classified as such by these three institutions, likewise, if the World Bank, the International Monetary Fund, and the MSCI index include it in the list of emerging countries, for our study we include it in that group.

The sample is made up of nonfinancial listed firms (as usual, banks, insurance, financial, and real estate companies are excluded since are subject to specific regulations) from 16 developed countries (11 of them with euro currency) and 21 emerging countries<sup>2</sup> (seven with the euro), Table 1 shows the sample composition:

The data period runs from 2012 to 2020 but as some variables are estimated by differences between two consecutive fiscal years, the analysis period covers 2011–2020. To obtain all the financial data, we used the Bureau van Dijk (BvD) Amadeus database (as Kliestik et al., 2021). Annual observations per company for which a necessary variable

is unavailable have been eliminated. As is common in the literature, for each firm we also exclude those years with a negative book value, as well as when any of the variables show extreme values in the distribution tails (less than 1% or more than 99%). Table 2 shows the main statistics of the accounting data.

Finally, we obtain the monthly price of market stocks from the Amadeus database, and we use the risk-free rate and the excess return of the market portfolio for developed and emerging markets from the French database<sup>3</sup>. Table 3 shows the main statistics of the financial data.

From the results in Table 3, note that the statistics cost of debt and cost of equity spread (and the two components: systematic and idiosyncratic) are higher in emerging markets than in developed markets. Our objective is to test whether this difference is explained by EM and also, whether there is a particular effect when countries belong to the Eurozone.

## 5 | RESULTS

First, we extract discretionary accruals, abnormal operating cash-flows, and abnormal operating expenses from the estimates of expressions (1), (2), and (3). Table 4 shows the results.

The results in Table 4 indicate that the individual effects of each firm are fixed (see Hausman test which rejects the hypothesis of random effects efficiency through GLS). Also note that the tests indicate the absence of the residuals' autoregressivity. Finally, we observe that the explanatory power is slightly higher for developed countries than for emerging ones.

With respect to total accruals ( $TA$ ) we observe that sales growth and  $RoA$  are statistically significant for companies in both markets, consistently with McNichols (2000) and Gras-Gil et al. (2016), although the weights are higher for companies in developed markets and only for the latter, the  $\frac{1}{Assets}$  ratio is statistically significant. The operating cash-flows model ( $CFO$ ) also shows that the weights of the regressors are higher for developed firms than for emerging firms, except for  $\frac{1}{Assets}$ . In the operating expenses ( $EXP$ ) model, in line with Roychowdhury (2006), Zang (2012), and Cupertino et al. (2015), we find that several regressors show positive and statistically significant parameters; however, it indicates that the weights of the regressors are higher for emerging firms than for developed ones and even the sign of the parameter corresponding to  $\frac{1}{Assets}$  is the opposite in each market. Lastly, and according to Roychowdhury (2006) and Cupertino et al. (2015), the fiscal year sales also show a similar positive and significant effect for the two groups of countries.

TABLE 1 Sample composition.

Years	Code country	Firms	Observations	Euro currency
<b>Developed countries</b>				
Austria	AT	46	414	yes
Belgium	BE	118	1062	yes
Denmark	DK	130	1170	
Finland	FI	128	1152	yes
France	FR	552	4968	yes
Germany	DE	551	4959	yes
Great Britain	GB	1072	9648	
Greece	GR	132	1188	yes
Ireland	IE	65	585	yes
Italy	IT	304	2736	yes
Netherlands	NL	93	837	yes
Norway	NO	229	2061	
Portugal	PT	44	396	yes
Spain	ES	162	1458	yes
Sweden	SE	780	7020	
Switzerland	CH	108	972	
<b>SUM</b>		<b>4514</b>	<b>40,626</b>	<b>11</b>
<b>Emerging countries</b>				
Bosnia-Herzegovina	BA	449	4041	
Bulgaria	BG	108	972	
Croatia	HR	77	693	
Cyprus	CY	36	324	yes
Czech Republic	CZ	12	108	
Estonia	EE	10	90	yes
Hungary	HU	21	189	
Iceland	IS	13	117	
Latvia	LV	12	108	yes
Lithuania	LT	24	216	yes
Malta	MT	9	81	yes
Moldova	MD	344	3096	
Macedonia	MK	193	1737	
Poland	PL	614	5526	
Romania	RO	295	2655	
Russia	RU	519	4671	
Serbia	RS	364	3276	
Slovakia	SK	45	405	yes
Slovenia	SI	16	144	yes
Turkey	TR	81	729	
Ukraine	UA	157	1413	
<b>SUM</b>		<b>3399</b>	<b>30,591</b>	<b>7</b>

Note: The differentiation between emerging and developed is based on data from the World Bank, the International Monetary Fund, and the MSCI indexes.

TABLE 2 Statistics for accounting data.

Statistics	Mean	Std. dev.	Max.	Min.	Mean	Std. dev.	Max.	Min.
Variable	Developed firms				Emerging firms			
IA	.0800	.1958	.8498	.0011	.0003	.0003	.0010	.0004
RoA	.1548	.3661	.5426	-.2114	.1472	.2797	.6313	-.2951
$\Delta S$	.1278	.2406	.7500	-.8012	.1344	.3378	.7846	-.9479
S	.3342	.3179	.9821	-.5745	.3674	.2945	1.0031	-.5809
$S_1$	.2271	.2932	.9500	-.7574	.2939	.2769	1.0841	-.3301
TDA	.4861	.2414	.9851	.0000	.4545	.2820	1.3250	.0000
DEBT	.6881	.6460	4.9956	.0500	.4591	.6372	3.9988	-3.9940
SIZE	9.3468	4.7686	2.6599	.1628	9.1930	2.0374	19.3387	6.9079
BtM	.6580	.5324	4.7523	.0200	.8790	.9333	4.9985	.0000
CFO	.1888	.3101	.9988	-.9865	.3075	.3295	1.0616	-1.0803
EXP	.5888	.2591	.9833	.0500	.3792	.2862	1.0098	-.2707
TA	.1027	.3342	.8400	-.8629	.2846	.3459	1.1852	-1.1984

Note: IA is ratio  $\frac{1}{Assets}$ ; RoA is return on assets;  $\Delta S$  is the growth rate of sales over assets at the beginning of the year; S is sales of year over assets at the beginning of the year;  $S_1$  is the ratio of the previous year's sales to the assets of the same year; TDA is the ratio of total depreciation to total assets; DEBT is debt-to-book value ratio; SIZE is log-asset; BtM is book-to-market ratio; CFO is the ratio of operating cash-flows over assets at beginning of the year; EXP is the ratio of operating expenses to assets at the beginning of the year; and TA is the ratio of total accruals to assets at the beginning of the year.

TABLE 3 Statistics for financial data.

Statistics	Mean	Std. dev.	Max.	Min.	Mean	Std. dev.	Max.	Min.
Variable	Developed firms				Emerging firms			
rf	.56%	.75%	2.14%	.02%	.56%	.75%	2.14%	.02%
$r_M - rf$	10.28%	13.17%	28.67%	-11.39%	5.12%	16.39%	34.87%	-18.78%
k	21.19%	15.10%	44.76%	1.26%	27.59%	11.51%	50.26%	7.29%
SYS	11.44%	17.72%	44.94%	-54.42%	2.38%	10.00%	73.04%	-77.68%
IDI	9.48%	41.04%	32.65%	-43.03%	32.62%	40.47%	49.57%	-64.15%
$r_i - rf$	20.92%	37.49%	49.95%	-50.42%	34.99%	39.42%	79.80%	-72.75%

Note: All data are expressed in annual frequency, rf is risk-free rate (the same for types of markets);  $r_M - rf$  is the excess return of market portfolio over the risk-free rate or market risk premium; k is the cost of financial debt; SYS is systematic component from cost of equity spread; IDI is idiosyncratic component from cost of equity spread; and  $r_i - rf$  is the excess stock return over the risk-free rate or cost of equity spread.

In short, the models for total accruals, operating cash-flows, and operating expenses show slight differences in the weights of the regressors, and the difference for  $\frac{1}{Assets}$  ratio is more significant. The separate estimate for firms in developed and emerging countries is justified, despite the fact that all companies are located in the same geographical area (Europe).

Table 5 shows the main statistics for discretionary accruals, abnormal operating cash-flows, and abnormal expenses from operations. These are estimated as residuals of expressions (1), (2), and (3), respectively.

In Table 5, note that the statistics of abnormal values for all three models are slightly greater for emerging market companies. Our objective now is to test whether these larger values explain the higher financial cost of emerging market firms versus developed market firms (shown in Table 3). To do so, we estimate expression (5) for each

dependent variable ( $k - rf$ ,  $r - rf$ ,  $SYS$ , and  $IDI$ ). The results are in Table 6.

In Table 6, note that the tests indicate that the panel data is estimated by LSDV or fixed effects (Hausman test) and the residuals do not show autocorrelation. The goodness of fit for each dependent variable (financial cost) is very similar, around 18%.

According to the results in Table 6, we observe that the higher the level of indebtedness ( $DEBT$ ), the higher the financial cost (debt cost spread, excess return on risk-free rate and its components, systematic and idiosyncratic). The higher the size of the company, however, the lower the excess return (idiosyncratic only) and debt cost spread. Also, the higher the growth options ( $BtM$ ), the lower the excess return (systematic and idiosyncratic components).

First, note that the abnormal values of operating expenses are not related to the financial cost of companies.



TABLE 4 Models of total accruals, operating cash-flows, and operating expenses.

Countries	Developed						Emerging										
	TA			CFO			TA			CFO			EXP				
	Parameter	t-value		Parameter	t-value		Parameter	t-value		Parameter	t-value		Parameter	t-value			
IA	.2224**	22.04		.3720**	33.74		-.1462**	-15.79		.8927	1.2		1.8524**	2.75		2.8353**	4.43
TDA	-.0080	-1.11					-.0141	-1.44									
ΔS	.0953**	13.64		.1868**	26.23		.0445**	6.61		.1360**	19.19						
RoA	.2506**	38.22					.2316**	21.24									
S				.0668**	11.05					.0666**	8.77						
S <sub>1</sub>							.0084*	1.98								.0741**	10.47
Individual effects	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Temporary effects	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Hausman	378.841	.000		175.279	.000		149.135	.000		381.319	.000		282.842	.000		195.7300	.000
Breusch-Pagan test	979.562	.000		1166.120	.000		2761.620	.000		1065.57	.000		1319.69	.000		3160.540	.000
test AR(1)	-1.436	.151		-1.506	.132		-1.208	.227		-960	.337		-.656	.512		-1.117	.264
test AR(2)	-1.219	.223		-1.347	.178		-.986	.324		-.815	.415		-1.270	.204		-.966	.334
adjusted R <sup>2</sup>	43.39%			40.16%			43.50%			45.26%			37.76%			35.77%	

Note: t-value is estimated using robust standard error for autocorrelation and heteroskedasticity. \*\* and \* indicate statistical significance at 1% and 5%, respectively.

TABLE 5 Statistics for abnormal values.

Statistics	Mean	Std. dev.	Max.	Min.	Mean	Std. dev.	Max.	Min.
Abnormal	Developed firms				Emerging firms			
DA	.0000	.2021	.9725	-1.0124	.0000	.2394	.9853	-1.2861
DCFO	.0017	.2080	.9314	-.7311	.0000	.2435	1.1994	-1.1442
DEXP	.0000	.1825	.7721	-.6991	.0000	.2136	.8581	-.7641

Note: DA is discretionary accruals, DCFO is abnormal values of operating cash-flows, and DEXP is abnormal values of expenses from operations.

This would indicate that investors in Europe do not identify the manipulation of operating expenses values; it could be due to different causes such as the reliability of accounting information reviewed by auditors on operating expenses, since all countries are code-law. Thus, only abnormal value of operating cash flows (REM) and accruals (AEM) show a relationship statistically significant.

Regarding cost of equity, the literature has found a positive relationship between AEM and the cost of equity (Francis et al., 2004, 2005; Gray et al., 2009), but there is also evidence of a positive relationship between REM and the cost of equity (Kim & Sohn, 2013; Strobl, 2013). Additionally, Hsu and Yu (2005) found that AEM increases the cost of equity, but REM decreases it.

Our findings on the cost of equity (measured as the excess market return or  $r - R_f$ ) support the evidence that AEM ( $\lambda_1 = .0331$ ) influences the cost of equity but not REM; however, this effect is only present in Eurozone countries, since emerging countries show a negative value added of a similar amount ( $\lambda_4 = -.0330$ ). Then, our results are in line with Francis et al. (2004, 2005) and Gray et al. (2009). Moreover, our empirical study provides an added value with respect to previous findings, since the effect on the cost of capital of EM is analyzed by differentiating between the systematic and idiosyncratic component of the total cost of equity.

When we analyze the effect of EM on the systematic component we find evidence that it is REM that shows the positive effect on this component of the cost of equity ( $\lambda_2 = .1625$ ), as Kim and Sohn (2013) and Strobl (2013); on the other hand, if we study the effect on the idiosyncratic component (as Fan and Yu (2013) and Datta et al. (2017) we observe that REM shows a negative effect ( $\lambda_2 = -.1559$ ), which offsets (as Hsu & Yu, 2005) the effect it produces on the other component (systematic) and also presents a positive effect of AEM ( $\lambda_1 = .0348$ ), which for emerging countries outside the Eurozone is nonexistent ( $\lambda_4 = -.0347$ ).

In short, systematic component of equity cost increases with REM, while idiosyncratic component increases with AEM and decreases with REM. But this evidence is different for emerging and Eurozone countries, while in the Eurozone the cost of equity increases with AEM, as the positive effect of REM on the systematic component is

offset by the negative effect of REM on the idiosyncratic component, in emerging countries outside of Eurozone both effects (REM and AEM) are nulls.

Our evidence regarding the positive relationship between EM (both AEM and REM since  $\lambda_1$  and  $\lambda_2$  are positive and statistically significant) and the cost of debt supports the results previously found in the literature (Fields et al., 2018; Kim et al., 2020; Pappas et al., 2019). However, we find differences between emerging and Eurozone countries. So, while emerging countries show an added value due to the positive effect of REM on the cost of debt ( $\lambda_5$ ), Eurozone countries, on the contrary, show a negative REM added value that practically offsets the common effect of the total sample ( $\lambda_8$ ) and also shows a positive added value of AEM ( $\lambda_7$ ). In addition, emerging countries belonging to the Eurozone not only show the same effects as the rest of the countries in this zone, but also present a greater negative REM ( $\lambda_{11}$ ) added effect.

In summary, REM has an effect higher than AEM on the cost of debt of companies in emerging countries, by contrast, the AEM effect is higher than the REM in Eurozone countries and besides, the emerging Eurozone countries only show AEM effect. So, while emerging countries support the evidence found by Pappas et al. (2019) and Kim et al. (2020), the Eurozone countries and especially the emerging Eurozone countries, support the results of Fields et al. (2018).

Finally, note that our results show empirical evidence on the positive relationship between abnormal values of accruals (accounting EM) with debt cost spread and excess market return (only idiosyncratic component). So, investors demand higher financial costs of debt and equity (in this case through the idiosyncratic component) when abnormal values of accruals increase. This could indicate that capital markets in emerging countries are less developed and that their corporate financing system is more bank-oriented.

Also, note that real EM (but only abnormal values of operating cash-flows) show a positive relationship with debt cost spread higher than accounting earning management effect; however, we find that abnormal operating cash-flows do not have a net influence on excess return, but they have a positive relationship with the systematic component and a negative relationship (with a similar

TABLE 6 Models of relationships between financial cost and abnormal values of accruals, operating cash-flows and operating expenses.

Regressors	k-Rf		r-Rf		SYS		IDI		
	Parameters	Parameter	t-value	Parameter	t-value	Parameter	t-value	Parameter	t-value
DEBT	$\theta_1$	.0216**	13.21	.0303**	10.4	.0113**	12.7	.0416**	13.3
SIZE	$\theta_2$	-.0128**	-18.53	-.0245**	-53.7	.0008	.51	-.0246**	-47.9
BtM	$\theta_3$	-.001	-1.09	-.1256**	-47.71	-.0024**	-3.59	-.1232**	-43.41
DA	$\lambda_1$	.0195**	4.03	.0331**	2.82	-.0017	-.28	.0348**	2.62
DCFO	$\lambda_2$	.045**	6.21	.0067	.39	.1625**	25.92	-.1559**	-7.91
DEXP	$\lambda_3$	.0057	.83	-.0028	-.18	-.0006	-.08	-.0021	-.12
DM·DA	$\lambda_4$	-.0034	.64	-.0330*	-2.27	.0034	.48	-.0347*	-2.26
DM·DCFO	$\lambda_5$	.0596**	7.81	.003	1.74	.0016	.92	.0014	1.03
DM·DEXP	$\lambda_6$	.0024	.35	.0227	1.26	-.0026	-.31	.0253	1.26
DE·DA	$\lambda_7$	.0245**	3.85	-.0252	-1.54	-.0002	-.02	-.025	-1.33
DE·DCFO	$\lambda_8$	-.0391**	-4.56	-.0169	-.88	-.0083	-1.08	-.0086	-.39
DE·DEXP	$\lambda_9$	.0005	.05	.0259	1.21	-.0025	-.21	.0284	1.13
DM·DE·DA	$\lambda_{10}$	.014	.81	.0039	.11	-.0184	-1.38	.0222	.51
DM·DE·DCFO	$\lambda_{11}$	-.0577**	-3.87	-.0032	-.07	-.003	-.24	-.0002	-.03
DM·DE·DEXP	$\lambda_{12}$	-.0033	-.22	.0061	1.09	.0245	1.57	.017	1.25
Individual effects			Yes		Yes		Yes		Yes
Temporary effects			Yes		Yes		Yes		Yes
Hausman		127.297	.000	78.471	.000	108.685	.000	112.425	.000
Breusch-Pagan test		133.251	.000	642.528	.000	808.277	.000	716.957	.000
test AR(1)		-.984	.325	-1.426	.154	-1.706	.0881	-.812	.417
test AR(2)		-.545	.586	-1.780	.075	-1.402	.161	-.437	.662
adjusted R <sup>2</sup>		17.34%		18.64%		19.81%		17.51%	

Note: DA, DCFO, and DEXP represent the abnormal values of accruals, operating cash-flows, and operating expenses, respectively. DM·DA, DM·DCFO, and DM·DEXP are as above but for emerging country firms from multiplying the abnormal values by the emerging country dummy. DE·DA, DE·DCFO, and DE·DEXP are the previous regressors but only for companies from Eurozone countries. DM·DE·DA, DM·DE·DCFO, and DM·DE·DEXP are the previous regressors but only for emerging country firms with the euro as their currency from multiplying the previous values by the euro currency dummy. The t-values are estimated using robust standard errors for autocorrelation and heteroskedasticity. \* and \*\* mean statistically significant at 5% and 1%, respectively.

TABLE 7 Emerging and Eurozone countries' accumulated effects of earnings management on financial cost.

Effect type	Accumulated effect	Parameters	$k - rf$	$r - rf$	SYS	IDI
Common	DA	$\lambda_1$	1.95%	3.31%		3.48%
Common	DCFO	$\lambda_2$	4.50%		16.25%	-15.59%
Common and emerging	DA + DM·DA	$\lambda_1 + \lambda_4$		.01%		.01%
Common and emerging	DCFO + DM·DCFO	$\lambda_2 + \lambda_5$	10.46%			
Common and Eurozone	DA + DE·DA	$\lambda_1 + \lambda_7$	4.41%			
Common and Eurozone	DCFO + DE·DCFO	$\lambda_2 + \lambda_8$	.58%			
Common, emerging and Eurozone	DCFO + DM·DCFO + DE·DCFO + DM·DE·DCFO	$\lambda_2 + \lambda_5 + \lambda_8 + \lambda_{11}$	.77%			

Note:  $k-rf$  is excess financial cost of debts on risk-free rate,  $r-rf$  is excess return of stock on risk-free rate, SYS is systematic component, and IDI is idiosyncratic component.

value that offsets the previous one) with the idiosyncratic component. Therefore, we find that the excess return decomposition is critical to test whether EM affects the cost of equity because, while the market as a whole demands a higher cost of equity (systematic) when EM increases, the individual investor in a company does not adequately identify the increase in EM and demands a lower cost of equity to compensate for the previous one. Lastly, the abnormal values of operating expenses are not related to the financial cost of companies.

To differentiate the effect of EM between companies in developed and emerging countries and also, inside and outside of Eurozone, we construct the cumulative effect by only adding up the significant parameters of Table 6. The results are shown in Table 7.

Table 7 shows the effects common to all the countries in the sample and the cumulative effects for the emerging countries and the Eurozone countries as the sum of the statistically significant parameters in . 6. First, note that the effect of EM on the financial cost of companies is mainly through the cost of debt. In addition, note that the abnormal values of operating expenses do not show any effect on the financial cost of the companies, only the abnormal values of accruals and operating cash-flows have a significant impact on the financial cost of the firms.

We find that the effect on the cost of equity is due to discretionary accruals, while the excess cost of debt is caused by abnormal values of operating cash-flows. As regards the cost of equity, we note that the effect of the abnormal values of accruals is on the idiosyncratic component and, in addition, the effect of the abnormal values of operating cash-flows on the systematic component is offset by the effect of opposite sign on the idiosyncratic component. Therefore, we contrast that it is relevant to differentiate between the components of the cost of equity since, while the market component does consider the operating cash-flows, the idiosyncratic component values the discretionary accruals.

Regarding the effect of discretionary accruals on the financial cost of emerging European countries, we find empirical evidence that the cost of equity (through the idiosyncratic component) shows a cost (.01%) lower than that of developed countries (common effect), therefore, like Gao et al. (2020), our results indicate that EM cannot be effectively identified by external investors, and the company could easily obtain financing from the capital market and reduce its cost of equity. In contrast, the effect of abnormal values of operating cash-flow on the cost of debt for emerging countries (10.46%) is much higher than for developed countries (4.50%). In short, we accept the hypotheses H1.

We also found an effect of EM on the cost of debt for Eurozone countries. In particular, the effect of discretionary accruals makes the cost of debt for Eurozone firms (4.41%) higher than for the rest of European firms (1.95%), while the abnormal values of operating cash-flow have a lower effect on the cost of debt (.58%) than for the rest of the sample (4.50%). Thus, in Eurozone countries the cost of debt is penalized by discretionary accruals, while in the rest of the European countries outside the Eurozone the penalty is produced through the abnormal values of operating cash-flows. Therefore, we accept the hypotheses H2.

Finally, we study the cumulative effect for firms in emerging countries and inside the Eurozone and we find that companies located in these countries benefit from the lower operating cash-flow outlier penalty on the cost of debt (.77%) compared to other companies in emerging countries outside the Eurozone (10.46%). Therefore, companies in emerging Eurozone countries have a comparative financial advantage over the rest of the emerging countries by suffering a lower penalty on the cost of debt as a result of the manipulation of operating cash-flows and then, we accept the hypotheses H3. One possible explanation is the protection of the euro and that in code-law countries, earnings are more relevant than cash-flows (see Bartov et al., 2002).

## 6 | CONCLUSIONS

Empirical evidence shows that the financial cost of companies in emerging countries is higher than that of companies in developed countries. In this context, we test whether this difference is due to the way creditors and investors take into account EM in both types of companies or whether their interpretation of earnings manipulation is independent of the extra financial cost in emerging versus developed countries. Our main objective is to study whether there is a different effect for companies in the Eurozone and whether, as a consequence, companies from emerging countries inside the Eurozone have a different effect than other companies from emerging European countries outside the Eurozone.

To study this differential effect, we built a database composed of 4514 companies from 16 developed countries and 3399 companies from 21 emerging countries. The novelty of our sample is that all countries belong to the same geographical area (Europe), so that implicitly the economic, social, and cultural relations (among others) should not show substantial differences in the way EM explains financial cost. Moreover, by including in the sample developed and emerging countries that share a common regulatory framework and a common currency (euro), this difference should be nonexistent. The sample period is from 2012 to 2020.

Thus, we test whether there is an effect of abnormal values of accruals, operating cash-flows, and operating expenses on the spread of the cost of debt over the risk-free rate, and on the excess of the market return of equity over the risk-free rate (cost of equity). We also tested the latter effect on the two components of the cost of equity (systematic and idiosyncratic).

Our results support the empirical evidence on the positive effects of discretionary accruals and abnormal values of operating cash-flow on the cost of debt and the cost of equity (Kim & Sohn, 2013; Kim et al., 2020). But they add the novelty that the latter effect occurs on the idiosyncratic component (as Fan and Yu (2013) and Datta et al. (2017)).

We also find evidence that abnormal values of operating cash-flows have a higher positive effect on cost of debt in emerging countries than in developed countries. In contrast, the effect of discretionary accruals on the cost of equity is lower in emerging countries than in developed countries (Gao et al., 2020).

Our results indicate that there is a Eurozone effect, which implies a higher penalty from discretionary accruals on the cost of debt and a lower penalty of the abnormal values of operating cash-flows compared to other European countries outside the Eurozone.

Finally, we show relevant evidence for companies in emerging countries inside Eurozone. The results indicate that companies in these countries suffer less of a penalty on the cost of debt caused by operating cash-flow abnormal values, but in return, they are subject to the greater effect (Eurozone) of discretionary accruals on the cost of debt. Therefore, being part of the Eurozone, discretionary accruals are more relevant than the abnormal values of operating cash-flows and, in net terms, the penalty on the cost of debt is lower than in emerging countries outside the Eurozone.

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## ENDNOTES

<sup>1</sup>The first stage predictors (expressions 1, 2 and 3) are not included in the second stage regression (expression 5) to mitigate misspecification concerns (see Chen *et al.*, 2018).

<sup>2</sup>Other emerging countries, as Albania, have not been included in the study due to the low number of existing listed companies, which represented a symbolic share of these companies in the group of companies from emerging countries.

<sup>3</sup>We download data from the <http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/>, website for free.

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