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Investment Efficiency and Disclosure Quality among Listed Firms in Kenya

By: Morgan Ongoro[1], Josiah Aduda (PhD)[2], Joshua Wanjare (PhD)[3] & Morris Irungu (PhD)[4]

Abstract

Purpose- *The level of investment efficiency that a firm possesses may to a large extend influence its disclosure quality. The purpose of this article is to argue that the level of investment efficiency in a firm has a significant relationship with the precision and quality of financial disclosures that the firm releases.*

Design/methodology/approach- *Based on a data set of 702 firm year observations for the financial period 2008- 2020, the researchers investigated whether investment efficiency is associated with disclosure quality. The relationship between the independent and dependent variables was tested using multivariate fixed effect panel data regression models. In addition, the researchers included firm level characteristics as its control variables given that they are known to have an association with disclosure quality in the regression models.*

Findings- *The findings reveal that investment efficiency has a significant positive relationship with disclosure quality and that higher investment efficiency is associated with higher disclosure quality. The findings also revealed that majority of listed firms in Kenya were overinvesting (57%) whereas the remaining 43% were found to be underinvesting.*

Research Limitations/implications- *The scope of the study was on one developing country. There is need for additional studies that will focus on other jurisdictions.*

Practical implications- *The study recommends the inclusion of investment efficiency scorecards in both management and statutory reports for purposes of improving the quality of external stakeholders' investment decisions. The findings further reiterate the need for firms and regulators to come up with policy frameworks on minimum criteria targeting project preparation, project approval, project budgeting and project transparency.*

Originality/Value- *The study emphasizes the importance of analyzing deviations from optimum investment level and the contribution of these deviations on the quality of firm disclosures.*

Keywords: ***Investment Efficiency, Disclosure Quality, Listed Firms in Kenya***

Introduction

In this study, we examine whether investment efficiency has any significant association with disclosure quality. Investment efficiency refers to the rate of transforming a dollar's worth of investment into positive

[1]*Department of Finance and Accounting, Faculty of Business and Management Sciences, University of Nairobi, E-mail: ongoromorgan@gmail.com*
[2]*Professor, Department of Finance and Accounting, Faculty of Business and Management Sciences, University of Nairobi*
[3]*Associate Professor, Department of Finance and Accounting, Faculty of Business and Management Sciences, University of Nairobi*
[4]*Lecturer, Department of Finance and Accounting, Faculty of Business and Management Sciences, University of Nairobi*

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market value. For this rate to be attained, the marginal cost of investment ought to be equivalent to the marginal return on investment. Firms that attain this point of optimality manage to successfully invest in projects with high positive NPV, unlike those which fall short of attaining the point of optimality (Biddle et al., 2009). This point of optimality most often happens to be anchored on an investment management system that is subjected to fiduciary as well as other internal controls. In this regard, investment is looked at as a function of the total cost, return and risk (Hodgson et al., 2000). Consequently, deviations from optimum investment may arise from both over and under-investment practices and may reduce both firm value and firm investment efficiency.

We note that firms with efficient investment are less likely to under or over-invest. This is because their investments are guided by expected growth opportunities, hence they efficiently allocate resources to projects with positive NPV (Li & Wang, 2010). Such firms have investment strategies geared towards maximizing investor wealth and firm value and are more transparent in their disclosures than those with inefficient investments. These firms are likely to have effective governance structures, which help them in monitoring their operations and are likely to be run competently (Chen et al., 2011a). The ongoing challenges facing the retail sector in Kenya lay bare the need for investment efficiency, especially with most struggling retailers having reported exponential inefficient investment growth before collapsing. Investment efficiency, therefore, remains to be a fundamental global issue with both direct and indirect impacts on corporate financial transparency.

Empirically, previous studies operationalized investment efficiency as the deviation of realized investment from expected optimal investments. This meant that firms could either under-invest, invest efficiently or over-invest. Richardson (2006) developed a model for measuring investment efficiency by forecasting investment to be a function of available growth opportunities. Investment is first measured as the sum of capital expenditures, net revenues from the sale and acquisition of property, plant and equipment, and research and development costs. Thereafter, the model regresses total investment with the annual rate of revenue growth controlled by financial leverage, age, cash ratio, firm size and return on assets. We adopted the Richardson model given that it has empirically been shown to be reliable in measuring investment efficiency.

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Disclosure quality refers to the level of transparency and comprehensiveness of both financial and non-financial information that is issued to investors for decision-making purposes (Alzoubi, 2016: Brown & Hillegeist, 2007). Disclosure quality can also be defined in terms of accrual quality. Accruals give a glimpse of expected future performance in the eyes of managers, thus high quality accruals depict high disclosure quality and vice versa (Chen et al., 2011).The four key attributes of disclosure quality include timeliness, completion, precision and compliance. These attributes depict disclosure quality as adherence to timely issuance deadlines, clarity and succinctness of information (free from misrepresentation), full disclosure of all information and compliance with local regulations (Liu & Sun, 2010).

Investment efficiency and disclosure quality have a close association. By investing efficiently, firms end up reporting high returns on investments. They, therefore, disclose quality and accurate information to their investors to attract more capital and also enable their investors to make informed investment decisions (Mathuva, 2016). The disclosure qualities discussed herein act as a key determinant of the quality of information disclosed to investors who own capital by management teams with access to private information (Alzoubi, 2014). Investors often make decisions with the presumption that the disclosed information is accurate and of high quality. This blind trust often becomes a liability for them if the disclosed information is inaccurate. High disclosure quality reduces both agency and information asymmetry problems between principals (investors) and agents (Beneish, 2001). High disclosure quality is also associated with a lower cost of capital, higher levels of stock liquidity, enhanced firm performance and improved corporate reputation (Brown & Cliff, 2004). , Unlike those who invest inefficiently, corporate managers who invest efficiently gravitate towards disclosing comprehensive information to potential investors in order to attract new capital and improve their image. Such firms end up with high disclosure quality (Elberry&Hussainey, 2020).

Previous related studies operationalized DQ in terms of accrual quality. These studies argued that firms use accruals to reflect their expected level of performance especially when it comes to recognizing revenues and expenses in their books. Firms with higher accrual quality have been shown to have lower divergences between expected performance and realized performance. Accordingly, such firms have been proven to have higher disclosure levels (Chi et al., 2011; Roychowdhury, 2006: Cohen & Zarowin, 2008). This study adopted accrual quality as its measure of DQ. Accrual quality was further determined using Kothari et al.

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(2005) model given that the model has empirically been shown to be reliable when it comes to measuring disclosure quality.

Research Problem

Investment efficiency and disclosure quality are key issues among listed firms. The growing need for investor protection has elicited interest among scholars who seek to understand whether quality disclosures and efficient investments can be used to improve investor confidence. Securities markets with high investor confidence tend to attract more capital compared to those with low investor confidence. Based on this realization, local and international regulatory bodies have sought to come up with regulations that are aimed at addressing the systemic shortfalls of existing disclosure and investment practices. The enactment of the 2002 Sarbanes-Oxley Act in the USA that imposed punitive penalties for manipulating financial records demonstrates the glaring risk that the world faces from poor disclosures and inefficient investments. The 2015 Public Finance Management Act of Kenya together with the 2022 Capital Markets Public Offer Listing and Disclosure Regulations further reinforce the need for quality disclosures and efficient investments. These regulations also demonstrate that shareholders prefer to invest in firms with sustainable returns whereas managers enjoy the privilege of making discretional decisions with regard to what, when and where to disclose certain information. This flexibility in disclosure practices, which is entrenched within various accounting frameworks like IFRS, further exacerbates the agency conflict between shareholders and management.

Despite the interventions from regulations meant to safeguard shareholders' wealth, cases of corporate failures from poor disclosures and inefficient investments have been on the rise, both locally and internationally. This study seeks to bridge the existing gap that is not addressed by the existing regulations, by determining post facto if investment efficiency affects disclosure quality. If the answer to this research question is in the affirmative, then the study will seek to determine how to improve investment efficiency, and which other variables moderate the relationship between investment efficiency and disclosure quality.

In Kenya, listed firms operate under competitive and dynamic market environments, characterized by limited financial resources and a high affinity for profits. These operational demands have forced most firms to look for creative ways of attracting investors and reporting high profits by compromising on their disclosure qualities. Kenya has reported an upsurge in cases of corporate collapses resulting from inefficient

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investments and poor disclosure practices. The global economic crime and fraud survey ranks financial statement fraud in Kenya as the third most disruptive fraud event at 14% (PWC, 2020). As of November 2022, the office of the official receiver in insolvency reported that 46 companies were facing liquidation up from 18 in 2015. Local firms like Tuskys Supermarket, Nakumatt Holdings, Kaluworks, East African Portland Cement, East Africa Cables, Imperial Bank, Mumias Sugar Limited, Chase Bank, Dubai Bank, Uchumi Supermarkets, Deacons East Africa and Athi River Mining have either collapsed or been placed under statutory management mainly because of cash flow constraints resulting from inefficient investments and misrepresentation of financial disclosures. In all these cases, firms engaging in inefficient investments were found to manipulate their actual performance in the short run as a stop-gap measure but ended up under statutory management in the long run. These cases have elicited interest from academics and regulators, with most analysts predicting the prevalence of such corporate failures in the future (Chen et al., 2017). This study, therefore, endeavors to determine ex-post, if a relationship between investment efficiency and disclosure quality exists and if so, how stakeholders who rely on disclosures for decision making can detect and mitigate their exposures well in advance.

Findings from related empirical studies have been contentious and unsettled over time, with none providing a persuasive causal link between the variables under study. These differences can be attributed to conceptual, methodological, theoretical and contextual gaps. In theory, firms with inefficient investments, unlike those with efficient investments, are associated with poor disclosures since they are likely to manipulate their actual performance to influence investor behavior (Chen et al., 2011). Such firms adopt earnings management strategies that increase both their investment efficiency score and financial performance. Accordingly, investors relying on such disclosures tend to make poor and uninformed investment decisions with low returns in the long run. Empirical findings on the subject are also highly divergent. Some scholars argue that investors prefer firms whose investment efficiency is high and that as a result, firms with inefficient investments are motivated to distort their performance by issuing poor disclosures to influence investor behavior. On the other hand, others argue that firms with high investment efficiency smoothen their performance to avoid high expectations from their investors in the long run, unlike those with inefficient investments. Nevertheless, these contrasting views highlight the significant role that investment efficiency plays in firm disclosure quality.

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The divergence in research findings can also be attributed to methodological gaps. Previous related studies focused mainly on the direct effect of investment efficiency on disclosure quality while ignoring other moderating variables like managerial ability and corporate governance, which have a direct effect on the relationship. Furthermore, some previous studies focused on only one aspect of disclosure quality (timeliness) while ignoring other aspects as identified in Kothari's model that is meant to evaluate the accrual quality of firms. Few studies have adopted investment efficiency as their dependent variable (Elberry & Hussainey, 2020; Habib, 2017; Chen et al., 2017) whereas others have adopted disclosure quality as their dependent variable (Biddle & Hilary, 2006; Bzeouich et al. 2019; Al & Firmansyah, 2019). Findings from these studies could have been different were they to consider all four variables. This study, therefore, sought to consider all four variables.

The divergence in research findings can also be attributed to conceptual gaps among related studies. Some studies have conceptualized investment efficiency in terms of project level announcements, which is highly subjective (Chen et al., 2017), while others have adopted the use of the Richardson model (Habib, 2017). Some studies have established a positive significant relationship (Biddle & Hilary, 2020; Gan, 2015; Hessian, 2019; Luo & Zhou, 2017), others a negative relationship (Chen et al., 2017; Habib, 2017; Bzeouich et al., 2019), whereas others have been non-conclusive (Al & Firmansyah, 2019; (Elberry & Hussainey, 2020a); Botosan & Plumlee, 2002).

Contextually, related studies on the association between investment efficiency and disclosure quality have primarily been domiciled in developed markets, with none in frontier Sub-Saharan African markets. This study, therefore, sought to consider Kenya, a frontier economy in East Africa. The country has been characterized by inefficient investment strategies and poor corporate governance (Otieno et al., 2020). Motivated by the highlighted contextual, conceptual and methodological research gaps, this study aimed at finding empirical solutions to the following question: What is the relationship between investment efficiency and disclosure quality among firms listed at the Nairobi Securities Exchange?

Research Objectives

The general objective of this research was to determine the relationship between investment efficiency and disclosure quality among firms listed at the Nairobi Securities Exchange.

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Theoretical Review

Tobin's Q Theory of Investment

This theory was developed by Tobin (1969). It sought to explain how corporations make investment decisions based on the relative value of their assets and investment opportunities in the market. The theory further suggests a measure of investment opportunity known as the Q ratio. This ratio compares a firm's market value to the replacement cost of its existing assets. Firms can also use this ratio to assess whether their stock is overvalued or not, and whether to sell, purchase, or hold on to their investments. The theory suggests that if the Q ratio is less than one, then the market values the company's future investment opportunities lower than its existing assets, thus it would be prudent for the company to cut down on its investments or sell its existing assets. Conversely, if the Q ratio is greater than one, then the market values the company's future investment opportunities higher than its cost of replacing existing assets, hence it would be advisable for the firm to invest in new projects since the expected return on investment will be higher than its asset replacement cost. This theory concludes that the Q ratio can be used as a determinant of growth opportunity and that capital expenditures related to installation costs and research and development costs constitute what is referred to as replacement costs.

Tobin's Q theory of investment is significant to the research given that it hypothesizes a positive relationship between disclosure quality and investment efficiency. The theory suggests that firms with high disclosure quality tend to provide their investors with comprehensive, reliable and accurate information about their future investment opportunities and their expected return on investment. With these disclosures, investors are best placed to assess the firm's operations and make informed investment decisions, leading to higher market valuation, a more attractive investment opportunity and a higher Q ratio. The theory also informs the operationalization of investments as the sum of acquisitions, capital expenditure and research and development costs. In addition, the theory informs the adoption of the Richardson (2006) model for measuring investment efficiency as a function of total investment and growth opportunity. The theory, therefore, helps in formulating the research hypothesis that investment efficiency influences disclosure quality by hypothesizing a correlation between the two. By adopting this theory, Bushman et al. (2011) argue that timely loss recognition has an impact on investment efficiency, especially when investment opportunities are on the decline. McNichols & Stubben (2008) also relied on this theory to establish that inefficient investments arise from deviations from optimal investment as predicted by Tobin Q's investment opportunity ratio, and that disclosure quality affects a firm's investment efficiency.

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The main criticism of this theory is that it neglects the role of management decisions in creating firm value by only focusing on the existing market value of a firm's assets. By assuming that investment decisions are only affected by the Q ratio, this theory ignores other relevant factors that might affect investment efficiency (Hayashi, 1982). This criticism limits the role of the theory to only explaining the direct relationship between investment efficiency and disclosure quality. As a result, the study sought to address this limitation by investigating the moderating roles of managerial ability and corporate governance on the relationship between investment efficiency and disclosure quality.

Signaling Theory

This theory was developed by Spence (1973) and sought to highlight the role that information asymmetry plays in disclosure quality and adverse selection problems. It discusses the action of two or more entities with different levels of information access and hypothesizes inefficiencies mainly from problems related to moral hazard, adverse selection and information asymmetry. Information asymmetry exists between those in possession of knowledge and those requiring it for decision making. In this regard, the timing and quality of firm disclosure, whether false or true, is dependent on the expected effect on stakeholder behavior (Przepiorka & Berger, 2017). Firms with high moral hazards and high information asymmetry will be inclined to issue false signals to markets characterized by low quality and low payoffs, unlike firms with low information asymmetry. The theory further discusses the role that accruals play in disclosures by positing that accruals are a reflection of expected future performance and hence can be used as signals for expected company performance. This, therefore, means that higher accrual quality is allied to both lower information asymmetry levels and lower adverse selection problems (Connelly et al., 2011).

This theory is significant to the research given that it hypothesizes a positive relationship between investment efficiency, managerial ability, corporate governance and disclosure quality. The theory suggests that companies need to use signals for conveying accurate and reliable information about their operations and that firms can differentiate themselves from other firms by investing in research and development and by undertaking aggressive marketing campaigns. These strategies will signal to potential investors that the firm in question is viable to invest in, leading to informed decision making and investment efficiency. The theory also suggests that inaccurate signals can lead to inefficient investment decisions through the misallocation of financial resources. Additionally, the theory informs the adoption of accrual qualities as proxy variables for disclosure quality. The theory further highlights the fact that firms are more inclined to

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disclose good news than to disclose bad news mainly due to the value benefits attributed to such disclosures (Penman, 1980). The signaling theory, therefore, helps in formulating the research hypothesis that disclosure quality serves a major role in influencing investment decisions by directly affecting adverse selection problems. By adopting this theory in their survey, Campbell et al. (2001) found that firms prefer to voluntarily disclose more quality information when their performance is good compared to when they perform poorly.

The main criticism of this theory is that it assumes that the market is efficient and that stakeholders are rational decision makers. This might, however, not be the case given the presence of stakeholder biases and other market imperfections (Highhouse et al., 2007). The theory also overlooks other institutional factors that might impact investment efficiency other than investor and individual behavior (Connelly et al., 2011). Despite the above highlighted criticism, the theory is useful in explaining the relationship between the study variables. To address the criticism, this study investigates the moderating roles of managerial ability and corporate governance on the relationship between investment efficiency and disclosure quality. The study also focused on quantitative data which is free from subjectivity and bias, unlike qualitative data. Subsequent modifications that addressed the theory's shortfall included Modigliani and Miller dividend relevancy theory which developed the information content hypothesis.

Empirical Review

This section discussed research gaps from reviewed empirical literature on the relationship between investment efficiency and disclosure quality.

Investment Efficiency and Disclosure Quality

Biddle et al. (2009) studied the relationship between firm-level investment efficiency and financial reporting quality (FRQ) for a sample of listed non-financial firms in 34 countries for the financial years of 1993 to 2004. Using a multinomial logistic regression, the data were analyzed. FRQ was measured by loss avoidance, earnings aggressiveness, and smoothing of earnings. Investment efficiency was measured by cash flow sensitivity after controlling for investment opportunities. The study established a positive link between FRQ and investment efficiency. The study's limitation was that it was difficult to obtain sufficient data from all 34 countries considered for purposes of estimating firm-level efficiencies and that different reporting regulations made cross-country reporting comparison difficult. The study, however, highlighted

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the mitigation role that FRQ played on investment cash flow sensitivity and suggested that future research should consider exploring whether DQ mitigates the effects of inadequate or excess cash.

Biddle and Hilary (2020) studied the link between DQ and investment efficiency for a sample of listed non-financial firms in the USA for the financial years of 1993 to 2005. Firms were grouped into two sets, over-investing, and under-investing firms, depending on their leverage and cash positions. Using a multinomial logistic regression, the data were analyzed. DQ was measured using the Dechow & Dichev (2002) model and Wysocki (2008) models and the measure of financial reports readability. Investment efficiency was measured by deviation from probable levels of investment being the residual from a function of investments and growth opportunities. The research discovered a substantial positive association between DQ and investment efficiency. The study's limitation was that it did not establish a causal relationship between the study variables, and its IE proxy was prone to measurement errors. The study however extended research on IE and sources of disclosures and suggested that future research consider exploring both the causal link between FRQ and IE and the link between FRQ and either under or over investment.

Chen et al. (2017) pursued the link between IE and investment transparency (ITR) for a sample of 186 listed non-financial listed firms in Australia from 2008 to 2014. Data was analyzed using multivariate regression. ITR was measured by the sum of quantitative measures on cost, profitability, and project horizon. IE was measured by deviation from expected levels of investment being the residual from a function of investments and sales growth. The research established a substantial negative link between IE and ITR. The research's limitation was that it relied on a small sample size, its proxy for IE had measurement error and it relied on project level announcements while ignoring audited financial statements. The study however distinguished different types and sources of disclosures and suggested that future research should consider larger jurisdictions as their targeted population and should also explore IE implications of different types of disclosures.

Summary of Literature Review and Research Gaps

Empirical studies on the link between IE and DQ generated mixed and conflicting results and did not show a clear causal link among the study variables. Some researchers found positive relationships between the study variables; others established negative relationships whereas others were non-conclusive. The reviewed studies showed the presence of methodological, conceptual, and contextual gaps. Conceptual gaps

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were evident via divergence in operationalization of the research problem. Most studies only looked at the direct relationship between IE and DQ but did not consider other mediating or moderating variables. Findings on the subject could have been different if other moderating variables were to be considered.

The review of empirical literature also identified several methodological gaps that were evident through divergence in the usage of different models for measuring investment efficiency and disclosure quality. Variations in sample sizes and data collection and analysis techniques accounted for the lack of consensus in the findings. The use of different methodologies also led to a lack of consensus on the research findings with most related studies adopting smaller sample sizes which led to a higher margin of error. Findings on the subject could have been different if larger sample sizes were to be considered. A research gap to determine the most efficient methodology to adopt for similar studies therefore exists. Furthermore, there is a need to investigate the efficacy of using multivariate analysis in related studies. This study, therefore, seeks to adopt both a larger sample size and multivariate and panel data analysis.

Contextually, previous studies on the research topic have been domiciled in Western and Asia-Pacific developed nations with none in Africa. Findings on the subject could have been different if the study were to be done in frontier economies like Kenya. Therefore, a research gap on the relationship between investment efficiency, managerial ability, corporate governance and disclosure quality in frontier economies particularly in Kenya exists. The above-highlighted gaps have shown that studies on the association between investment efficiency, managerial ability, corporate governance and disclosure quality still have various grey research areas lacking empirical consensus.

Conceptual Framework

The adopted conceptual framework depicts the anticipated connection between investment efficiency (independent variable) and DQ (dependent variable) as conceptualized by Tobin Q' theory and signaling theory. The model further and controls for firm profitability, firm leverage and firm size.

Hypothesis one shows the expected positive relationship between investment efficiency and disclosure quality. This is premised on the expectation that profitable firms have a tendency of issuing quality disclosures to impress and influence investor decisions as hypothesized by signaling and Tobin's q theories.

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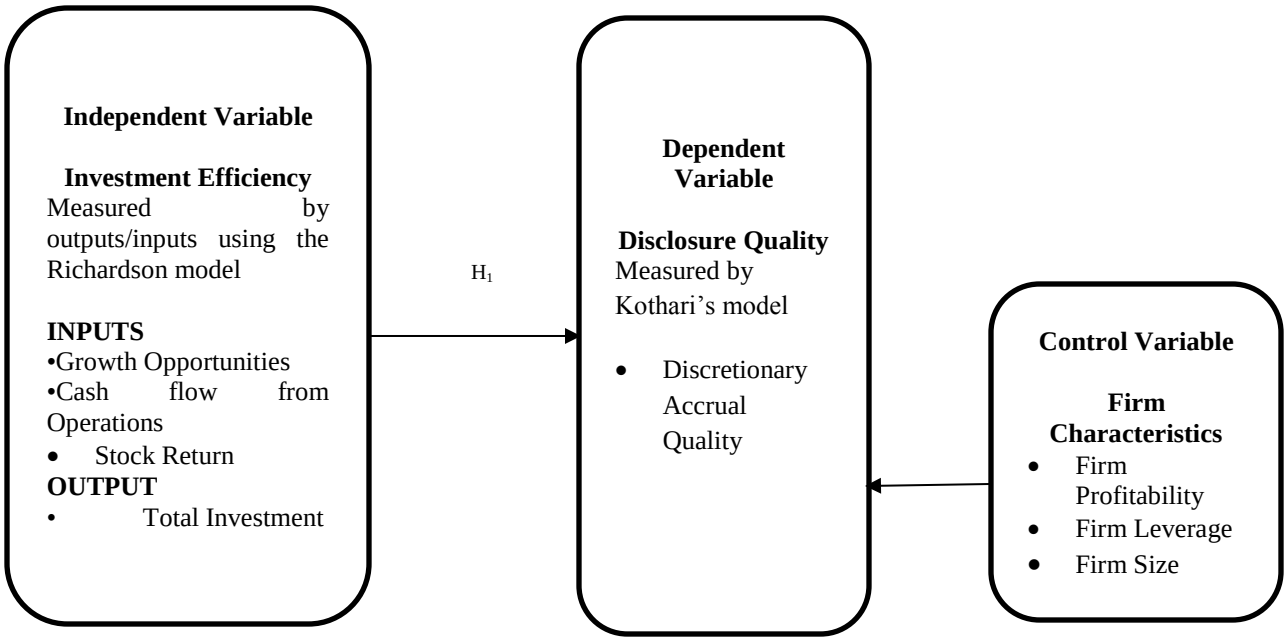

Research Hypothesis

H_1: There is no significant relationship between investment efficiency and disclosure quality among firms listed at the Nairobi Securities Exchange.

Methodology

This research adopted a positivism philosophy given that the study was depended on objective evidence and statistics to establish the link among observable variables (Saunders et al., 2009). Research hypotheses were first developed, quantitatively tested, and objectively analyzed before conclusions were drawn. This was supported by positivism philosophy which advocated for a highly structured methodology while testing the hypothesis.

This study collected secondary data in the form of annual published audited financial statements. 64 firms listed on the Nairobi Securities Exchange were targeted. Data was extracted from both the NSE database and companies' websites from the year 2008 to 2020. The final data sample after data cleaning comprised of a panel data set of 702 firm year observations for a total of 56 firms over a thirteen-year period.

Investment efficiency was to be the independent variable and was to be measured by deviation from expected investment level as measured by the residual from regressing total investment on growth

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opportunity, cash flow from operations, leverage, stock return, firm age and firm size, in line with the Richardson (2006) model. On the other hand, disclosure quality was to act as the dependent variable and was to be measured by accrual quality as measured by the Kothari et al. (2005) model and in line with studies by Biddle and Hilary (2020). Pearson correlation analysis and the goodness of fit test were to be performed, and if the F-test bore a significant level below 1%, then the null hypothesis was to be rejected. The following multiple linear regression models were to be used to test the hypothesis of one of the studies.

$DQ_{i,t}= \beta_0 + \beta_i IE_{i,t} + + \beta_2 FS_{it} + \beta_3 LEV_{it} + \beta_4 PROF_{it} + \varepsilon_i$ ..... (3.1)

Where: $DQ_{i,t}$ = Disclosure quality measured by DA quality.

β_0 = Constant or intercept regression.

β_i = Variable i regression co-efficient

$IE_{i,t}$ = Investment efficiency of variable i

$FS_{i,t}$ = Firm size of variable i

$LEV_{i,t}$ = Leverage of variable i

$PROF_{i,t}$=Profitability of variable i

ε_i = Error term

$DA = \tilde{\alpha}_0 + \tilde{\alpha}_1(\Delta\text{CA} - \Delta\text{REC}) + \tilde{\alpha}_2(\text{PPE}) + \tilde{\alpha}_3(ROA) + \varepsilon_i$..... (3.1.1)

Where: DA =Discretionary accruals (Total accruals - Nondiscretionary accruals)

ΔCA = Change in sales

ΔREC = Account receivables change

PPE =Property, plant, and Equipment

ROA =Return on Assets

$\tilde{\alpha}_0, \tilde{\alpha}_1, \tilde{\alpha}_2, \tilde{\alpha}_3$=Estimated coefficients

ε_i =Error term representing accrual quality (DQ) score

$\frac{TACC}{TA} = \tilde{\alpha}_0 + \tilde{\alpha}_1\left(\frac{1}{TA}\right) + \tilde{\alpha}_2\left(\frac{\Delta CA}{TA}\right) + \tilde{\alpha}_3\left(\frac{PPE}{TA}\right) + \varepsilon_i$ ..... (3.1.2)

Where: TACC =Total accruals (EBIT- CFO)

TA_i =Total assets

$\tilde{\alpha}_0, \tilde{\alpha}_1, \tilde{\alpha}_2, \tilde{\alpha}_3$= Estimated coefficients

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$$NDA = \tilde{\alpha}_0 + \tilde{\alpha}_1\left(\frac{1}{TA}\right) + \tilde{\alpha}_2\left(\frac{\Delta CA - \Delta REC}{TA}\right) + \tilde{\alpha}_3\left(\frac{PPE}{TA}\right) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3.1.3)$$

Where: NDA =Nondiscretionary accruals

$\tilde{\alpha}_0, \tilde{\alpha}_1, \tilde{\alpha}_2, \tilde{\alpha}_3$=Estimated coefficients from equation 3.1.2

$$INVE = \tilde{\alpha}_0 + \tilde{\alpha}_1(Q_{i,t-1}) + \tilde{\alpha}_2(CFO_{i,t-1}) + \tilde{\alpha}_3(LEV_{i,t-1}) + \tilde{\alpha}_4(RET_{i,t-1}) + \tilde{\alpha}_5(AGE_{i,t-1}) + \tilde{\alpha}_6(SIZE_{i,t-1}) + \tilde{\alpha}_7(INV_{i,t-1}) + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3.1.4)$$

Where: INVE =Total Investment

$Q_{i,t-1}$ =Growth opportunity

CFO= Operating activities cash flow scaled by total assets

LEV= Ratio of debt to total assets

RET= Return on Stock

AGE= Difference between current year and the IPO year

SIZE= Natural logarithm of total assets

ε_i = Error term representing investment efficiency (IE) score

Total Investment = Capital expenditure + Research and Development cost + Acquisitions + Revenue from sales of PPE

Results and Discussions

Correlation Analysis

The research made use of Pearson's correlation coefficient to assess the degree of correlation between investment efficiency and disclosure quality, between investment efficiency, managerial skill, and corporate governance and disclosure quality. The Pearson's correlation coefficient had a value between +1 and -1, with 0 signifying no correlation, values above zero signifying positive correlation, and values below zero signifying negative correlation. Positive correlation suggested that an increase in one value caused a corresponding rise in another, whereas negative correlation suggested that an increase in one value caused a corresponding fall in another (Nyatichi, 2021).

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Correlation between Investment Efficiency and Disclosure Quality

The Pearson product coefficient value was used to assess the association between disclosure quality (defined as discretionary accrual quality) and investment efficiency (measured using the Richardson model), as shown in table 4.12 below. The information in the table below demonstrates that investment efficiency and disclosure quality are positively correlated.

Table 4.12: Correlation between Investment Efficiency and Disclosure Quality

Correlations			
		Investment Efficiency	Disclosure Quality
Investment Efficiency Score	Pearson Correlation	1	0.104*

*. Correlation is significant at the 0.05 level (2-tailed).

Hypothesis testing and Discussion of Findings

The study sought to establish the relationship between investment efficiency and disclosure quality among listed firms in Kenya. The study discovered a significantly positive link between investment efficiency and disclosure quality among listed firms in Kenya while controlling for firm size, leverage and profitability. This was contrary to what was stated in the null hypothesis. Investment efficiency was operationalized using Richardson model which regressed total investment with firm growth opportunity controlled by cash flow from operations, leverage, age, size and stock return. The residual value from the regression multiplied by negative one was then used as a determinant of investment efficiency. Disclosure quality was operationalized using discretionary accrual quality as measured by the Kothari model.

Panel data fixed effect regression model 5.1 was utilized in testing hypothesis one and to find out whether or not there was a significant relationship between investment efficiency and disclosure quality among listed firms in Kenya after controlling for firm size, leverage, and profitability. The null hypothesis was as follows.

H_1: *There is no significant relationship between investment efficiency and disclosure quality among listed firms in Kenya.*

The result of the regression model 5.1 is summarized in Table 5.1 below.

$$DQ_{i,t} = \beta_0 + \beta_1 IE_{it} + \beta_2 FS_{it} + \beta_3 LEV_{it} + \beta_4 PROF_{it} + \varepsilon_{it} \quad \ldots\ldots (5.1)$$

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Note: The variables are defined in section 3.8.1

Fixed-effects (within) regression		Number of obs =	702
Group variable: Company		Number of groups =	56
R-sq:		Obs per group:	
within = 0.6445		min =	7
between = 0.5366		avg =	12.5
overall = 0.5613		max =	13
		F(4,642) =	290.95
corr(u_i, Xb) = -0.3996		Prob > F =	0.0000

Disclosure Quality	Coefficient	Std. Error	t-Statistic	P>|t|
Constant	-0.334	0.342	-0.98	0.328
Investment Efficiency	0.017	0.001	3.26	0.001
Firm Size	0.029	0.034	0.87	0.385
Leverage	-0.041	0.024	-1.72	0.086
Profitability	1.028	0.036	28.54	0.000
Sigma_u	0.119			
Sigma_e	0.183			
rho	0.297			

F test that all u_i=0: F (55, 642) = 3.48

Source: Author (2023)

Table 5.1 above demonstrates that there was a positive significant link between investment efficiency and disclosure quality, with a coefficient of 0.017 and P < 0.05. The link between firm size and disclosure quality was positive but not significant with a 0.029 coefficient and P > 0.05. The link between leverage and disclosure quality was negative though insignificant with -0.041 coefficient and P > 0.05. Moreover, the connection between profitability and disclosure quality was positive and significant with a coefficient of 1.028 and P < 0.05. Since the p value for the entire model was less than 5%, the model was considered to be statistically significant. This implied that investment efficiency influenced disclosure quality among listed firms in Kenya. The following linear regression was thus formulated.

$$DQ_{i,t} = -0.334 + 0.017IE_{it} + 0.029FS_{it} - 0.041LEV_{it} + 1.028PROF_{it}$$

Results from Table 5.1 also show that the model had a within group R squared value of 0.6445, the 3.48 F test value and a p value of 0.00. The overall model result depicted statistically significant link between investment effectiveness and disclosure quality. By rejecting the first null hypothesis (H1), it was discovered that there was a substantial positive link between investment efficiency and disclosure quality among Kenyan listed firms.

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Discussion of Findings

The objective of the study was to establish the link between investment efficiency and disclosure quality among listed firms in Kenya. This research hypothesized that there was no statistically significant correlation between investment efficiency and disclosure quality.

Conclusions from the research however showed the existence of a statistically significant positive relationship between investment efficiency and disclosure quality. This was consistent with studies by Elberry (2018), Biddle & Hillary, (2020), Gan (2015), Hessian (2019) and Luo & Zhou (2017). The findings however contradicted studies by Bzeouich et al. (2019) which investigated the link between earnings management and corporate investment efficiency and concluded that the relationship was negative. This study showed that firms with efficient investments tend to justify their investment behaviour by issuing more comprehensive and quality disclosures. These comprehensive disclosures help them avoid excessive monitoring by their external stakeholders hence reducing both their agency and information asymmetry problems.

Findings from Table 5.1 affirm the existence of a statistically significant positive link between investment efficiency and disclosure quality in Kenya. Based on this finding, it is critical to have a policy framework or working paper that is geared towards improving investment efficiency in the country. The existing public investment management system in the country only focuses on the public sector while ignoring the private sector which accounted for 68% of the country's GDP in 2012 (KNBS Economic Survey, 2012). There is therefore need to reform the systemic weaknesses of the existing Public Investment Management System that the country has by expanding its scope to cover private sectors. To improve the investment efficiency level in the country, the CMA and the ministry of commerce should come up with policy papers on minimum criteria targeting project preparation, project approval, project budgeting, project transparency and accountability. This will help the government in the long run to sustaining economic growth in the country despite the challenging global market environment.

The overall model as depicted in Table 5.1 shows a significant p-value. This meant that the first hypothesis was rejected inferring that the link between investment efficiency and disclosure quality among listed firms

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in Kenya was significant. This conclusion concurs with the study by Elberry (2018) who concluded that investment efficiency has a positive link with disclosure quality.

The finding that investment efficiency possess positive significant link with disclosure quality concurs with proposition of the signalling theory and Tobin's Q theory of investment. Signalling theory argues that firms are more incline to disclose good news than to disclose bad news mainly due to the value benefit attributed to such disclosures. Consequently, firms with high investment efficiency (good news) tend to have low manipulations of their disclosures given that they have already achieved their performance targets. Tobin's Q theory of investment also supports the above assertion by arguing that the lower the Q ratio, the higher the likelihood of earnings management and the lower the disclosure level. Inefficient markets with Q ratio not equal to one tend to be characterized by high information asymmetry levels and high market frictions. Such markets tend to have low investment efficiencies and low disclosure quality. In such markets, the ratio of capital stock market value to the prevailing stock replacement cost is not equal to 1.

Conclusions and Recommendations

This research sought to establish the relationship between investment efficiency and disclosure quality among listed firms in Kenya. The study was anchored on Tobin's Q theory of investment and signaling theory. The research utilized positivistic research philosophy given that it tested four research hypotheses. Secondary data in the formed of published audited annual financial statements was collected from both company websites and from the Nairobi securities exchange website.

The study concluded that there is an investment inefficiency problem in the county by established that, 57% of listed firms in Kenya were over-investing whereas the remaining 43% were underinvesting. The study further established a positive relationship between investment efficiency and disclosure quality implying that investment efficiency is a key driver of disclosure quality and that it increases the quality, precision and quantity of corporate disclosures. Firms that were found to invest efficiently had high and sustainable sales growth over the study period. Furthermore, these firms had higher cash flow from operations and had higher profitability compared to their counterparts. The availability of free cash flows amongst these firms and their growing need for external funding for investment motivated them to disclose more comprehensive and precise financial information. This further helped them to reduce their financing cost. Shareholders should therefore advocate for the inclusion of an investment efficiency scorecard in both their management

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and statutory reports. Such reporting index should act as a key performance indicator for rating managerial performance. If this is implemented, they will not only increase their wealth but also have more confidence in the transparency of their firm's disclosures for decision making purposes. Regulators on the other hand should expand the scope of the existing Public Investment Management System to also cover the private sector in the country.

Contribution to Knowledge

Conclusions from this study contributed to the current body of knowledge on investment efficiency and disclosure quality. The contribution of this study was that there exists a significant relationship between investment efficiency and disclosure quality after controlling for firm characteristics. The adoption of firm characteristics as control variables significantly improved the explanatory power of the regression model given that firm characteristics has been known to influence disclosure quality (dependent variable). By ignoring control variables like firm characteristics, previous related studies had weaker regression models. Findings from this study will be used as a benchmark for future related empirical and theoretical studies in Kenya given that, currently, no documented evidence on the relationship between investment efficiency and disclosure quality exists in Kenya.

Contribution to Policy and Practice

Findings from this study have several contributions to investors, financial lenders, regulators and corporate managers. This study has shown a tripartite relationship between investment efficiency, disclosure quality and market efficiency. Investment efficiency facilitates economic development, job creation and sustainable growth. Disclosure quality enhances market efficiency by reducing information asymmetry through informed decision making. Financial markets on the other hand rely on transparent disclosures for accurate risk assessment and pricing. Local regulators should therefore develop and enforce disclosure standards that make it mandatory for firms to issue accurate and comprehensive disclosures and to disclose their investment efficiency levels. These disclosures should cover both financial and non-financial aspects of the firm. Local regulators should establish effective enforcement mechanisms to ensure that firms comply with the formulated disclosure standards. Local regulators should be given resources to monitor and penalize non-compliance. They should do regular audits that target to assess disclosure quality and investment efficiency. They should encourage the use of standardized reporting format on disclosures and investment efficiency. This will enable comparability and facilitate informed decision making. Local regulators should

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also enhance investor education and awareness on the importance of investment efficiency and disclosure quality.

The finding that investment efficiency reduces corporate desire for earnings management and enhances the ability of investors to make informed decisions shows the need for firms to be efficient in their investments and the need for investors to consider investment efficiency as a key variable in their decision making process. Investors bear the greatest risk in the event that their firms collapse due to poor disclosures, poor governance and poor management practices. They therefore ought to pay more attention on matters to do with investment efficiency and disclosure quality. Investors stand to generate more wealth by investing in firms with higher investment efficiency and higher disclosure quality. For this benefit to be realized, the study proposes that they should first assess the transparency levels of their targeted firms before investing in them. They should also demand for the publication and evaluation of their firms' investment efficiency scorecards both in their management and statutory reporting. Efficient investment and quality disclosures can therefore be said to be enablers of informed investment decisions and aligned interests between investors and management.

Financial institutions like commercial banks and investment firms may use findings from this study when rating the credit worthiness of their customers and when issuing prudent guidelines on loan approvals. Existing credit rating guidelines should be strengthened to include investment efficiency as one of the variables to be considered. This will help financial institutions in coming up with accurate credit scores for their customers. Furthermore, this will help them in managing and reducing their credit default risk. By assessing the investment efficiency level of their customers, financial institutions will be in a position to determine the quality of their customers' financial disclosures. This will further help them in making informed decisions as to who to lend to. Given that disclosures have a way of calming down lenders by allowing them to assess their customer's investment and governance position, it is important for lenders to strengthen their vetting guidelines by including both disclosure quality and investment efficiency levels in their rating check book.

Regulators like the Capital Market Authority and the Kenya Revenue Authority may use findings from this study when issuing prudent guidelines on financial disclosures, corporate governance and managerial practices. They might also use these findings in their daily supervision of listed firms. These authorities

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should consider strengthening existing governance rules on board size and ownership structure since the study has shown that the two components of corporate governance have a direct effect on disclosure quality level. Given the increased cases of corporate failure due to manipulation of financial disclosures, regulators should encourage firms to have high disclosure qualities and good governance structures by providing top performers with more tax exemptions and more subsidies.

Conclusions from this research will also help in the development of local accounting standards on discretional accruals and earnings management. Local professional accounting bodies like ICPAK can use findings from this study in establishing working papers aimed at highlighting best practices on how firms can improve their investment efficiencies and when and how to use discretionary accruals in their disclosures. These findings can further be used in future development of international financial reporting standards which are aimed at enhancing corporate disclosure qualities.

Contribution to Theory

This study adopted the positivism philosophy with the intention of testing the hypotheses so as to either falsify or validate existing theories in the field of investment and disclosure practices. Findings from the study contributed to theory by showing the relationship among the study variables and by suggesting the possibility of integrating the stewardship and signaling theories. By integrating these two theories, stakeholders stand to gain a more comprehensive and holistic understanding of how organizational practices, responsible managerial behavior and transparent disclosure can be used as signals for both external and internal stakeholders. This will further influence organizational perception, reduce information asymmetry and guarantee sustainable return on investment. Signaling theory suggests that firms may disclose quality information so as to signal to the market their commitment to financial transparency and accountability. This assertion aligns with the fundamentals of the stewardship theory on the need for managerial stewardship and on the assertion that investor confidence can be enhanced when managers align their personal interests with their investor's objectives. The proposal by the stewardship theory on the need for managers to focus and adopt a long term sustainable organizational perspective aligns with the signaling theory assertion that firms which issue long term quality signals have better organizational perceptions amongst investors.

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Limitation of the Study

Despite the challenges met during data collection and data analysis, extra effort was made to ensure the outcome of the study was not significantly impacted by the limitations cited below.

This study relied on secondary data in the form of published audited financial statements that were sourced from specific company's websites and from the CMA website. These financial reports happen to be general purpose reports and therefore any inherent limitations in the reliability of their content could affect the general reliability of this study's findings.

This study sort to establish the correlation effect between investment efficiency, managerial ability, corporate governance and disclosure quality by adopting a descriptive research design with clearly stated research hypotheses. The study did not however extend its scope to establish the causal relationship among the study variable. This therefore limited its scope to only determining the nature and direction of the relationships among the selected variables.

Suggestions for Future Research

Future related studies could consider testing the intervening and moderating effects of additional variables on the relationship between investment efficiency and disclosure quality given that there could be other extraneous variables that might affect the relationship among the study variables. By doing so, they will expand the scope of this study which only looked at the moderating effects of managerial ability and corporate governance on the relationship between investment efficiency and disclosure quality. This will further help in determining the appropriate moderating variable that affects the relationship between investment efficiency and disclosure quality. Future studies should also consider using both qualitative and quantitative measures of investment efficiency, managerial ability and disclosure quality. This will widen the scope of this study given that the current study only relied on quantitative measures of the study variables. Additional qualitative proxy variables for disclosure quality such as disclosure tone, timeliness and accuracy of published financial information could also be considered.

Future studies could consider doing a comparative analysis of the relationship between investment efficiency and disclosure quality across two firm categories: over-investing firms versus under-investing firms. After categorizing these firms, a cross-category comparison could be done to establish whether there exist any variations between the relationship between over-investing firms and the relationship among

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under-investing firms. Findings from this comparative analysis will help in increasing the reliability and generalizability of the current research findings. The analysis will further help in comparing the effectiveness of different investment efficiency levels in improving disclosure quality.

Finally, the focus of this study was on listed firms in Kenya. Future related studies could replicate this study in other jurisdictions both internationally and regionally. This will help in broadening the scope of the study. Future studies could consider other moderating and mediating variables like firm characteristics, rigid managerial practices and stock prices in their work.

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