

Does Earnings Quality Affect Investment Efficiency? Evidence from Listed Firms in the Nairobi Securities Exchange of Kenya



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ABSTRACT

Aim/purpose – This paper aims at examining the impact of earnings quality on investment efficiency.

The motivating factor is occasioned by poor financial reporting quality standards, higher costs of investment that characterize most developing countries and in particular Kenya where agency problems and insufficient information sent to the public by managers are rather severe and likely to lead to inefficient investment.

Design/methodology/approach – This study uses a sample of 28 Non financial firms listed in the Nairobi Securities Exchange and data for the period 2010-2020. Data was analyzed through fixed effects regression analysis.

Findings – The study finds a positive link between earnings quality and investment efficiency of firms listed in the Nairobi Securities Exchange. Specifically, high earnings quality increases investment efficiency and improves investment project selection by reducing information asymmetry between managers and shareholders.

Research implications – Based on the results, the study recommends that since earnings quality enhances investment efficiency, firms need to strengthen internal mechanisms and increase earnings quality. Besides, corporate shareholders should pay more attention to the earnings quality to gain more return on their investment opportunities. Further, it is necessary for shareholders to continuously monitor the firm's activities and prevent adverse activities from harming their interests.

INTRODUCTION

Formulating efficient investment strategies for the firm comprises one of the most important decisions for company survival and growth especially in the contemporary risky scenario after the global turmoil (Gupta *et al.*, 2012). Investment efficiency makes firms undefeatable in markets with fierce competitions (Lina, 2018), but in real economy, due to asymmetric information and agency conflict, the inefficient investment phenomena of over investment and under investment are inevitable (Shen *et al.*, 2015; Levine *et al.*, 2013). (Chen *et al.*, 2017) define investment efficiency as projects with a positive net present value in a scenario of conflict of interest in the market, such as adverse selection and agency costs. Hodgson *et al.*, (2010) define investment efficiency as a function of the risk, return and total cost of investment management, subject to the constraints within which investors must operate. These constraints include financial elements and non-financial elements, such as an investor's time available to manage the investment arrangements, accountability as a fiduciary or legislative requirement.

Following earlier literature (Chen *et al.*, 2011) and (Cheng *et al.*, 2013) define investment efficiency as expected level of investment which is measured as predicted investment level based on sales growth opportunities. A positive deviation from expected level i.e. investment higher than predicted level is considered as overinvestment and negative deviation from expected level i.e. investment lower than predicted level is regarded as underinvestment while both (i.e. overinvestment and underinvestment) constitute inefficient investment. Similarly, Urwin (2011) states that investment efficiency is a function of the risk, return and total cost of investment management, subject to the constraints within which investors must operate. The emphasis of investment efficiency for listed companies is important for decision making of investors so that they can recognize the risk posed by company managers early enough (Virlics, 2013). Managers maximizing their personal welfares are sometimes inclined to make investments that are not in the best interests of shareholders (Jensen and Meckling, 1976). Managers will invest in negative net present value projects when there is divergence in principal-agent incentives. Moral hazard can lead to either over- or under-investment depending on the availability of capital (Biddle, 2009). Thus, the study on investment efficiency within listed firms has drawn considerable attention of researchers over the years due to its importance in finance (Ren, 2016).

Models of adverse selection suggest that if managers are better informed than investors about a firm's prospects, they will try to

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time capital issuances to sell overpriced securities. If they are successful, they may over-invest these proceeds (Kiama 2013). However, investors may respond rationally by rationing capital, which may lead to ex-post under-investment. Myers and Majluf (1984) show that when managers act in favor of existing shareholders and the firm needs to raise funds to finance an existing positive net present value project, managers may refuse to raise funds at a discounted price even if that means passing up good investment opportunities. Therefore, this study adopts a definition of investment efficiency as firms with an optimal expected level of investment in a scenario of conflict of interest in the market, such as adverse selection, moral hazard and agency costs (Chen, 2013).

Earnings quality provides more information about the features of a firm's financial performance that is relevant to a specific decision (Dechow et al., 2010; Li, 2014). High financial reporting quality faithfully represents the features of a firm's fundamental earnings processes that are relevant to users of financial statements who require these statements to reflect the underlying reality of the firm to effectively aid in their decision making. If the financial statements are of low quality, then earnings are not decision useful and thus do not fulfill their most important purpose. Therefore it is of vital interest to investors, standard setters, and regulators to objectively determine firms' earnings quality (Demerjian et al., 2013; Usman, 2013).

OVERVIEW OF FIRMS LISTED AT NAIROBI SECURITIES EXCHANGE

The Capital Market Authority (CMA) has a regulatory responsibility to keep surveillance of firms listed in Nairobi Stock Exchange (NSE) with regards to investment capacity, capital, liquidity and other aspects with an overall aim of ensuring investment ability of these firms. The expectation is therefore that the firms will be financially prudent and healthy which in turn will attract investors. The recent crisis where a number of firms listed in the Nairobi Securities Exchange including stock brokers experienced investment distress is an indication that there is a missing link between surveillance and the management of these firms. If this is not rectified the public can lose interest in investing in Nairobi Stock Exchange. There is therefore a need to critically assess the investment efficiency of the listed firms and suggest ways of improving the performance of the listed firms (Ngugi, Amanja and Maana, 2009). Further study shows that foreign investment in Kenyan stocks has nosedived. In March 2023, the Nairobi Securities Exchange, recorded a six-year low of 30.1% in foreign investment, (CMA 2023). Similarly, in April 2022, foreign investors cashed out \$14.3 million, seeking other havens citing escalating global risks. This worsened the plunge in share prices of NSE-listed firms. Telecom major Safaricom, Nairobi Securities Exchange's biggest scrip by average capitalization, lost 36.4% of its value, adding to foreign investors' fears. Usual top performers like Equity Bank, Kenya Commercial Bank, and Co-operative Bank of Kenya, all recorded share price devaluation (CMA 2023). There is an increasing trend of failure of Kenyan firms such as KCC, Uchumi Supermarkets, A Baumann and Company, Bulk medical limited, Nyaga stock brokers are examples of these. The Nairobi Securities Exchange has been performing poorly in recent years. The performance of the stock market indicates that the market has not managed to make significant contribution to financing economic growth (Ngugi, Amanja and Maana, 2009). The motivation to undertake this study was provided by the information above and following the many corporate failures in the Kenyan capital market of which most have gone into receivership, only a handful of companies have managed to come out of it in sound financial health.

This study seeks to contribute to the finance literature through establishing the relationship between investment efficiency and earnings quality shading more practical implications for managers to make informed decisions especially the benefits of ensuring high earnings quality in the quest of improving their investment efficiency. Consequently, using hierarchical moderated linear regression analysis with panel data and a universal sample of 28 non-financial firms listed in Nairobi Securities Exchange, listed before 2010 and in operation until 2020, this study finds evidence that earnings quality has a significant positive effect on investment efficiency thus confirming the importance of firms having high earnings quality.

REVIEW OF THE EMPIRICAL LITERATURE

Earnings quality refers to the ability of reported earnings to predict a company's future earnings. It is an assessment criterion for how repeatable, controllable and bankable a firm's earnings are, amongst other factors, and has variously been defined as the degree to which earnings reflect underlying economic effects, are better estimates of cash flows, are conservative, or are predictable (Radzi, 2011). Earnings quality is grounded on finance theories such as Neo-classical theory of investment, agency theory and information asymmetry theory. These contemporary theories have been tested mostly to advocate possible links between earnings quality and the cost of capital charged by investors. The impact of the quality of a company's earnings on the efficiency of its investment decisions has been a recurring topic in academic literature over the past decade. Vast research shows that companies may mitigate some agency problems (such as moral hazard or adverse selection), reduce the probability of agency conflicts and enhance institutional environment by improving their earnings quality as well as overall financial reporting. Due to the reduction of information asymmetry, managers are able to make more efficient and profitable investment decisions (Gomariz

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et al., 2014).

Investors are looking for indicators to use in the analysis of investment. One of the proposed indicators in investment decision-making process is the earnings quality (Ranjbar *et al.*, 2013). Earnings quality is a broad concept that reports the stability, sustainability, and non- fluctuation of profit. Earnings quality is the degree of stability of earnings performance in future period. Fusheng *et al.*, 2015 define earnings quality as the possibility of sustainability of current earnings in the future.

According to Bahmani, (2014) a higher earnings quality reduces information asymmetry between managers and stockholders, which leads to decreased adverse selection costs, reduced external financing costs and enhanced contracts and monitoring consequently mitigating a moral hazard problem. This means that managers are now less likely to make biased decisions or engage in agency conflicts like risk shifting, empire building, risk avoidance or debt overhang. Secondly, since financial information of a higher quality is more truthful and unbiased, all the predictions, planning and valuation executed by employees will better reflect the real situation with the company and therefore be more robust.

Cherkasova (2017) used panel data and pooled OLS regression method in his study to explore the firm- level relationship between earnings quality and investment efficiency on a sample of 7546 companies from Eastern Europe for the period 2010-2015. The main results of his study suggest that higher earnings quality mitigates both over and underinvestment for the companies of industrial and retail sectors, which is consistent with prior research on the topic.

De Carvalho *et al.*, (2014) used unbalanced panel data from 958 non-financial companies listed on the stock market of seven countries in Latin America during the period 1992–2009 to analyze the relationship between earnings quality and the probability of efficient investment decisions using logistic regression model. The results indicated that the worse the earnings quality, the lower the probability of efficient investment decisions and the higher the probability of under-investments. He concluded that there is evidence that lower earning quality can increase problems caused by conflicts of interest between managers and investors of publicly traded companies in Latin America. The quality of financial information has an impact on investment decisions and that improvement in earnings quality can be a measure to try to minimize existing information asymmetry among various agents

Carvalho, *et al.*, (2017) used unbalanced panel data of 596 firms from seven Latin American countries between 1989 and 2009 to analyze whether earnings quality attributes have an effect on investment using regression models. The results support the view that earnings quality is an important factor to explain market and operational performance and aspects related to efficiency are important to determine the operational performance, but are not significant when market performance of Latin American firms are analyzed. When we model the firm's investment, the quality of accounting information appears to be a useful proxy to financial constraint. Moreover, the accounting quality plays a positive effect on investment that is much more positive for unconstrained firms.

RESEARCH MODE

The research consists of three sets of variables; the dependent variable (Investment efficiency), independent variable (earnings quality), and control variables (firm size, firm age, leverage). The hypothesis will be tested using the Moderated Panel Regression Model and the choice between fixed and random effect will be determined by the results of the Hausman test. The study econometric model is shown below; (Andrea *et al.*, 2013; Baltagi, 2008; Hsiao, 2014; Irungu *et al.*, 2018)

$$InvE_{it} = \beta_0 + \beta_1 LnSize_{it} + \beta_2 LnAge_{it} + \beta_3 Lev_{it} + \beta_5 N_{it} + \varepsilon_{it}$$

Where;

$InvE_{it}$ = Investment efficiency measured by growth in sales for firm i in year t .

N_{it} = Earnings quality measured as persistence and predictability by Future Earnings for firm i in year t .

$LnSize_{it}$ = Firm size measured by Natural Log of total value of firm assets for firm i in year t .

$LnAge_{it}$ = Age of firm measured by number of years since the firm was listed in NSE firm i in year t . β_0 = Constant

β_1 - β_8 = Coefficients of regression

ε_{it} = Error terms i = Firm 1 ,

t = Time in years form 2010-2020

DATA AND METHODOLOGY

The main objective of this study is to examine the impact of earnings quality on investment efficiency of firms listed at the Nairobi Securities Exchange. This study employs panel data drawn from the non- financial firms listed firms in Nairobi Securities Exchange in Kenya for the period 2010-2020 which yielded 308 Firm-year observations. The measurements of the research variables are illustrated in table 4.1 below.

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| Type | Variable | Measurement | Reference |
|----------------------|-----------------------|--|--|
| Dependent Variable | Investment Efficiency | sales growth | Gomariz and Bellesta, (2014) |
| Independent Variable | Earnings Quality | persistence of Future earnings | Dechow et al., (2010) |
| Control Variables | Firm size | Natural log of total value of firm assets | Kithuka 2013; Olawale et al., 2017 |
| | Firm age | Number of years since the firm was listed. | Loderer & Waelchli, 2010; Abu Bakar 2011 |
| | Leverage | Ratio of debt to total assets | Ling & Wu, (2022) |

RESULTS AND DISCUSSIONS

This section presents the findings of the study. The descriptive statistics, the correlation coefficients, and the regression results are shown in Table I, II, and III respectively.

Table I: Descriptive statistics

| Variable | Observation | Mean | Std. Dev | Min | Max |
|----------|-------------|----------|----------|----------|----------|
| IE | 308 | -0.17365 | 0.327152 | -0.66562 | 0.597814 |
| EQ | 308 | 0.190155 | 0.312202 | -0.52379 | 0.787299 |
| LEV | 308 | 0.445946 | 0.232332 | 0.026091 | 1.298882 |
| FA | 308 | 43.57468 | 13.61802 | 16 | 70 |
| FS | 308 | 15.98677 | 0.413857 | 15.15412 | 16.91955 |

Table I (above) presents a general synopsis of the panel data for the 28 non-financial firms listed at the Nairobi Securities Exchange in Kenya for the period 2010-2020. The mean investment efficiency for all the observations shows an average of -0.174 and standard deviation of 0.327, the maximum and minimum values were 0.598 and -0.666 respectively. This implies that for the 308 observations overinvestment stood at 59.7% while other firms were underinvesting thus giving a negative return on capital invested for this case -0.6656. The standard deviation also gives the picture of how Investment was fluctuating from the mean by 32.7% showing the existence of the trend movement of the investment efficiency among non-financial firms and across the years.

The variability of investment efficiency from this descriptive statistics implies that the unsteady investment of the non-financial firms is evident confirming the need for examining this trend with the aim of linking it with other constructs as suggested by the background of the study and statement of the problem.

The mean value of earning quality is 0.190 with a standard deviation of 0.312, implying a high variation in earnings quality. The table further indicates that the maximum and minimum values were 0.787 and -0.524 respectively. In brief, the data shows that earnings quality exists in nearly all non-financial firms indicated with highest earnings quality firms standing at a high of 78.7%. The mean of 0.1901552 implies that though firms have earnings quality the proportion can be close to 17% thus need to study on as suggested by Cornell and Landsman (2003). For the control variables, the statistics were as follows; leverage which was measured using ratio of debt to total assets reveal a mean average of 0.4459 (minimum= 0.0261 and maximum = 1.2988; standard deviation =0.2323), secondly, firm age which was measured by the number of years since the firm was listed revealed a mean of 43.574 firm (minimum= 16 and maximum = 70; standard deviation = 13.618). Firm size was measured by the natural log of total value of firm assets had a mean of 15.986, (minimum = 15.154 and maximum 16.919; standard deviation= 0.4138.

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Table II: Correlation results

| | IE | EQ | FS | LEV | FA |
|-----|---------|----------|---------|---------|--------|
| IE | 1.0000 | | | | |
| EQ | 0.1912* | 1.0000 | | | |
| FS | 0.2186* | 0.2504* | 1.0000 | | |
| LEV | 0.4474* | 0.0432 | 0.0318 | 1.0000 | |
| FA | 0.2746* | -0.2373* | -0.1292 | -0.0403 | 1.0000 |

Table 2 (above) presents a general synopsis of the correlation results for the 28 non-financial firms listed at the Nairobi Securities Exchange in Kenya for the period 2010-2020. The relationship between earnings quality and investment efficiency was found to be positive and significant, $\rho = 0.191$, p -value < 0.05 hypothesizing a positive association between earnings quality and investment efficiency. Further, the relationship between firm size and investment efficiency was found to be positive and significant, $\rho = 0.219$, p -value < 0.05 . In addition, the relationship between leverage and investment efficiency was found to be positive and significant, $\rho = 0.447$, p -value < 0.05 . Finally, relationship between firm age and investment efficiency was found to be positive and significant, $\rho = 0.274$, p -value < 0.05 .

Regression Analysis

Table III. Fixed Effects Regression for Control Variables

| Fixed-effects (within) | Number of obs | = | 308 | | |
|-------------------------------------|------------------|---|-------------------|-------|----------------------|
| regression | | | | | |
| Group variable: PANELID | Number of groups | = | 28 | | |
| R-sq: within = 0.3907 | Obs per group: | = | 11 | | |
| min | | | | | |
| between = 0.3753 | avg | = | 11.0 | | |
| overall = 0.3338 | max | = | 11 | | |
| | F(3,277) | = | 59.20 | | |
| corr(u _i , Xb) = -0.5329 | Prob > F | = | 0.0000 | | |
| IE | Coef. | Std. Err. | t | P>t | [95% Conf. Interval] |
| FS | .390212 | .0673509 | 5.79 | 0.000 | .2576273 .5227966 |
| LEV | .8279519 | .092773 | 8.92 | 0.000 | .6453222 1.010581 |
| FA | .4323611 | .1412409 | 3.06 | 0.002 | .1543193 .710403 |
| _cons | -8.39012 | 1.189189 | -7.060 | 0.000 | -10.73112 -6.049124 |
| sigma_u | .17802203 | | | | |
| sigma_e | .22707222 | | | | |
| Rho | .38066617 | (fraction of variance due to u _i) | | | |
| F test that all u _i =0: | F(27, 277) = | 4.58 | Prob > F = 0.0000 | | |

Table III illustrates the regression results for the fixed model. The findings indicated that 39.07% variation in investment efficiency is explained by firm size, firm leverage and firm age. From the table, firm size had a positive and significant effect on investment efficiency ($\beta = 0.390$, $p < .05$) and the results are consistent with Chen et al., (2011) who studied Chinese firms. Consequently, a

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unit increase in firm size leads to

0.390 unit increase in investment efficiency. The results disagree with Shahzad et al., (2018) who reported no association between firm size and investment efficiency. This study argue that larger firms may have more resources for investment, which explains the positive coefficient for firm size.

Further, firm leverage showed a positive and significant effect on investment efficiency ($\beta = 0.828$, $p < .05$) and the findings agree with those of Ullah et al., (2020) and Shahzad et al., (2019). However, they contradict Ling and Wu (2022) who found a negative relationship. Thus, a unit increase in firm leverage leads to a 0.828 units increase in investment efficiency. The findings are in line with the increased monitoring by debtholder that may improve operational efficiency by reducing opportunistic managerial behaviours. In addition, firm age showed a positive and significant effect on investment efficiency ($\beta = 0.432$, $p < .05$). Specifically, a unit increase in firm age leads to 0.432 unit increase in investment efficiency. These results agree with those of Khediri (2021) who studied firms in Western European countries. Conversely, Shahzad et al., (2019) found no association between firm age and investment efficiency among firms listed on the Pakistan Stock Exchange. The findings support the argument that older firms are more likely to have more years of investment experience and higher firm investment efficiency (Benlemlih & Bitar, 2015).

Table IV: Fixed Effects Regression for Direct Relationship

| Variables | Fixed Effects | Random Effects |
|-----------------------|-------------------|----------------|
| Constant | -6.422636 | -4.424659 |
| Earnings Quality | 0.1378011 | 0.1612915 |
| Firm Size | 0.3110768 | 0.1973244 |
| Firm Age | 0.3278739 | 0.2547622 |
| Firm leverage | 0.7302558 | 0.6530988 |
| Investment Efficiency | 0.4375 | 0.4626 |
| R-sq | 0.4961 | 0.486 |
| No.of Observations | 308 | 308 |
| Hausman test | Prob > chi2=0.000 | |

This study sought to examine the relationship between earnings quality and investment efficiency of firms listed at the Nairobi Securities Exchange in Kenya and the hypotheses were tested using the results of hierarchical regression analysis. The results for the fixed effect and random effect regression analysis are presented in Table III. The hypothesis is tested using the fixed effect regression as suggested by the results of the Hausman test ($\text{Prob} > \chi^2 = 0.000$). Based on the findings earnings quality has a significant positive effect on the investment efficiency of firms listed at the Nairobi Securities Exchange in Kenya ($\beta = 0.1378011$, $p < 0.05$). Therefore, earnings quality is a positive driver of investment efficiency. The implication is that there is a 0.138 unit increase in investment efficiency for each unit increase in earnings quality. The study thus concludes that the hypothesis that income diversification has no significant effect on the financial performance of commercial banks in Kenya is rejected. The findings are consistent with previous studies that support earnings quality (Baltagi 2008; Ball, 2005) similarly, the results conform with the theoretical assertions of the neo classical theory of investment (Jorgenson 1963) that firms invest until the marginal benefit equals the marginal cost of investment in order to maximize their values (Abel, 1983; Hayashi, 1982; Yoshikawa, 1980).

CONCLUSION

Optimal investment among firms continues to be the toe hold of any firm's success, therefore this study sought to examine whether earnings quality affects investment efficiency. The study employed a sample of 28 firms listed at the Nairobi Securities Exchange for the period 2010 to 2020. Based on the findings, this study concluded that high earnings quality improve investment efficiency by minimizing information asymmetries that generate frictions like adverse selection and moral hazard. The hypothesis was tested using the results of the fixed effect regression. Based on the findings ($\beta_1 = 0.206$, $p\text{-value} < 0.05$), the hypothesis was rejected and the study concluded that earnings quality had a positive and significant effect on investment efficiency among firms listed in the Nairobi Securities Exchange.

Since earnings quality enhances investment efficiency, firms need to strengthen internal mechanisms and increase earning quality. In addition, there is a need for corporate executives to have flexible policies that consider unforeseen liquidity problems. Besides, corporate shareholders should pay more attention to the earnings quality to gain more return on their investment opportunities.

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Further, it is necessary for shareholders to continuously monitor the firm's activities and prevent them from harming their interests.

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