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Financial Reporting Quality and Investment Efficiency: A Transnational Evidence

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Abstract

In developed markets, the connection between financial reporting quality (FRQ) and enhanced investment efficiency is well-documented. However, it remains uncertain whether this relationship holds true in emerging, frontier, and various other markets. This research probes into this relationship across 18,231 publicly listed firms spanning thirty-six countries worldwide, encompassing various market categories. Comprehensive accounting data is gathered for publicly traded firms from 2009 to 2023, spanning 40 different industries in these markets. We used Stata and employed fixed-effects regression analysis, augmented by alternative proxies and robustness investigation, causal connections are explored. The endogeneity concerns are addressed using 2SLS regression analysis. The findings disclose a positive influence of FRQ on investment efficiency not only in developed markets but also across emerging, frontier, and other markets. Furthermore, our analysis of over- and under-investment scenarios highlights a significant relationship between FRQ and investment efficiency in both contexts. These findings expand the current body of knowledge, indicating that the relationship between FRQ and investment efficiency extends beyond developed markets to include emerging, frontier, and other markets with varied reporting standards and financial environments.

Keywords: Financial reporting quality, investment efficiency, modified Jones model, emerging markets, developed markets, frontier markets.

1. Introduction

The literature delineates the efficiency of the firm in three forms. These are productive, labour and investment efficiencies. This study focuses only on the investment efficiency of the firm. The concept of investment efficiency refers to a firm's adeptness in pursuing ventures with positive NPV , as opposed to occurrences of overinvestment or underinvestment, characterised by engaging in negative NPV ventures or abstaining from positive NPV opportunities, respectively. This definition of efficiency is aligned with the overarching objective of firms to maximise shareholder wealth (Gomariz & Ballesta, 2014). On the other hand, financial reporting quality (FRQ) denotes the accuracy of the business accounts in the transmission of intuitions regarding a firm's operations, particularly crucial for equity investors, i.e., anticipated cash-flows (Biddle et al., 2009). Financial reporting serves as a means for firms to transmit business health, losses, operating hazards, and communications with equity investors (Trinh et al., 2022). However, challenges arise from information asymmetry, complicating oversight of firms (Renneboog & Szilagyi, 2020).

Although existing literature has extensively examined the link between FRQ and the investment efficiency of a country within developed countries (e.g., Biddle, Hilary & Verdi, 2009; Gomariz & Ballesta, 2014), the gap in knowledge continues about this relationship in markets like emerging and frontier. Frontier markets, typically small in size and low in accessibility, often fall behind their emerging counterparts. Despite their potential, valuation challenges stemming from information asymmetry are prevalent in these markets (Alfraih, 2016).

The significance of FRQ may be diminished, in emerging, frontier and other markets, owing to market failures that hinder shares' price capability to imitate existing information of the firm. Particularly, information asymmetry may increase due to information paucity, as observed in the emerging stock market of China (Hussain et al., 2020). However, information produced by accounting reports remains crucial in these markets, potentially surpassing substitutive sources (Lopes, 2002).

This study aims to investigate the impact of FRQ on the investment efficiency, expanding upon prior research by examining a universal context that encompasses emerging, frontier, and other markets, apart from developed markets. As the emerging, frontier, and other markets are branded by the prevalence of concentrated ownership, we anticipate that investment decisions will be made with moderate risks. Furthermore, distinguishing subtleties in earnings management practices in emerging and frontier markets lead to dissimilarities with markets with developed status (Martens, Yapa, & Safari, 2021; Lin & Wu, 2014).

To shed light on these complexities, we investigate the influence of FRQ on investment efficiency in publicly traded firms across developed, emerging, frontier, and other markets, providing a comprehensive perspective. We used accounting data from 2009 to 2023 for 18,231 firms across thirty-six countries. We used Stata software and employed regression using fixed effects, and a two-staged least square was used to address endogeneity. Our results disclose a positive link between financial reporting quality and investment efficiency in various types of emerging, frontier and other markets apart from developed markets. Our study contributes to the literature by extending the exploration of the FRQ-investment efficiency relationship to diverse markets, demonstrating a significant association in both under-investment and over-investment situations. Despite the prevalence of concentrated ownership and earnings management in emerging and frontier markets, the results reveal that the linkage between FRQ and investment efficiency is not context-dependent by providing transnational empirical evidence.

The structure of this paper is organized into following sections. Section 2 delves into a review of pertinent literature, and subsequently proposes the hypotheses that will be tested. Section 3 elaborates on the research design and methodology, detailing the processes and techniques employed in the study. Section 4 presents the empirical findings, offering a thorough analysis and discussion of the results obtained from the research. Finally, Section 5 concludes the paper by summarizing the key contributions and implications of the study, highlighting its significance and potential impact on the field.

2. Literature Review

The financial reporting standards and GAAP mandate the least requirements for revealing bookkeeping figures. These standards and principles may allow leeway in financial reporting, presenting opportunities for managers to exercise discretion, and may lead to adaptable conduct (Leuz et al., 2003). The managers of a firm with commendable performance may aspire to differentiate themselves by the use of greater FRQ, leveraging on the visible financial reports to highlight their firms' invisible qualities (Zhang & Wiersema, 2009). Conversely, firms with low FRQ are frequently related to earnings management. They can yield antagonistic outcomes (Hickman et al., 2021; Lara, Osma, & Penalva, 2016), as exemplified in the Enron, Satyam Computer Services, and WorldCom cases.

Managers' voluntary disclosure of information aligns with the agency (Jensen & Meckling, 1976) and signaling (Spence, 1973) theories (Alsos & Ljunggren, 2017; Yasar, Martin & Kiessling, 2020). Agency theory postulates that conflicts of interest arise due to the separation of power and control, which may provoke managers to make decisions that serve their personal objectives at the cost of shareholders or investors (Alam, Ramachandran, & Nahomy, 2020). Agency theory underscores a robust correlation between financial reporting disclosures and profitability, i.e., investment efficiency tester of a firm (Watson et al., 2002). Firms equipped with high-quality information exhibit reduced deviation from the suitable investment planes (Chen et al., 2011; McNichols & Stubben, 2008). The

second guiding principle shaping the relationships among variables is signaling theory. This theory posits that corporate choices of managers are like signals from a firm to investors, reducing the asymmetry of information. It further proposes that proficient firms attempt to communicate their excellence to shareholders via the quality of their financial reporting, thereby diminishing asymmetries of information, bolstering the efficiency of investment, and fostering investors' confidence in managerial capabilities (Watson et al., 2002).

The accounting literature indicates that accounting practices play a crucial role in guiding management's investment decisions and mitigating agency conflicts, integrates agent's and shareholder's objective functions, and diminishes the likelihood that manager acts against shareholders' interests (Bushman & Smith, 2001). An expectation model for investment is built by Richardson (2006) for measuring investment efficiency. This model bifurcates firms' total investment as 'maintenance' and 'new' and reflects the use of residuals from 'new' investment as a substituting variable for investment efficiency. Qingyuan (2009) uses this model and provides empirical evidence that good accounting information quality is negatively related to overinvestment in firms. This finding aligns with the deduction by Fazzari, Hubbard and Petersen (1988) that investment efficiency increases when information asymmetry decreases. Biddle and Hilary (2006) empirically test the relationship between accounting information and investment efficiency and report a significant positive association. Chen, Hope, Li and Wang (2011) examine the non-traded private firms and document a significant positive effect of suitable financial reporting on the efficiency of investment. They state that quality accounting information mitigates the asymmetry of information and renders the finest quality of financial reporting necessary. Which in turn influence the investment decision making by the users of the reports. Evidence is available in developed markets that good financial reporting quality diminishes the propensity of overinvestment owing to better information environment and resultant monitoring by investors (Gomariz & Ballesta, 2014). They explain that when information relevant to a decision is distorted (i.e., there is high information asymmetry), it will result in suboptimal investment decisions in the form of overinvestment. Song (2016) reveals that good quality financial reporting curbs under-investment.

The current study contends that good financial reporting quality limits managers from engaging in both underinvestment and overinvestment. Overinvestment is limited because good financial reporting quality restrains dishonest usage of free cash flows since outside investors have almost the same level of information as the managers have (Fazzari, Hubbard & Petersen, 1988; Gomariz & Ballesta, 2014). This precludes the consumption of funds by self-centered managers from accepting negative net present value projects and may prevent overinvestment. On the other hand, under-investment is limited because good accounting practices play a crucial role in guiding management's investment decisions and mitigating agency conflicts, integrates the agent's and shareholder's objective function, and diminishes the likelihood that the manager acts against shareholders' interests (Bushman & Smith, 2001; Song, 2016). These monitoring efforts for the alignment of

interests induce managers to accept positive net present value projects. Hence, the chances of underinvestment are reduced. When financial reporting quality is high in a firm, it helps in better identification of projects via true accounting numbers, which means internal decision-making is enhanced (Chen et al., 2011; Gomariz & Ballesta, 2014). Hence, investment efficiency is improved. In other words, managers of the firms having above average performance have incentive to send good signals, in the form of financial reporting quality, and resultantly the investment efficiency of the firm is enhanced owing to reduced information asymmetry.

Against the backdrop of the prevalent agency issues of conflicts of interest and the need for signaling disclosure, this study proposes that high financial reporting quality significantly influences investment efficiency. This effect stems from several vital reasons. The first reason is that FRQ acts as a deterrent against conflicts of interest, thus nurturing improved investment decisions by facilitating in assortment of extra money-making ventures (Bushman & Smith, 2001). The second reason is that strong FRQ helps alleviate the asymmetry of information between investors and managers, thereby reducing monitoring costs (Chen, Hope, Li & Wang, 2011), which may lead to investment efficiency. The third reason is that better reporting quality empowers financiers to monitor and glean valued understandings from the investment activities of a firm, thereby bolstering investment decisions (Gomariz & Ballesta, 2014).

By leveraging on the stated literature, this study anticipates that better FRQ displays a key part in improving investment efficiency across publicly traded firms in developed, emerging, frontier, and other markets. Consequently, the study formulates its hypotheses as follows:

- H1: FRQ has a significant positive impact on investment efficiency worldwide.
- H2: FRQ positively influences investment efficiency in developed markets.
- H3: FRQ positively affects investment efficiency in emerging markets.
- H4: FRQ positively impacts investment efficiency in frontier and other markets.

3. Research Methodology

3.1 Variable Measurement

3.1.1 Investment Efficiency and Financial Reporting Quality

Investment Efficiency (IE_b) is the dependent variable, which is measured by multiplying -1 to the absolute value of the residues (Biddle et al., 2009). The higher the IE_b values, the higher the investment efficiency. FRQ is the independent variable and is measured using modified Jones (FRQ_J) (Dechow et al., 1995), Kothari et al. (2005) (FRQ_K) and McNichols and Stubben (2008) (FRQ_{MS}) models. To offset the bias of one proxy, use of multiple proxies is encouraged (Assad & Alshurideh, 2020). All of the FRQ measures are calculated by multiplying -1 to the absolute value of the residues of the models. The higher the FRQ values, the higher the financial reporting quality.

3.1.2 Control Variables

In line with previous literature, several control variables are included to alleviate the concerns of bias due to omitted variables. These variables encompass firm size (SIZE), the market value to book value ratio (MBR), the standard deviation (SD) of cash flows from operations (CFO), SD of sales (SALES), SD of all investments (INVEST), distress measure of the firm (ZSCORE), the assets' tangibility of (TNG), leverage measure of the firm (LEV) and industry (INDUS), cash flows from operations to sales (OCFS), cash and short-range investments to net PPE ratio (SLACK), age of the firm (AGE), a binary variable for the dividend payment (DIV) (1 for paying and 0 for non-paying firms), firm's operating cycle (OPCYL), and a binary variable for loss (LOSS) (1 for negative EBIT firms and 0 otherwise).

3.2 Sample Description

This study covers all publicly listed firms categorized according to the 48-industry classification of Fama & French, with financial and utility firms excluded owing to high regulatory constraints and comparability issues. Data is sourced from DataStream, spanning from 2009 to 2023, ensuring the final dataset of 157,908 firm-year observations across forty industries within thirty-six markets having developed, emerging, frontier, and other statuses. Classification of developed, emerging and frontier markets is based on criteria outlined by Morgan Stanley Capital International (MSCI), while the remaining markets are categorized as 'others'. The sample selection includes Australia, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Israel, Italy, Japan, Netherlands, Norway, Singapore, Spain, Sweden, UK and USA to represent developed markets. Emerging markets are exemplified by China, Greece, India, Indonesia, S. Korea, Kuwait, Malaysia, Philippines, Poland, South Africa, Taiwan, Thailand and Turkey. Whereas Jordan, Pakistan, Sri Lanka, Russia and Vietnam show representation of frontier and other markets.

3.3 Econometric Model

Following is the baseline OLS panel regression to address the research questions:

$$IE_{b(j,t)} = \alpha_0 + \alpha_1 FRQ_{j,t-1} + Controls + Year\ FE + \text{Ind FE} + \text{Con FE} + \varepsilon_{j,t} \quad (1)$$

Where $IE_{b(j,t)}$ is the dependent variable investment efficiency for firm j in year t, $FRQ_{j,t-1}$ represents the financial reporting quality measure. Controls denote control variables and fixed-effects (FE) indicator variables for year (Year), Industry (Ind), and country (Con). The random error term is indicated by $\varepsilon_{j,t}$.

4. Results and Discussion

4.1 Descriptive Statistics

The sample consists of 18,231 firms across eighteen developed, thirteen emerging and five frontier and other markets, resulting in a total of 157,908 firm-year observations across thirty-six countries in the overall sample. A significant portion is represented by China,

India, Japan, South Korea, Taiwan, and the USA, contributing 11,837 firms with 114,837 observations (72% of 157,908). Conversely, the eight smallest constituents, including Belgium, Denmark, Finland, Greece, Jordan, Kuwait, Netherlands, and Norway, collectively account for 737 observations. The FF industry classification indicates that business services hold the largest share, followed by construction and business services, totaling 31,287 observations. Conversely, aircraft, uncategorized firms, and beer and liquor are the three smallest constituents in the sample, comprising 512 observations. We observe a substantial increase in observations in recent years.

The descriptive statistics are presented in Table 1, which show observations, mean, maximum values, standard deviation (SD) and minimum values for the variables. Investment efficiency (IE_b) displays the mean (SD) of -0.9 (86.3), FRQ_J has -0.8 (5.8), FRQ_K has -0.2 (2.5), and FRQ_{MS} has -0.1 (5.3). The values are comparable with prior research (e.g., Gomariz & Ballesta, 2014). Pair-wise correlations are shown in Table 2. We see positive correlations between FRQ and investment efficiency measures.

Table 1: Descriptive Measurements (A)

	Panel A: Full Sample					**Panel B: Developed Countries**				
VARIABLES	Obs.	Mean	SD	Min.	Max.	Obs.	Mean	SD	Min.	Max.
IE_b	157,908	-0.9	86.3	-442.7	0.0	78,779	-0.8	23.7	-169.2	0.0
FRQ_J	157,908	-0.8	5.8	-984.2	0.0	78,779	-1.4	8.1	-984.2	0.0
FRQ_K	157,908	-0.2	2.5	-470.4	0.0	78,779	-0.4	3.5	-470.4	0.0
FRQ_{MS}	157,908	-0.1	5.3	-208.0	0.0	78,779	-0.1	7.4	-208.0	0.0
SIZE	157,908	15.4	3.1	4.8	22.0	78,779	14.6	3.4	4.8	22.0
MBR	157,908	1.3	2.2	0.0	30.4	78,779	1.4	2.5	0.0	30.4
CFO	157,908	0.1	0.3	0.0	3.7	78,779	0.1	0.3	0.0	3.7
SALES	157,908	0.5	1.0	0.0	13.0	78,779	0.6	1.1	0.0	13.0
INVEST	157,908	0.1	1.8	0.0	286.3	78,779	0.1	2.5	0.0	286.3
ZSCORE	157,908	0.3	7.9	-112.0	4.8	78,779	-0.5	10.7	-112.0	4.8
TNG	157,908	0.3	0.2	0.0	1.0	78,779	0.3	0.3	0.0	1.0
LEV	157,908	0.2	0.2	0.0	0.9	78,779	0.2	0.2	0.0	0.9
INDUS	157,908	0.2	0.1	0.0	0.3	78,779	0.1	0.1	0.0	0.3
OCFS	157,908	-0.8	6.4	-61.7	1.4	78,779	-1.6	8.6	-61.7	1.4
SLACK	157,908	3.7	15.6	0.0	156.1	78,779	5.3	19.0	0.0	156.1
AGE	157,908	25.3	15.9	0.0	159.0	78,779	30.2	18.5	0.0	159.0
DIV	157,908	0.3	0.4	0.0	1.0	78,779	0.6	0.5	0.0	1.0
OPCYL	157,908	3.8	2.5	-3.3	9.1	78,779	3.4	3.0	-3.3	9.1
LOSS	157,908	0.1	34.0	0.0	1.0	78,779	0.3	0.4	0.0	1.0

Table 1: Descriptive Measurements (B)

	Panel C: Emerging Countries					**Panel D: Frontier & Other Countries**				
VARIABLES	Obs.	Mean	SD	Min.	Max.	Obs.	Mean	SD	Min.	Max.
IE_b	75,281	-0.6	57.9	-151.6	0.0	3,630	-0.1	0.3	-12.1	0.0
FRQ_J	75,281	-0.2	0.5	-80.5	0.0	3,630	-0.2	0.1	-1.4	0.0
FRQ_K	75,281	-0.1	0.1	-7.2	0.0	3,630	-0.1	0.1	-0.7	0.0
FRQ_{MS}	75,281	0.0	0.1	-9.7	0.0	3,630	0.0	0.1	-1.1	0.0
SIZE	75,281	16.0	2.4	5.5	22.0	3,630	18.8	2.7	7.5	22.0
MBR	75,281	1.3	1.9	0.0	30.4	3,630	0.5	1.0	0.0	24.6
CFO	75,281	0.1	0.2	0.0	3.7	3,630	0.1	0.2	0.0	3.7
SALES	75,281	0.5	1.0	0.0	13.0	3,630	0.6	1.1	0.0	13.0
INVEST	75,281	0.1	0.3	0.0	29.4	3,630	0.0	0.0	0.0	0.5
ZSCORE	75,281	1.2	2.7	-11.0	4.8	3,630	1.1	3.7	-112.0	4.8
TNG	75,281	0.3	0.2	0.0	1.0	3,630	0.3	0.3	0.0	1.0
LEV	75,281	0.1	0.2	0.0	0.9	3,630	0.2	0.3	0.0	0.9
INDUS	75,281	0.2	0.1	0.0	0.3	3,630	0.2	0.1	0.1	0.3
OCFS	75,281	0.0	2.0	-61.7	1.4	3,630	-0.1	2.2	-61.7	1.4
SLACK	75,281	2.0	10.6	0.0	156.1	3,630	1.5	9.1	0.0	156.1
AGE	75,281	20.4	10.1	1.0	117.0	3,630	15.6	9.4	0.0	64.0
DIV	75,281	0.7	0.5	0.0	1.0	3,630	0.6	0.5	0.0	1.0
OPCYL	75,281	4.2	1.7	-3.3	9.1	3,630	4.3	1.8	-3.3	9.1
LOSS	75,281	0.5	0.2	0.0	1.0	3,630	0.1	0.3	0.0	1.0

Table 2: Pair-wise Correlations (A)

Variables	1	2	3	4	5	6	7	8	9	10
(1) IE_b	1									
(2) FRQ_J	0.201	1								
(3) FRQ_K	0.210	0.179	1							
(4) FRQ_{MS}	0.183	0.001	0.001	1						
(5) SIZE	0.009	0.139	0.104	0.011	1					
(6) MBR	-0.033	-0.156	-0.135	-0.005	-0.366	1				
(7) CFO	-0.001	-0.124	-0.124	-0.005	-0.358	0.416	1			
(8) SALES	0.001	-0.027	-0.03	-0.002	-0.158	0.157	0.624	1		
(9) INVEST	-0.04	-0.019	-0.025	-0.007	-0.034	0.026	0.042	0.134	1	
(10) ZSCORE	0.03	0.194	0.148	0.008	0.411	-0.578	-0.466	-0.133	-0.037	1
(11) TNG	-0.001	-0.003	0.01	0.004	0.108	-0.135	-0.088	-0.101	0.009	0.04
(12) LEV	0.001	0.021	0.021	-0.001	0.23	-0.241	-0.125	-0.092	-0.008	0.065
(13) INDUS	0.001	0.036	0.039	-0.008	0.223	-0.174	-0.107	-0.017	-0.012	0.116
(14) OCFS	0.001	0.078	0.063	0.004	0.26	-0.223	-0.173	-0.009	-0.024	0.35
(15) SLACK	-0.001	-0.032	-0.024	-0.001	-0.169	0.134	0.124	0.036	0.004	-0.092
(16) DIV	0.001	0.019	0.022	0.006	0.229	-0.116	-0.063	-0.021	-0.002	0.041
(17) AGE	0.002	0.054	0.052	0.008	0.434	-0.173	-0.214	-0.106	-0.014	0.22
(18) OPCYL	0.005	0.064	0.037	0.001	0.156	-0.148	-0.13	-0.041	-0.018	0.181
(19) LOSS	-0.006	-0.046	-0.06	-0.006	-0.383	0.185	0.189	0.022	0.016	-0.332

Table 2: Pair-wise Correlations (B)

Variables	11	12	13	14	15	16	17	18	19
(11) TNG	1								
(12) LEV	0.285	1							
(13) INDUS	0.226	0.334	1						
(14) OCFS	0.001	0.091	0.129	1					
(15) SLACK	-0.275	-0.107	-0.089	-0.135	1				
(16) DIV	0.091	0.133	0.103	0.062	-0.102	1			
(17) AGE	0.053	0.026	0.065	0.179	-0.138	0.387	1		
(18) OPCYL	-0.056	0.065	0.02	0.128	-0.162	0.126	0.096	1	
(19) LOSS	-0.014	-0.031	-0.129	-0.324	0.14	0.084	-0.108	-0.14	1

Note: The underlined figures indicate significance at a minimum level of 10%.

4.2 Baseline Results

In Table 3, across Panels A to D, we show the results of OLS regression analysis, where the baseline model of Eq. (1) is assessed. The analysis is done initially without any control variables by regressing FRQ (J, K, MS) on IEb measures (models 1-3). Thereafter, we added twelve control variables using prior literature (models 4-6). Subsequently, we added three more control variables (models 7-9).

Consistently, our results reveal a positive relationship between three measures: FRQ and investment efficiency (IEb). All the coefficients are positive and significant ($p< 5\%$) throughout all models. This provides backing for the study hypotheses (H1, H2, H3, and H4). Prior literature has documented such results for developed markets (Houcine et al., 2022). Comparatively, we observe more substantial scores and improved R-sq. In Panel D than in Panels A, B or C, indicating that FRQ has an additional noticeable impact on the investment efficiency in these markets. This may be attributable to the lower country-level governance frameworks in frontier and other markets.

Regarding the control variables, several factors—including SIZE, CFO, SALES, ZSCORE, LEV, INDUS, OCFS, SLACK, AGE, DIV and OPCYL—exhibit positive associations with investment efficiency. Conversely, MBR, INVEST, TNG, LEV, AGE, DIV, and LOSS are negatively linked to investment efficiency. These outcomes are consistent with earlier studies.

Table 3: Baseline Model–Financial Reporting Quality and Investment Efficiency

Dependent variable: Investment Efficiency (IE_b)									
Panel A: Full Sample									
Variable	1	2	3	4	5	6	7	8	9
FRQ_J	0.0241**			0.0741**			0.0814**		
	(2.2037)			(2.1831)			(2.3211)		
FRQ_K		1.8029***			0.4336**			0.5443**	
		(6.3889)			(2.5280)			(2.4356)	
FRQ_{MS}			0.3214			6.839***			5.112***
			(0.1224)			(4.4934)			(5.2864)
SIZE				0.0391**	0.0118**	0.0560	0.9376**	0.7717**	0.7621**
				(2.0782)	(2.2931)	(1.4407)	(5.6330)	(5.6588)	(5.6930)
MBR				-0.0210	-0.0446	-0.043*	-2.3***	-1.6***	-1.5***
				(-0.558)	(-1.644)	(-1.701)	(-18.8)	(-17.16)	(-16.8)
CFO				0.043	0.150	0.130	7.7997**	5.2018**	5.1516**
				(0.1197)	(0.5723)	(0.5224)	(4.8764)	(4.3953)	(4.4810)
SALES				0.0669	0.0191	0.0078	0.1427	0.1239	0.1485
				(0.7348)	(0.2914)	(0.1252)	(0.4693)	(0.5591)	(0.6854)
INVEST				-0.0424	-0.0209	-0.0185	-1.0273	-0.6068	-0.6908
				(-1.325)	(-1.001)	(-0.944)	(-1.480)	(-1.168)	(-1.264)
ZSCOR				0.0316***	0.037***	0.038***	0.039	0.057	0.059
				(3.1248)	(4.7091)	(5.0364)	(0.4541)	(0.7757)	(0.8316)
TNG				-0.2670	-0.341	-0.048	-0.944	-0.922	-0.837
				(-0.593)	(-0.934)	(-0.137)	(-0.761)	(-0.909)	(-0.838)
LEV				0.735	0.841**	0.799**	5.710***	4.096***	3.878***
				(1.5733)	(2.1811)	(2.1786)	(4.2846)	(3.7351)	(3.6115)
INDUS				6.8227*	6.8621**	6.5171**	0.9994	1.5980	1.5493
				(1.8960)	(2.3810)	(2.4102)	(0.0760)	(0.1560)	(0.1546)
OCFS				0.0177	0.0109	0.0144*	0.3350**	0.2575**	0.2465**
				(1.6163)	(1.2294)	(1.6908)	(3.1677)	(3.0161)	(3.0038)
SLACK				-0.0038	-0.0035	-0.0039	-0.0002	0.0004	0.0015
				(-0.735)	(-0.902)	(-1.081)	(-0.014)	(0.0227)	(0.0964)
AGE				0.0032	0.0037	0.0040	0.0391	0.0455**	0.0444**
				(0.5991)	(0.8372)	(0.9655)	(1.6270)	(2.3574)	(2.3453)
DIV							0.4946	0.4643	0.4513
							(0.9286)	(1.0809)	(1.0720)
OPCYL							0.3972**	0.3111**	0.3063**
							(2.8133)	(2.7308)	(2.7624)
LOSS							-0.7726	-0.5603	-0.5668
							(-1.265)	(-1.103)	(-1.134)
Constant	-0.016	-0.3435**	-0.0103	-4.2***	-3.48**	-4.1***	-4.7***	-3.9***	-4.63**
	(-0.066)	(-1.979)	(-0.0532)	(-3.347)	(-3.399)	(-4.158)	(-3.530)	(-3.658)	(-4.388)
Obs.	157,908	157,908	157,908	157,908	157,908	157,908	157,908	157,908	157,908

R-sq.	0.0901	0.1035	0.0841	0.1641	0.1492	0.1473	0.1673	0.1510	0.1496
Panel B: Developed Countries									
VARIA	1	2	3	4	5	6	7	8	9
FRQ_J	0.0253**			0.0861**			0.0870**		
	(2.1577)			(2.4755)			(2.5018)		
FRQ_K		1.9205***			0.2289**			0.2267**	
		(5.0191)			(2.2973)			(2.272)	
FRQ_{MS}			0.5809**			9.942***			9.889***
			(2.1387)			(8.8518)			(8.8150)
Obs.	78,997	78,997	78,997	78,997	78,997	78,997	78,997	78,997	78,997
R-sq.	0.0821	0.0913	0.0817	0.1327	0.1263	0.1259	0.1329	0.1263	0.1259
Panel C: Emerging Countries									
VARIA	1	2	3	4	5	6	7	8	9
FRQ_J	0.1143**			0.9521			0.9454**		
	(2.2505)			(1.5092)			(2.4975)		
FRQ_K		0.1091			2.6002**			2.508**	
		(1.1123)			(2.4432)			(2.3883)	
FRQ_{MS}			1.587***			4.8830**			4.8251**
			(2.7694)			(2.4751)			(2.4514)
Obs.	75,281	75,281	75,281	75,281	75,281	75,281	75,281	75,281	75,281
R-sq.	0.0618	0.0723	0.0741	0.1612	0.1425	0.1418	0.1617	0.1435	0.1419
Panel D: Frontier and Other Countries									
VARIA	1	2	3	4	5	6	7	8	9
FRQ_J	0.1318**			0.0847**			0.0816**		
	(2.1878)			(2.4393)			(2.3565)		
FRQ_K		0.1978**			0.2797***			0.2643**	
		(2.175)			(4.4942)			(4.2671)	
FRQ_{MS}			0.7285***			0.5100**			0.5029**
			(5.7083)			(5.5280)			(5.4757)
Observat	3,630	3,630	3,630	3,630	3,630	3,630	3,630	3,630	3,630
R-sq.	0.0619	0.0723	0.0489	0.3222	0.2243	0.2127	0.3363	0.2289	0.2179

Notes: For the table's brevity, control variables are narrated in Panel A only.

FE (Country, Industry and Year) panel OLS regressions are employed.

t-Stats (in parentheses) clustered at firm level robust to heteroscedasticity. *** p<0.1, ** p<0.05, * p<0.01

4.3 Supplementary Analysis

In this subdivision, we undertake supplementary analysis to offer a deeper understanding of the connection between FRQ and Investment Efficiency (IEb) in addition to our initial baseline regressions. We segment our sample into subsets consisting of firms having positive or negative residues derived from the Biddle model of investment efficiency, labelling them as overinvestment (OV) and underinvestment (UV) groups, respectively.

To ensure consistency, we multiply our positive residuals by -1, thereby indicating higher investment efficiency when both under- and over-investments are closer to zero. Both under and over-investment are deemed unfavorable for a firm's value. Taking cues from this literature, we conduct our first additional analysis, presented in Table 4, panels A, B, C, and D. In all four panels (models 1-12), the findings predominantly indicate a substantial and positive correlation between FRQ and both underinvestment and overinvestment scenarios, underscoring its economic significance. It implies that FRQ demonstrates a critical role in improving investment efficiency by addressing not only underinvestment but also overinvestment tendencies. Essentially, across developed, emerging, frontier, and other markets, FRQ serves as a crucial mechanism in guiding investments toward their optimal level. It achieves this by mitigating information asymmetry and diminishing agency costs, thereby facilitating more informed and prudent investment decisions.

Table 4: Over- and Under-Investment Analysis (A)

Dependent variable	UV			OV		
Panel A: Full Sample						
Variable	1	2	3	4	5	6
FRQ_J	0.2312*			0.0173**		
	(1.7057)			(2.3630)		
FRQ_K		0.8182*			0.3634***	
		(1.9173)			(3.4487)	
FRQ_{MS}			2.9596**			8.4993**
			(2.1451)			(2.5674)
Observations	79,333	80,241	80,432	78,575	77,667	77,476
R-squared	0.1430	0.1753	0.1318	0.1367	0.1245	0.1541
Panel C: Emerging Countries						
FRQ_J	2.3283*			0.3422***		
	(1.8536)			(3.3899)		
FRQ_K		5.1781**			1.0718***	
		(1.9822)			(3.1226)	
FRQ_{MS}			8.5688*			2.0104***
			(1.9282)			(2.8404)
Observations	40,214	46,996	48,024	35,067	28,285	27,257
R-squared	0.0938	0.1292	0.16861	0.1647	0.1492	0.1483

Table 4: Over- and Under-Investment Analysis (B)

Dependent variable	UV			OV		
Panel B: Developed Countries						
Variable	7	8	9	10	11	12
FRQ_J	0.0826*			0.0218**		
	(1.8178)			(2.3920)		
FRQ_K		0.3237***			0.2889***	
		(4.5117)			(2.8083)	
FRQ_{MS}			0.4565			15.9501***
			(0.3892)			(2.9587)
Observations	37,315	44,497	46,968	41,682	34,500	32,029
R-squared	0.1023	0.1561	0.1140	0.1938	0.1629	0.2871
Panel D: Frontier and Other Countries						
FRQ_J	0.1467**			0.0385		
	(2.0358)			(1.3959)		
FRQ_K		0.3563***			0.0919**	
		(3.5123)			(2.1622)	
FRQ_{MS}			0.1695			0.2767***
			(0.7787)			(3.5601)
Observations	1,804	1,686	1,755	1,826	1,944	1,875
R-squared	0.4912	0.3151	0.2825	0.1827	0.1639	0.172

Notes: For the table's brevity, control variables are omitted.

FE (Country, Industry and Year) panel OLS regressions are employed.

t-Stats (in parentheses) clustered at firm level robust to heteroscedasticity. *** p<0.1, ** p<0.05, * p<0.01.

4.4 Robustness Analysis

In this segment, we employ robustness analysis, focusing on four key aspects. Firstly, we consolidate the three proxies of Financial Reporting Quality (FRQ) into a single aggregate measure, termed FRQagg, and then estimate the baseline regression again. Table 5 displays the outcomes of our initial robustness analysis. Across panels A to D and in models 1-8, Investment Efficiency (IEb) is regressed on FRQagg to estimate the unconditional relationship. Here, we utilise the aggregate measure of Financial Reporting Quality (FRQagg), a method commonly employed in prior research (e.g., Biddle et al., 2009; Gomariz & Ballesta, 2014) to capture its multifaceted nature, considering that many aspects of FRQ may not be readily observable (Abernathy, 2010). Consistent with previous results, the coefficient of the aggregate FRQ measure is significant statistically (at least p<10%) and meaningful economically.

Table 5: Aggregate measure of FRQ and its Relationship with Investment Efficiency

Dependent variable: Investment Efficiency (IE_b)								
	Panel A: Full Sample		Panel B: Developed Countries		Panel C: Emerging Countries		Panel D: Frontier & Other Countries	
Variables	1	2	3	4	5	6	7	8
FRQ_{agg}	0.1702**	0.0156**	0.1771*	0.0304**	0.0699**	0.4459***	0.0186**	0.0783***
	(2.0298)	(2.3385)	(1.6872)	(2.1802)	(2.2145)	(2.9129)	(2.5071)	(3.0535)
Obs	157,908	157,908	78,997	78,997	75,281	75,281	3,630	3,630
R-sq.	0.0673	0.1682	0.05688	0.1252	0.0725	0.1417	0.0756	0.2173

Notes: For the table's brevity, control variables are omitted.

FE (Country, Industry and Year) panel OLS regressions are employed.

t-Stats (in parentheses) clustered at firm level robust to heteroscedasticity. *** p<0.1, ** p<0.05, * p<0.01

Secondly, to mitigate potential sample selection bias and relying on prior research (Mian et al., 2023), we divide our entire sample into two parts as per their representation within the complete dataset. Significantly, a substantial majority of our firm-year observations, comprising over 72%, stem from high-profile markets such as China, India, Japan, S. Korea, Taiwan, and the USA, totaling 114,387 observations. In response to this concentration, we opt to partition our sample into two distinct sub-samples. The first part encompasses firms from China, India, Japan, S. Korea, Taiwan, and the USA, while the second part encompasses firms from the leftover countries. Subsequently, we conduct separate estimations of Eq. (1) for each sub-sample to assess the relationship between FRQ and investment efficiency.

The results presented in Table 6 reaffirm our earlier findings, with the coefficients of FRQ broadly demonstrating statistical significance ($p<0.1$) and substantive economic relevance. These outcomes underscore that the link between FRQ and investment efficiency remains robust, irrespective of the sample composition. Importantly, they suggest that the observed relationship is not driven solely by the predominance of observations from developed or emerging markets. Instead, it indicates that FRQ exerts a significant influence on investment efficiency across a broader spectrum, including frontier and other markets. This finding of the study reveals FRQ in facilitating efficient investment decisions, regardless of the market's developmental stage or geographical location.

Table 6: Split Sample Analysis
Dependent variable: Investment Efficiency (IEb)

	Panel A: China, India, Japan, S.Korea, Taiwan and the USA			Panel B: Other Countries		
Variables	1	2	3	4	5	6
FRQ_J	0.030***			0.0694**		
	(4.0084)			(2.2523)		
FRQ_K		0.0145*			1.84***	
		(1.7261)			(2.6991)	
FRQ_{MS}			0.2673*			14.1***
			(1.7775)			(2.642)
Observations	114,387	114,387	114,387	43,521	43,521	43,521
R-sq.	0.1135	0.1467	0.1173	0.1195	0.1894	0.1354
Country/Ind./Year FE	Yes	Yes	Yes	Yes	Yes	Yes
CONTROLS	Yes	Yes	Yes	Yes	Yes	Yes

Notes: For the table's brevity, control variables are omitted.

FE (Country, Industry and Year) panel OLS regressions are employed.

t-Stats (in parentheses) clustered at firm level robust to heteroscedasticity. *** p<0.1, ** p<0.05, * p<0.01

We investigate the correlation between FRQ and IEb by utilizing Eq. (1), employing different proxies as compared to those utilized in the baseline regressions. We ensure the robustness of our findings by employing alternative measures for IE and FRQ to mitigate any potential biases due to use of any proxy This approach is used to enhance the reliability and validity of our results along with consistency. Our alternative metric for Investment Efficiency (IEc) is derived from Chen et al. (2011), incorporating sales growth opportunities and potential losses into the determination of expected investment levels for a given year. Similarly, the alternative measure for Financial Reporting Quality (FRQ) remains consistent. Table 7 explains the results using Eq. (1), In Panel A, the alternative measure of Investment Efficiency (IEc) is employed alongside the same three FRQ proxies utilized in the baseline regression. Panel B, on the other hand, utilizes alternative measures of Financial Reporting Quality (FRQagg) in conjunction with the alternative proxy for investment efficiency (IEc). Across all proxies the findings consistently demonstrate a significant and positive association between the alternative measure of FRQ and IEc,

Table 7: Alternative Measures of Baseline Models

	Panel A: Alternative			Panel B: Alternative
Alternate	IE_c	IE_c	IE_c	IE_c & FRQ_{agg}
Variables	1	2	3	4
FRQ_J	0.1807*			
	(2.9486)			
FRQ_K		1.4173*		
		(2.3102)		
FRQ_{MS}			8.4901*	
			(2.3677)	
FRQ_{agg}				0.2114***
				(4.0725)
Observations	157,908	157,908	157,908	157,908
R-squared	0.1208	0.1853	0.1828	0.1715
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
CONTROLS	Yes	Yes	Yes	Yes

Notes: For the table's brevity, control variables are omitted.
FE (Country, Industry and Year) panel OLS regressions are employed.
t-Stats (in parentheses) clustered at firm level robust to heteroscedasticity. *** p<0.1, ** p<0.05, * p<0.01

4.5 Endogeneity Test

Our initial analysis operates under the assumption that FRQ influences investment efficiency (IEb), supported by a solid theoretical framework and a comprehensive array of control and auxiliary variables. However, in this section, we consider the possibility that the observed relationships between FRQ and IEb may be affected by the endogenous nature of FRQ. To address this concern, we employ a Two-Staged Least Squares (2SLS) approach.

Previous research, as demonstrated by studies like Chin, Chen and Hsieh (2009), Huang (2022) and La Porta et al. (1997), have extensively documented that countries with common-law jurisdictions typically provide a more conducive institutional environment for business operations. Additionally, research by Dayanandan, Donker, Ivanof and Karahan (2016) reveals that these jurisdictions show high financial transparency levels and disclosures, indicative of stronger FRQ as opposed to civil-law jurisdictions. Leveraging on this knowledge, we introduce an instrumental variable termed "IPcc" for the study encompassing thirty-six markets from emerging, frontier, and other categories apart from the main developed markets. This indicator variable is assigned a value of 1 for common-law jurisdictions and 0 for civil-law jurisdictions. In the first-stage of our analysis, we regress the aggregate measure of FRQ (FRQagg) on IPcc and calculate the predicted value of FRQp. This allows us to capture the variation in FRQ attributable to legal origins, thus mitigating potential endogeneity concerns. Subsequently, in the second-stage, we use FRQp in the baseline analysis to assess its impact on investment efficiency.

In the two-stage analysis, as depicted in Table 8, we find that our results stay robust across all four panels, indicating that the relationship between FRQ and investment efficiency persists even after addressing potential endogeneity issues.

Table 8: 2SLS Estimation (A)

	Panel A: Full Sample		**Panel B:** Developed Countries	
	Stage 1	Stage 2	Stage 1	Stage 2
VARIABLES	FRQ_{agg}	IE_b	FRQ_{agg}	IE_b
	1	2	3	4
IP_{cc}	0.693***		0.997***	
	(6.084)		(4.1177)	
FRQ_p		2.856***		2.467***
		(2.7836)		(5.5493)
Observations	157,908	157,908	78,997	78,997
R-sq.	0.1332	0.1246	0.1313	0.1213
Country/Ind./Year FE	Yes	Yes	Yes	Yes
CONTROLS	Yes	Yes	Yes	Yes

Table 8: 2SLS Estimation (B)

	Panel C: Emerging Countries		**Panel D:** Frontier and Other Countries	
	Stage 1	Stage 2	Stage 1	Stage 2
VARIABLES	FRQ_{agg}	IE_b	FRQ_{agg}	IE_b
	5	6	7	8
IP_{cc}	0.052***		0.027***	
	(7.9984)		(2.8979)	
FRQ_p		1.409**		0.026**
		(2.3492)		(2.5197)
Observations	75,281	75,281	3,630	3,630
R-sq.	0.0907	0.0948	0.0826	0.1901
Country/Ind./Year FE	Yes	Yes	Yes	Yes
CONTROLS	Yes	Yes	Yes	Yes

Notes: For the table's brevity, control variables are omitted.

FE (Country, Industry and Year) panel OLS regressions are employed.

t-Stats (in parentheses) clustered at firm level robust to heteroscedasticity. *** p<0.1, ** p<0.05, * p<0.01

5. Conclusion and Recommendations

Our study rigorously examined the impact of Financial Reporting Quality (FRQ) on investment efficiency across a substantial sample of 18,231 publicly listed firms where research in the domain of emerging, frontier, and other markets is relatively sparse, with few existing studies exploring this multifaceted landscape only in developed markets. Spanning the period from 2003 to 2022, our analysis encompassed a diverse sample of

thirty-six countries, including developed, emerging, frontier, and other markets. The regression outcomes revealed that heightened financial reporting quality not only boosts investment efficiency within developed countries but also outspreads its beneficial impact on the emerging, frontier, and other market segments. This outcome is consistent with existing literature, reaffirming FRQ's role as a monitoring tool that mitigates agency issues, consequently aiding in making optimal investment choices. Further investigation into over- and under-investment scenarios within our sample yielded results consistent with those observed in the overarching investment efficiency model, thereby strengthening the influence of FRQ across a spectrum of markets, including developed, emerging, frontier, and others.

Our study adds valuable insights to the investment efficiency literature by highlighting the substantial and positive impact of heightened FRQ on investment efficiency across a diverse range of publicly listed firms, encompassing developed, emerging, frontier, and other countries. Notably, our findings resonate with previous research conducted by Houcine et al. (2022) on publicly listed firms in developed countries and by Khan et al. (2024) in emerging and frontier countries. This consistency in results underscores the robustness of the relationship between FRQ and investment efficiency, even in settings characterized by lower levels of FRQ, such as frontier and other markets. Despite the inherent complexity of including both common-law and civil-law economies in the selected sample, the findings of the study endure congruence with those observed in developed economies, further strengthening the validity of our results.

This study holds substantial implications within the institutional context of emerging and frontier economies, encompassing thirty-six countries with diverse legal frameworks. These implications are broad, affecting investors evaluating firms' investment efficiency, managers developing appropriate reporting and investment strategies, and policymakers formulating effective national and international policies related to accounting and financial reporting for publicly listed companies. Our research provides valuable insights that could motivate firms to enhance their ethical standards and adhere to regulations more strictly, thus contributing to the efficient functioning of the market by reducing agency issues of moral hazard or adverse selection.

Nevertheless, our study has its limitations that warrant acknowledgement. This study focuses to explore the connection between FRQ and investment efficiency in transnational environments. Nevertheless, it is conceivable that the country-level corporate governance, financial constraints faced by the firms, risk-taking inclination of the managers and other factors also play a role in the stated relationship. Hence, upcoming research studies could investigate these factors and their potential influence on the relationship between FRQ and investment efficiency.

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REFERENCES

Abernathy, J. L. (2010). Three essays on audit committees and financial reporting quality. The University of Alabama. Doctor of Philosophy, Dissertation.

Alam, N., Ramachandran, J., & Nahomy, A. H. (2020). The impact of corporate governance and agency effect on earnings management–A test of the dual banking system. *Research in International Business and Finance*, 54, 101242.

Alfraih, M. M. (2016). Have financial statements lost their relevance? Empirical evidence from the frontier market of Kuwait. *Journal of Advances in Management Research*, 13(2), 225-239

Alsos, G. A., & Ljunggren, E. (2017). The role of gender in entrepreneur–investor relationships: A signalling theory approach. *Entrepreneurship Theory and Practice*, 41(4), 567-590.

Assad, N. F., & Alshurideh, M. T. (2020). Financial reporting quality, audit quality, and investment efficiency: Evidence from GCC economies. *WAFFEN-UND Kostumkd. Journal*, *11*(3), 194-208.

Biddle, G. C., & Hilary, G. (2006). Accounting quality and firm-level capital investment. *The Accounting Review*, 81(5), 963-982.

Biddle, G., G. Hilary, & R. S. Verdi (2009). How does financial reporting quality relate to investment efficiency? *Journal of Accounting and Economics*, 48, 112–131.

Bushman, R. M., & Smith, A. J. (2001). Financial accounting information and corporate governance. *Journal of Accounting and Economics*, 32(1), 237-333.

Chen, F., Hope, O. K., Li, Q., & Wang, X. (2011). Financial reporting quality and investment efficiency of private firms in emerging markets. *The Accounting Review*, 86(4), 1255-1288.

Chin, C. L., Chen, Y. J., & Hsieh, T. J. (2009). International diversification, ownership structure, legal origin, and earnings management: Evidence from Taiwan. *Journal of Accounting, Auditing & Finance*, 24(2), 233-262.

Cohen, D.A. & Zarowin, P. (2010). Accrual-based and real earnings management activities around seasoned equity offerings. *Journal of Accounting and Economics*, 50(1), 2-19,

Dayanandan, A., Donker, H., Ivanof, M., & Karahan, G. (2016). IFRS and accounting quality: legal origin, regional, and disclosure impacts. *International Journal of Accounting and Information Management*, 24, 296-316.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review,* 193-225.

Fazzari, S.M., Hubbard, R.G. & Petersen, B.C. (1988). Financing constraints and corporate investment, *Brookings Papers on Economic Activity*, 1, 141-206.

Gomariz, F. C., & Ballesta, J. P. S. (2014). Financial reporting quality, debt maturity and investment efficiency. *Journal of Banking & Finance*, 40, 494–506.

Hickman, L. E., Iyer, S. R., & Jadiyappa, N. (2021). The effect of voluntary and mandatory corporate social responsibility on earnings management: Evidence from India and the 2% rule. *Emerging Markets Review*, 46, 100750

Houcine, A., Zitouni, M., & Srairi, S. (2022). The impact of corporate governance and IFRS on the relationship between financial reporting quality and investment efficiency in a continental accounting system. *EuroMed Journal of Business*, 17(2), 246-269.

Huang, S. (2022). Does FinTech improve the investment efficiency of enterprises? Evidence from China's small and medium-sized enterprises. *Economic Analysis and Policy*, 74, 571-586.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.

Khan, M., A., Safdar, N., & Irfan, S. (2024). Role of financial constraints and risk-taking on the relationship between financial reporting quality and investment efficiency: Emerging and frontier markets' perspective. *Journal of Financial Reporting and Accounting,* [Article publication date: 17 June 2024].

Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, 39(1), 163-197.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1997). Legal determinants of external finance. *The Journal of Finance*, 52(3), 1131-1150.

Lara, J. M. G., Osma, B. G., & Penalva, F. (2016). Accounting conservatism and firm investment efficiency. *Journal of Accounting and Economics*, 61(1), 221-238.

Leuz, C., Nanda, D., & Wysocki, P. D. (2003). Earnings management and investor protection: an international comparison. *Journal of Financial Economics*, 69(3), 505-527.

Lin, F., & Wu, S. F. (2014). Comparison of cosmetic earnings management for the developed markets and emerging markets: Some empirical evidence from the United States and Taiwan. *Economic Modelling*, 36, 466-473.

Lopes, A. B. (2002). The value relevance of Brazilian accounting numbers: an empirical investigation. *Financial Accounting Abstracts*, 6(31), 3-4.

Martens, W., Yapa, P., & Safari, M. (2021). Earnings management in frontier market: Do institutional settings matter? *Economies*, 9(1), 17.

McNichols, M. F., & Stubben, S. R. (2008). Does earnings management affect firms' investment decisions? *The Accounting Review*, 83(6), 1571-1603.

Mian, R. U., Irfan, S., & Mian, A. (2023). Foreign institutional investment horizon and earnings management: Evidence from around the world. *International Review of Financial Analysis*, *86*, 102509.

Qingyuan, L. (2009). Accounting information quality, auditing monitoring and corporate investment efficiency-Empirical evidence of our listed corporations. *Auditing Research*, 4, 65-73.

Renneboog, L., & Szilagyi, P. G. (2020). How relevant is dividend policy under low shareholder protection? *Journal of International Financial Markets, Institutions and Money*, 64, 100776.

Richardson, S. (2006). Over-investment of free cash flow. *Review of Accounting Studies*, 11(2-3), 159-189.

Song, Z. (2016). Analyse and summarize on the effect of financial reporting quality on investment efficiency. *Contemporary Accounting*, 3, 3-23.

Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, 87(3), 355-374.

Trinh, Q. D., Haddad, C., & Tran, K. T. (2022). Financial reporting quality and dividend policy: New evidence from an international level. *International Review of Financial Analysis*, 80, 102026.

Watson, A., Shrives, P., & Marston, C. (2002). Voluntary disclosure of accounting ratios in the UK. *The British Accounting Review*, 34(4), 289-313.

Yasar, B., Martin, T., & Kiessling, T. (2020). An empirical test of signalling theory. *Management Research Review*, 43(11), 1309-1335.

Zhang, Y., & Wiersema, M. F. (2009). Stock market reaction to CEO certification: The signaling role of CEO background. *Strategic Management Journal*, 30(7), 693-710.