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Managerial Ability and Investment Efficiency among Firms Listed at the Nairobi Securities Exchange

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Abstract

The level of managerial ability that a firm possesses may to a large extend influence its investment efficiency. The purpose of this article is to argue that managerial ability has a significant relationship with the level of firm investment efficiency. Based on a data set of 702 firm year observations for the financial period 2008- 2020, the researchers investigated whether managerial ability (MA) is associated with investment efficiency (IE). 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 Investment efficiency in the regression models. The findings reveal that managerial ability had a significant negative relationship with investment efficiency and that higher managerial ability was associated with lower investment efficiency. It was established that firms with higher managerial ability were more likely to overinvest compared to those with lower managerial ability. The findings also revealed that majority of listed firms in Kenya were managed by skilled managers with ability (56%) whereas the remaining 44% were found to be managed by managers with low skills and ability. The scope of the study was on one developing country. There is need for additional studies that will focus on other jurisdictions. The study recommends targeted continuous learning especially on investment efficiency. The study recommends managers to set precise investment goals and implement a comprehensive strategic plan on how to efficiently allocate and prioritize resources. The findings further reiterate the need for firms to not only hire skilled professionals but to also encourage them to set up investment teams within their various business units. The role of these teams should include; continuous evaluation of project risk and return, utilization of technological innovations to improve operational efficiency and adoption of data driven decision making

policies. The study emphasizes the importance of isolating individual managerial ability from the general firm efficiency level and the contribution of these specific managerial ability on the quality of firm investment efficiency.

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

1.0 Introduction and motivation

In this study, we examine whether managerial ability has any significant association with investment efficiency. Management Ability (MA) refers to the efficiency with which management teams transform labor, capital, and innovative assets into revenues (Cox, 2017). This transformation of resources enables managers to accurately project their firm performance. Managerial ability can further be augmented by the level of managerial work experience and the level of strategic skills that managerial teams possess, especially when it comes to budgeting and optimization of capital expenditures (Demerjian et al., 2013). Accordingly, managers with high ability tend to realize higher returns on investments compared to managers with low ability. The former have a better understanding of running their businesses compared to their counterparts (Luo & Zhou, 2017).

We note that managers' exercise delegated authority on behalf of investors. They, therefore, have a big say when it comes to discretionary firm choices on acquisitions and capital investments (Schoar & Bertrand, 2003). Consequently, firms with knowledgeable executives have a high likelihood of investing efficiently compared to those with less knowledgeable managers. Managers with high ability tend to uphold both financial transparency and CG controls unlike low ability managers (Khurana et al., 2018). High managerial ability, therefore, positively influences a firm's operational efficiency and increases the quality of voluntary disclosures (Luo & Zhou, 2017). As a result, the need for higher managerial ability has gained traction recently, with most firms embracing managerial training initiatives to align individual managerial goals with strategic corporate goals. This underscores the fundamental role that managerial ability plays in investment efficiency choices.

Previous studies have operationalized managerial ability as the divergence of manager-specific ability from firm efficiency. Demerjian et al. (2013) developed a two-step model using data envelopment analysis (DEA) for measuring managerial ability. The first step estimates the firm efficiency score as the quotient of sales on the sum of property, plant and equipment, net operating leases, other intangible assets, goodwill, research and development costs, general administrative costs, and cost of sales. Secondly, managerial ability is estimated from the firm efficiency score determined in step one by regressing firm efficiency with six firm characteristics namely: market share, size, age, cash flow availability, presence of foreign operations and business segment reporting (Demerjian et al., 2013). Managerial ability is finally determined by the residual from the regression formulated in the second step. This study adopted the Demerjian model given that it has dependable empirical evidence to be used in measuring managerial ability.

Investment efficiency refers to the rate of transforming a dollar's worth of investment into positive 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. 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.

Research Problem

Managers enjoy the privilege of making discretional decision with regards to what, when and where to disclose certain information. With this ability, managers play a big role in determining the direction and trajectory of their firms when it comes to investment policies and decisions. Shareholders on the other hand are inclined more towards firms with a guaranteed and sustainable return on investment through dividend payments. Whereas managers have access to operational information, shareholders can only rely on published information. This flexibility on the part of management when it comes to investment decisions is further entrenched within various accounting frameworks like IFRS thus exacerbating the agency conflict between shareholders and manager (Elberry & Hussainey, 2020).

In theory, firms with highly skilled managers are associated with efficient investments unlike those with low skilled managers given their broad understanding of both macro and micro environment factors that might affect their investment efficiency (Khurana et al., 2018). On the other hand, firms with highly skilled managers have been found to overinvest. Their relentless pursuit of supernormal profits has made them to overlook investment efficiencies in their daily operations. In the long run, such investment strategy has negated investor wealth and as such negatively impacted the effectiveness of shareholder investment decision making. Empirical findings on the subject are highly divergent. Some scholars argue that the higher the managerial ability the higher

the level of firm investment efficiency (Luo & Zhou, 2017) whereas others argue that the higher the level of managerial ability the lower the level of investment efficiency (Habib and Hasan 2017).

Despite the high number of regulations meant to safeguard shareholders' wealth, cases of corporate failures have been on the rise both locally and internationally. In Kenya, listed firms operate under competitive and dynamic markets environments characterized by limited financial resources and high affinity for profits. These operational demands have forced most of them to overinvest and compromising on their investment efficiency. Kenya has reported an upsurge in cases of corporate collapses resulting from inefficient investments. In all these cases, firms engaging in inefficient investments manipulate their actual performance in the short run as a stop gap measure but end up under statutory management in the long run. These cases have elicited interests among academics and regulators with most analyst 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 managerial ability and investment efficiency exists and if so, how stakeholders who rely on disclosures for decision making can detect and mitigate their exposures well in advance.

The above highlighted inconsistencies in findings could be attributed to the possibility that the relationship between managerial ability and investment efficiency may be moderated by other variables like corporate governance. Most extant studies examined the direct link between managerial ability and investment efficiency while ignoring other moderating variables which have a direct effect on the relationship. Conflicting research findings on the study area can also be attributed to methodological differences adopted by related studies. Some studies adopted Richardson model in measuring investment efficiency (Habib, 2017) whereas others adopted project level announcements which were highly subjective (Chen et al., 2017). Most studies also did not consider small firms which is limiting since the aggregate contribution of such firms in emerging economies is greater than those of big firms. The study therefore sought to deal with the highlighted methodological gaps by adopting a larger sample size and by considering both small and big firms.

Contextually, related studies have primarily been domiciled in developed markets with none in frontier sub-Saharan African markets looking at the association between managerial ability and investment efficiency. This study therefore sought to consider Kenya, a frontier economy in East Africa. The country has been characterized by inefficient investment strategies. This study was motivated by the highlighted contextual, conceptual and methodological research gaps and looked for empirical solutions to the questions as to whether there exists a relationship between managerial ability and investment efficiency.

Research Objectives

The general objective of this research was to determine the relationship between managerial ability and investment efficiency among listed firms in Kenya.

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2.0 Theoretical Review

Stewardship Theory

This theory was developed by Donaldson(1990) and sought to highlight the important role that managers play in firm performance and disclosures. It argues that managers should act as stewards of their stakeholders by aligning their interests with those of their principals and maximizing shareholders' wealth through high firm performance and quality disclosures. It further requires managers to be accountable when disclosing information to investors. These disclosures might be in the form of reports on efficient resource utilization, financial performance and financial forecasts. In this regard, managers play an integral part in firm efficiencies as their individual performance is linked to the overall firm performance. Firms with high ability managers and efficient governance structures have the capacity and capability to be better stewards of organizational resources than those with low ability managers. Such managers tend to be efficient at converting resources at their disposal into profitable sales and are likely to have high disclosure quality.

The stewardship 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 firms with high quality disclosures tend to build trust with their stakeholders. They do so by giving the impression of responsibility in managing their company's resources and making rational investment decisions with the stakeholders' interests at heart. The theory also suggests that firms can only make efficient investment decisions with a guaranteed sustainable return when they align their interests with those of their stakeholders and focus on long-term value creation rather than short-term benefits. The theory also informs the adoption of the Demerjian et al.(2013) model of measuring managerial ability as a function of firm output represented by sales and seven firm inputs including property, plant and equipment, leases, goodwill, research and development costs, tangible assets, COGS, and administration costs. This model clearly distinguishes managerial ability from firm efficiency in line with the theory by acknowledging the distinctive role played by managers outside of their firms' traits. This theory, therefore, helps in formulating the research hypothesis that managerial ability influences disclosure quality by hypothesizing a correlation between the two. It argues that managers, being stewards, have the moral responsibility of issuing quality disclosures and that firms with high managerial ability tend to have high disclosure quality. By adopting this theory, Kribat et al.(2013) argue that managers use disclosures as a means of fulfilling their stewardship responsibilities and that if a party has a right to information, then the other party should have a duty to disclose that information.

The main criticism of this theory is that it assumes that the interests and behaviors of managers are static and automatically aligned with those of investors, which is not always the case. It also assumes that parties have full access rights to company information, yet most stakeholders only have basic access rights to published company information (Gray et al., 2009). Despite the above-highlighted criticism, the theory is useful in explaining the relationship between the study variables. To address the criticism highlighted above, this study adopted panel data analysis with data collected over a ten-year period and managerial ability determined over the same ten-year

period. Managerial ability was also separated from the general firm efficiency level in a bid to test whether there was congruence between the two. Subsequent modifications that addressed this theory's shortfall included stakeholder theory and agency theory, which relax the assumption of goal congruence.

Capital Rationing Theory

The capital rationing theory was developed by Weingartner (1977) and highlights the role that adverse selection plays in investment efficiency, managerial ability, and disclosure quality by arguing that a firm facing either internal or external financial constraint will tend to ration its capital allocation on available projects thus underinvesting and affecting its overall investment efficiency. This theory assumes that managers should always strive at maximizing their firm value by adopting investment decisions that yield high returns on investment and by evaluating their available investment opportunities and minimizing their risks. The effectiveness of such rationing decisions depends on the level of managerial ability of the firm since suchlike decisions are at managerial discretion. The higher the managerial ability, the more effective the capital rationing decision. The theory further postulates a correlation between the availability of sufficient free cash flows and investment efficiency by stating that firms with sufficient free cash flows tend to invest efficiently compared to those with insufficient resources. Such firms do not depend on external financing to invest and thus can mitigate investors' capital rationing tendencies which lead to investment inefficiencies. The sensitivity of investment to free cash flow, therefore, determines the level of investment efficiency.

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 accurate and reliable information while making informed investment decisions. Firms with high disclosure quality tend to have more credibility in the eyes of stakeholders and can easily access capital and make efficient investments. This theory also informs the adoption of the Richardson(2006) model of measuring investment efficiency as a function of total investment, free cash flows and growth opportunity. The theory further conceptualizes investment efficiency to be affected by factors that determine information asymmetry levels between investors and managers both at the firm and market levels. Disclosure quality is one of the factors that play a critical role in investment efficiency. This theory, therefore, helps in formulating the research hypothesis that investment efficiency, managerial ability, and corporate governance influence disclosure quality. By adopting this theory in their study, Biddle & Hilary (2006) argue that high disclosure quality reduces information asymmetry, decreasing investment cash flow sensitivity through the allocation of more funds to projects with higher Net Present Value.

The main criticism of this theory is that its suggestion of predetermined risk and return investment criteria may create conflict between managers and shareholders. This is because the predetermined investment criteria advocate for the prioritization of projects that directly benefit managers at the expense of those aimed at maximizing shareholder value in the long run (Povel&Raith, 2001; Dasgupta & Sengupta, 2003). Despite the above highlighted criticism, the theory is useful in explaining the framework for allocating limited financial resources amidst competing investment

opportunities. To address the limitation of this theory, this study relied on the strength of the stewardship theory in aligning managerial interest and investor interest.

Empirical Literature Review

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

Managerial Ability and Investment Efficiency

Gan (2015) investigated CEO managerial ability impact on investment efficiency and disclosure quality in mergers and acquisitions. Specifically, the study examined whether higher managerial ability is associated with higher investment efficiency and higher disclosure quality. The study adopted the Demerjian et al.(2013) model to estimate managerial ability and established that managerial ability can improve investment efficiency only to a certain extent and is dependent on the likelihood of under or over-investment. Furthermore, the study established that firms managed by more capable CEOs had high disclosure quality compared to those with less able CEOs. Overall, thestudy suggested that managerial ability significantly increases both investment efficiency and disclosure quality. The study's limitation was that it only considered large companies and may not be generalizable to small firms. The study, however, links managerial ability to the efficiency of converting corporate resources into revenue and suggested that future research ought to consider investigating the moderating effects of corporate governance on the connection between managerial ability and disclosure quality.

Bamber et al. (2010) did a study on the influence of top managers on voluntary corporate financial disclosures for a sample of non-financial firms listed in the USA between 1995 and 2005 accounting for 303 observations. Data was analyzed using the general least square regression on the study variables. Financial disclosure was measured by earnings forecast attributes like precision, frequency, and accuracy whereas managerial ability was measured by manager qualifications and experience. The study established a positive relationship between managerial ability and corporate financial disclosure. The study's limitation was that its measure of managerial ability was highly subjective and prone to bias and other measurement errors. The study, however, highlighted the critical role that managerial ability plays in voluntary corporate disclosures and suggested that future research should consider exploring whether disclosure policies vary systematically with managerial ability.

Demerjian et al., (2013) did a study on the relationship between managerial ability and earnings quality for a sample of non-financial firms listed in the USA between 1989 and 2009. Data was analyzed using the Tobit regression model on the study variables. Managerial ability was measured using a model which purges specific managerial attributes from firm efficiency. Earnings quality on the other hand was measured by the existence of earnings restatements, persistence of earnings, errors in bad debt provisions and variance between accruals and cash flows. The study established a positive relationship between managerial ability and earnings quality. The study's limitation was that its proxy variables for earnings quality were relatively ambiguous and highly correlated. In addition, the study did not look at the causal relationship between the variables. The study, however, suggested that future research should consider exploring the moderating effect of infrastructural choices on the relationship between managerial ability and earnings quality.

Luo and Zhou, 2017did a study on the effect of managerial ability on the tone of earnings announcements and the market response to the tone for a sample of non-financial firms listed in the USA between 1994 and 2011. Data was analyzed using the fixed ordinary least square regression on the study variables. Managerial ability was measured using the Demerjian et al., (2013) model which purges managerial ability from firm-specific ability. The tone of earnings announcement, on the other hand, was measured by the spread in the proportion of positive and negative words. The study established a positive relationship between managerial ability and positive tone in earnings management. The study also showed board independence, board size, gender diversity, firm size, and firm performance to be positively related to investment efficiency. The study's limitation was that it only considered large companies and may not be generalizable to small firms. The study, however, linked the tone of earning announcement to the efficiency of converting corporate resources into revenue and suggested that future research should consider exploring corporate governance as a moderating variable to the relationship.

Francis et al., (2008) did a study on the relationship between CEO reputation and earnings quality for a sample of non-financial firms listed in the USA between 1992 to 2001. Data was analyzed using ordinary least square regression on the study variables. CEO reputation was measured by the number of press coverage containing the CEO's name and company affiliation. Earnings quality on the other hand was measured by accrual quality as measured by the Dechow and Dichev (2000) model that regresses working capital accruals on cash flow from operations. The study established a negative relationship between CEO reputation and earnings quality. The study's limitation was that its proxy variables for CEO reputation were highly subjective and susceptible to bias. The study, however, suggested that future research should consider exploring the relationship between CEO reputation and investment efficiency.

Habib and Hasan (2017) examined the impact of managerial ability on the relationship between disclosure quality and investment efficiency. The study adopted the Demerjian et al.(2013) model in estimating managerial ability. The study documented that managers with high ability were bound to over-invest unlike those with low ability. The study measured disclosure quality using a composite score of the quality of both non-financial and financial disclosures. Investment efficiency, on the other hand, was determined using the ratio of capital expenditure to cash flow from operations. In general, the study provided evidence that supported the fact that managerial ability affects the relationship between investment efficiency and disclosure quality. The study's limitation was that it did not consider other variables that might affect the direct relationship between investment efficiency and disclosure quality. To this end, this study seeks to address this limitation by investigating the moderating role of corporate governance and firm-specific characteristics on the relationship. The study, however, highlighted the critical role that managerial ability plays in policy formulation.

Chen and Chen (2019) performed a study on the link between managerial ability, corporate environmental financial disclosure quality and investment efficiency for a sample of non-financial firms listed in the USA for the financial years 1994-2013. Data was analyzed using the general least square regression. Managerial ability was measured using the Demerjian et al. (2013) model which purges specific manager attributes from the general firm efficiency. Environmental financial disclosure, on the other hand, was measured by environmental capital expenditure projection errors. The study highlighted the critical role that managerial ability plays in policy formulation

and found that firms with higher managerial ability had higher investment efficiency and higher disclosure quality. The study's limitation was that it only considered publicly traded companies in the USA, hence affecting its generalization in other jurisdictions outside the USA. Furthermore, managerial ability was not considered as a mediating variable between investment efficiency and disclosure quality. To this end, this study seeks to address the highlighted limitation by expanding the contextual scope of the study to developing countries.

Summary of Literature Review and Research Gaps

Empirical studies on the link between managerial ability and investment efficiency generated mixed and conflicting results with no clear causal link between 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 were evident via divergence in operationalization of the research problem. Most studies only looked at the direct relationship between managerial ability and investment efficiency 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 managerial ability and investment efficiency. Variations in sample sizes and variation in data collection and data analysis techniques accounted for the lack of consensus in the findings. The use of different methodologies also led to lack of consensus on the research findings with most related studies adopting smaller sample sizes which led to higher margin of errors. Findings on the subject could have therefore been different if lager 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 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.

Contextual, 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. A research gap on the determination of the relationship between managerial ability and investment efficiency in frontier economies particularly in Kenya therefore exists. The above highlighted gaps have shown that studies on the association between managerial ability and investment efficiency still have various grey research areas lacking empirically consensus. Table 1 highlight some of the research gaps.

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Table 1: Summary of Literature and Knowledge Gaps

Author	Context and study Focus	Methodology	Key Results	Research Gaps	Current Study
Luo and Zhou (2017)	Managerial ability effect on earnings announcements tone.	Fixed ordinary least square regression.	They established a positive correlation between MA and positive earnings announcement tone.	-The study inferred tone in earnings announcement to represent DQ. This proxy was highly subjective.	-This study will use quantifiable models, which are devoid of bias and subjectivity when measuring disclosure quality.
Chen and Chen (2019)	Relationship between MA and quality of corporate environmental financial disclosures.	General least square regression	They found a positive relationship between MA and the quality of corporate environmental finance disclosures.	-The study was limited to only publicly traded firms in the USA.	-The scope of this study will be extended to a developing country (Kenya) hence improving the generalizability of the findings.
Bamber et al. 2010	The influence of top managers on voluntary corporate financial disclosures.	General least square regression	They found a positive relationship between MA and corporate financial disclosures.	-The study's proxies for MA were highly subjective and prone to measurement errors.	-The researcher will measure managerial ability using the Demerjian (2013) model, which has been proven to be objective and effective.
Gan (2015)	Relationship between CEO MA, IE, and value of cash.	Multivariate regression.	They found a positive correlation between CEO MA, IE, and cash value.	-The study only considered large companies in the USA.	-This study will consider both large and small firms in Kenya.
Habib (2017)	Relationship between MA, investment efficiency and FRQ.	Ordinary least square regression.	They found a negative link between MA, investment efficiency and financial reporting quality.	-The study's proxies for MA and FRQ were prone to inherent measurement errors.	-This study contextually brings in other variables used in the Demerjian (2013) model which have been proven to be objective and effective.

Source: Researcher 2023

Control Variables

The study included firm characteristics as a control variable in addition to the dependent and independent variables. Previous studies have used firm profitability, leverage and firm size as proxy variables for firm characteristics. These studies established positive relationships between firm performance, liquidity, firm size and disclosure quality.

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Conceptual Framework and Research Hypothesis

Conceptual Framework

The adopted conceptual framework depicts the anticipated connection between managerial ability (independent variable) and Investment Efficiency (dependent variable) as conceptualized by stewardship theory and capital rationing theory. The model further and controls for firm profitability, firm leverage and firm size.

Hypothesis one shows the expected positive relationship between managerial ability and investment efficiency. This is premised on the expectation that firms with high MA tend to adopt efficient investment strategies and tend to be transparent in their investment disclosures as hypothesized by the stewardship theory.

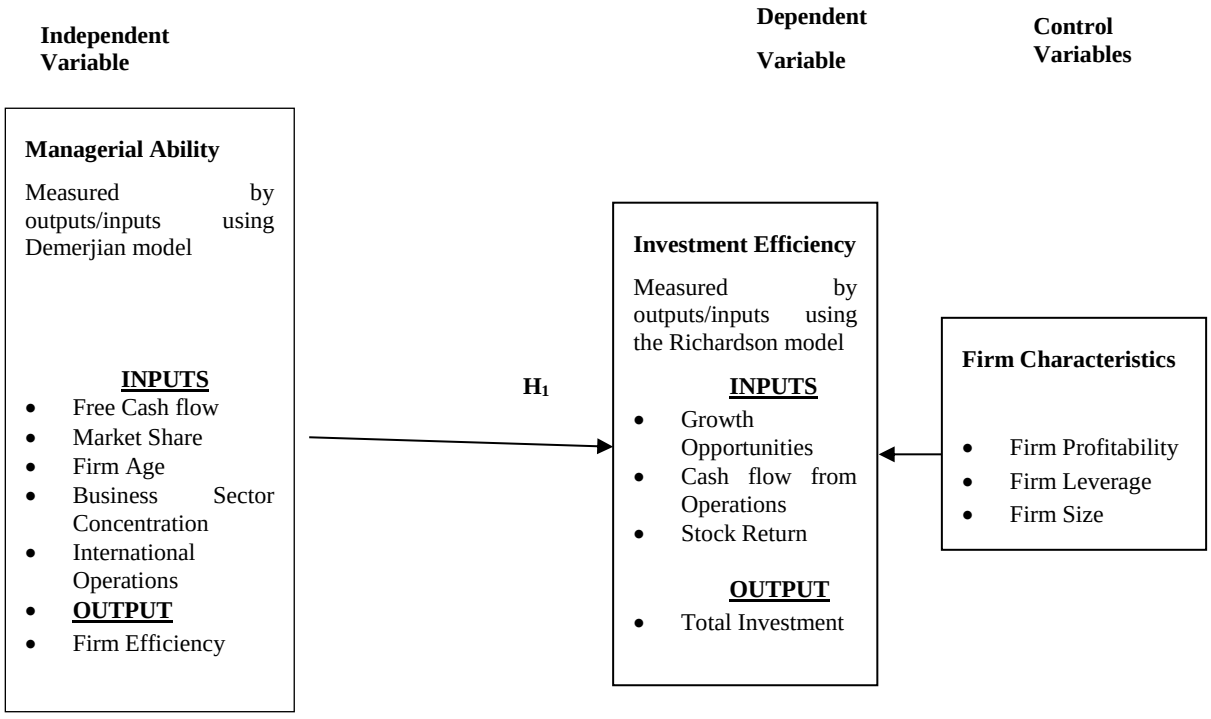

Figure 1: Conceptual Framework

Source: Researcher 2022

Research Hypothesis

Ho_1: There is no significant relationship between managerial ability and investment efficiency among firms listed at the Nairobi Securities Exchange.

3.0 Methodology and data

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).

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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.

Managerial ability was to be the independent variable and was measured using Demerjian et al. (2013) model which estimates firm efficiency through data envelopment analysis. The model removes firm explicit attributes inside the efficiency DEA score to attain residual estimation accredited only to the executives individually. Firm efficiency was first to be estimated by solving a DEA optimization model which had the output as sales and seven inputs; net operating lease, net R&D, other tangible asset, goodwill purchased, inventory cost and general, administrative, and selling or distribution expenses. Step two involved approximating MA by regressing firm efficiency with size of a firm, share of market, cash availability, age of a firm, concentration of business sector and international operations. The following regression equation was to be used in determining the main effect.

$$DQ_{i,t} = \beta_0 + \beta_1 IE + \beta_2 MA + \boldsymbol{\varepsilon_i} \quad \ldots\ldots\ldots (1)$$

Where: $DQ_{i,t}$, β_0, β_1, IE and ε_i

MA = The residual of regressing firm efficiency with market share, firm size, firm age, cash availability, foreign operations, and business sector concentration.

$$FE = \text{Max}\left(\frac{Sales}{PPE + \text{Operating Lease} + R\ and\ D + \text{Goodwill} + \text{OTA} + COGS + SGA}\right)$$

Where: FE =Firm efficiency

R and D=Research and development costs

OTA =Other tangible assets

COGS =Cost of goods sold

SGA =Selling& distribution, general and administrative expenses.

$$FE_{i,t}=\beta_0+\beta_1(FS)+\beta_2(MS)+\beta_3(FCFO)+\beta_4(AGE)+\beta_5(BSC)+\beta_6(FO)+\varepsilon_i \ldots\ldots\ldots (2)$$

Where: FE =Firm efficiency

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FS =Firm size

MS =Market share

FCFO =Free cash flows

BSC =Business segment concentration

FO =Foreign operations

ε_i =Residual proxying managerial ability (MA)

Investment efficiency was to be the dependent variable and was to be measured by deviation from expected investment level as measured by the residual from regressing total investment on growth opportunity, cash flow from operations, leverage, stock return, firm age, and firm size and in line with Richardson (2006) model. Pearson correlation analysis and goodness of fit test was 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 was to be used to test hypothesis one of the studies.

$$INVE = \tilde{\alpha}_0 + \tilde{\alpha}_1(Q_{i,t-1}) + \tilde{\alpha}_2(CFO_{i,t-1}) + \tilde{\alpha}_3(LEV_{i,t-1}) + \tilde{\alpha}_4(RET_{i,t-1}) + \tilde{\alpha}_5(AGE_{i,t-1}) + \tilde{\alpha}_6(SIZE_{i,t-1}) + \tilde{\alpha}_7(INV_{i,t-1}) + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

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

4.0 Data Analysis, Findings and Discussions

Correlation Analysis

The research made use of Pearson's correlation coefficient to assess the degree of correlation between managerial ability and investment efficiency 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 Managerial Ability and Investment Efficiency

The Pearson product coefficient value was used to assess the association between managerial ability (measured using Demerjian model) and investment efficiency (measured using the Richardson model), as shown in Table 2. The information in the table below demonstrates that managerial ability and investment efficiency are negatively correlated.

Table 2: Correlation between Managerial Ability and Investment Efficiency

Correlations			
		Managerial Ability	**Investment Efficiency**
Managerial Ability	Pearson Correlation	1	-0.171

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

Source: Author (2023)

Hypothesis testing and Discussion of findings

The study sought to establish the link between managerial ability and investment efficiency among listed firms in Kenya. The study discovered a significantly negative link between managerial ability and investment efficiency among listed firms in Kenya while controlling for firm size, leverage and profitability. This was contrary to what was stated in the null hypothesis. Managerial ability was operationalized using Demerjian model. Firm efficiency was first determined by optimizing the data envelopment analysis problem of sales (output) and seven inputs: other intangible assets, PPE, research and development costs, net operating lease, goodwill, general administrative costs, and cost of sales. Managerial ability was thereafter determined by regressing the predicted firm efficiency score with six firm features: firm size, free cash flow, firm age, market share, business sector concentration and international operations. 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.

Panel data fixed effect regression model 4 was utilized in testing hypothesis one and to find out whether or not there was a significant relationship between managerial ability and investment efficiency among listed firms in Kenya after controlling for firm size, leverage, and profitability. The null hypothesis was as follows.

Ho_1: There is no significant relationship between managerial ability and investment efficiency among firms listed at the Nairobi Securities Exchange.

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The result of the regression model 5.1 is summarized in Table 2.

$$IE_{i,t} = \beta_0 + \beta_1 MA_{it} + \beta_2 FS_{it} + \beta_3 LEV_{it} + \beta_4 PROF_{it} + \varepsilon_{it} \quad \ldots\ldots (4)$$

Fixed-effects (within) regression — Number of obs = 702
Group variable: Company — Number of groups = 56

R-sq:
within = 0.6448
between = 0.5376
overall = 0.5617

Obs per group:
min = 7
avg = 12.5
max = 13

F (6,640) = 193.61
corr(u_i, Xb) = -0.3997 — Prob > F = 0.0000

Constant	-0.328	0.342	0.960	0.338
Investment Efficiency	0.017	0.001	3.190	0.001
Managerial Ability	-0.054	0.109	-0.500	0.047
IE*MA	0.003	0.005	0.530	0.038
Firm Size	0.029	0.034	0.850	0.395
Leverage	-0.042	0.024	-1.760	0.079
Profitability	1.028	0.036	28.510	0.000
Sigma_u	0.119			
Sigma_e	0.183			
rho	0.297			

F test that all u_i=0: F (55, 640) = 3.46

Source: Author (2023)

Table 2 demonstrates that there was a negative significant link between managerial ability and investment efficiency, with a coefficient of -0.0054 and $P < 0.05$. The link between firm size and investment efficiency was positive but not significant with a 0.029 coefficient and $P > 0.05$. The link between leverage and investment efficiency was negative though insignificant with -0.041 coefficient and $P > 0.05$. Moreover, the connection between profitability and investment efficiency 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. The above results imply that managerial ability had a statistically significant negative relationship with disclosure quality while the interaction term had a statistically significant positive relationship with disclosure quality. The following linear regression model was thus formulated.

$$DQ_{i,t} = -0.328 + 0.017IE_{it} - 0.054MA_{it} + 0.003(IE * MA)_{it} + 0.029FS_{it} - 0.042LEV_{it} + 1.028PROF_{it}$$

Results from Table 2 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 managerial ability and investment. By rejecting the null hypothesis (Ho1), it was

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discovered that there was a substantial negative link between managerial ability and investment efficiency among Kenyan listed firms.

5.0 Discussion of Findings

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

Conclusions from the research however showed the existence of a statistically significant negative relationship between managerial ability and investment efficiency. This finding was consistent with Habib and Hasan (2017) who investigated the impact of managerial ability on firm-level investment efficiency and the joint effect of managerial ability and disclosure quality on stock price crash risk. The findings however contradicted Gan (2015) who established a positive moderating effect of managerial ability on the connection between investment efficiency and disclosure quality.

The finding implies that managers have a direct effect on their firm choices with regards to capital expenditures, research and development and acquisitions. In Kenya, firms with skillful and efficient managers were found to have higher tendency of over-investment compared to low ability managers. On the other hand, more capable managers were found to be more knowledgeable of their existing macro and micro economic conditions. This further means that listed firms in Kenya with high ability managers are faced with a systemic problem of over-investments. To manage this exposure, firms should endeavor to not only employ higher ability managers but to continuously improve their manager's project management and investment capacities through targeted training. Through such capacity building initiatives, listed firms will be able to investment efficiently thus improving the monitoring and evaluation of managerial key performance indicators. This will further discourage managers from adopting creative accounting strategies that could lower their firm's disclosure quality and negatively affect their shareholder's wealth.

The overall model returned a statistically significant affiliation between managerial ability and disclosure quality while controlling for firm size, leverage and profitability. From this result, the null hypothesis was rejected inferring that managerial ability had a significant effect on investment efficiency. The model was therefore formulated as:

$$DQ_{i,t} = -0.328 + 0.017IE_{it} + 0.054MA_{it} - 0.003(IE * MA)_{it} + 0.029FS_{it} - 0.042LEV_{it} + 1.028PROF_{it}$$

Findings from Table 2 affirm the existence of a statistically significant negative connection between managerial ability and investment efficiency. A possible explanation for this finding is that the need for managers to meet or even exceed their key performance indicators forces most of them to overinvest and to manage their earnings hence negating their investment efficiency.

The finding that managerial ability possess statistically significant impact on investment efficiency is in line with proposition of the stewardship theory. Stewardship theory argues that managers

should act as stewards of investors by maximizing and protecting shareholder's wealth through high firm performance. The theory further places the honors on managers to be accountable when disclosing information to investors. Consequently, firms with higher managerial ability are likely to meet their key performance indicators (investment efficiency) and will therefore take necessary steps to convince their shareholders and other external stakeholders that their investments are in good hands and that the wealth generation power of their firms is sustainable in the long run.

6.0 Conclusion

This research sought to establish the relationship between managerial ability and investment efficiency among listed firms in Kenya. The study was anchored on Stewardship theory and capital rationing theory. The research utilized positivistic research philosophy given that it tested the 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 null hypothesis (Ho_1) rejection implied that a significant link existed between managerial ability and investment efficiency. This implies firms with experienced and skilled managers were more likely to overinvest compared with those with low skilled managers. Firms with more capable managers were also found to be more knowledgeable with regards to their existing macro and micro economic conditions unlike those with less capable managers. Such firms therefore ought to use this inherent knowledge in making data driven efficient capital expenditure investment choices and in forecasting their future performance through accurate accruals and provisions.

To manage the systemic exposure of overinvestment, firms should endeavor to not only employ skilled and experienced managers but should continuously improve their manager's project management and disclosure skills and investment capacities through targeted training. Through such capacity building initiatives, listed firms will be able to keep up with best practices by investing efficiently thus improving the monitoring and evaluation of managerial key performance indicators. This will further discourage managers from adopting creative accounting strategies that could lower their firm's disclosure quality and negatively affect their shareholder's wealth. Firms should also encourage their managers to improve their skills by joining professional bodies like ICPAK and ICIFA and by actively participating in training workshops on investment and financial disclosures.

Contribution to Knowledge

Conclusions from this study contributed to the current body of knowledge on managerial ability and investment efficiency. The contribution of this study is that managerial ability influences investment efficiency after controlling for firm profitability, leverage and firm size. Currently, no documented evidence on the relationship between the above variables exists in Kenya. This research conclusion will therefore be benchmarked for future empirical and theoretical foundations of related studies. This study showed that managerial ability affects disclosure quality.

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Contribution to Policy and Practice

This study will help management teams in recognizing the important role that they play on their firm's investment efficiency. The fact that managers with high ability were found to be more likely to over-invest could be an indicator that employing skilled managers does not guarantee efficient investment practices and that there could be a need to relook at the other factors that might complement managerial skills. Firms should strive to adopt a 360 degrees plan for improving their investment efficiency by not only hiring and retaining more capable and qualified managers but also encouraging their management to set up investment teams within their various business units. These teams should continuously evaluate their project risk and return, utilize technological innovations to improve operational efficiency and adopt data-driven decision-making policies. Firms should also provide their managers with continuance training platforms aimed at building their capacity and improving their skills and efficiencies. The study further recommends that managers set precise investment goals and implement comprehensive strategic plans on how to efficiently allocate resources. Firms should also provide their managers with continuance training platforms through enrolment in professional bodies like ICPAK and ICIFA aim of building their capacity and improving their skills.

Regulators like the Capital Market Authority and the Kenya Revenue Authority will benefit from this research especially when issuing prudent and effective rules on investment efficiency. To encourage firms with high investment efficiency, local authorities should consider providing them with more tax exemptions and subsidies.

Conclusions from this research will also help in the development of local accounting standards on investment efficiency and managerial ability. 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 improve their managerial ability. These findings can further be used in future development of international financial reporting standards which are aimed at enhancing corporate investment efficiency.

Contribution to Theory

This study contributes to literature on stewardship theory. The theory argues that managers should act as stewards of investors by maximizing and protecting shareholders' wealth through high firm performance and quality disclosures. It further places the honors on managers to be accountable when disclosing information to investors. The findings that managerial ability affected the level of investment efficiency further supports this proposition. This finding further affirms the theory's preposition that individual managerial performance is linked to the overall firm performance and that more competent and better skilled managers are more likely to invest efficiently compared to less skilled managers. The study addressed the theory's main criticism of the assumption that managerial behavior is static and automatically aligned with those of investors by excluding the general static firm efficiency in its managerial ability model. The criticism of a static managerial ability was addressed through fixed effect panel data determination of managerial ability score between 2008 to 2021.

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This study contributes to literature on Capital rationing theory. The theory argues that a firm facing either internal or external financial constraint tend to ration its capital allocation on available projects thus underinvesting and affecting its IE. The effectiveness of such rationing decisions depends on the level of MA that a firm has since these decisions are based on managerial discretions. This study found that firms with improved ability to raise equity had lower tendencies of rationing capital allocations on available projects. Such firms had the latitude of investing in long-term capital-intensive projects whose return were likely to be positive in the long run thus supporting the proposition of the capital rationing theory. This new latitude further reduces their incentive to manipulate financial performance in the short run by mitigating the adverse selection problem which occurs when firms avoid investment in long term projects and prefer short term projects whose returns are short lived. The study addressed the theory's main criticism that higher investment cash flow sensitivities only point to higher deviations from optimal investments thereby not providing evidence as to whether a firm is under or over investing. It did so by determining the actual investment efficiency score and determining whether a firm is under or over investing.

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 websites and 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.

The study also analyzed the relationship of only two variables which included managerial ability and investment efficiency. The adoption of these variables was mainly informed by previous studies and existing investment and disclosure quality theories. This could however be limiting given that there might be other variables that could significantly affect disclosure quality.

Suggestions for Future Research

Future studies could contemplate further intervening and moderating variables. Other qualitative proxy variables for managerial ability such as decision making skills, leadership style and managerial qualifications could also be considered in future studies.

This study focused on listed firms in Kenya. Future studies could broaden their target population to include other firms not listed on the security markets. This broadened scope could further improve the reliability and acceptability of their findings given that managerial ability and investment efficiency cuts across all firms regardless of whether they are listed or not.

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