

# Financing Constraints, Earning Quality and Investment Efficiency: Evidence from Africa

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## Abstract

This study investigates the effect of financing constraints on investment efficiency in developing countries and how this relationship is conditional to the earning quality. We use the non-financial firms from 15 Africa countries from 2009 to 2018. We employed panel data analysis and classified the sample into a financially constrained and unconstrained firm to analyze this relationship.

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**Index terms**— Financial constraints, earning quality, investment efficiency, overinvestment, and underinvestment.

## 1 Introduction

he importance of investment has two folds; first, at the macroeconomic level, investment is a crucial factor in the growth of the economy, its fluctuations drive much of the business cycle in the marketplace, and the aggregate business investment is a component of real GDP (Rudiger et al., 2011). Second, at the microeconomic-level, the investment decision facilitates allocating the firm resources to the available projects efficiently. These implied that investment decision is a crucial factor in allocating the firm's resources in growth opportunities.

In accounting and corporate governance research, efficient investment decisions have received scholars' attention since the inception of modern corporate finance (Modigliani and Miller, 1958). Many theoretical and empirical research carried out and continued investigating the allocation of resources in business firms. Under the theory of investment, Modigliani and Miller (1958) argue that firms are expected to invest in projects that create positive net present value. They postulated that capital projects with positive net present value (hereafter NPV) funded projects with negative NPV rejected.

The neoclassical investment theory model also assumes capital investment decisions determined by marginal q ratios (Abel, 1983, Hayashi, 1982, Yoshikawa, 1980). Yoshikawa (1980) noted that the neoclassical theory of corporate investment based on the assumption that the management seeks to maximize the present net worth of the company, the market value of the outstanding common shares, and an investment project should be undertaken if and only if it increased the value of the shares. Ferracuti and Stubben (2019) also noted, in the frictionless world (Modigliani and Miller, 1958), a firm investment decision is influenced only by the profitability of its investment opportunities.

However, in the contemporary-world variety of factors prevent this outcome, and many researchers linked different variables to firm investment efficiency (Stein, 2003, Hubbard, 1998). Such as; financing constraints (Hirth and Viswanatha, 2011, Cleary et al., 2007, Alti, 2003 ?? Cleary, 1999, Fazzari et al., 1988, Whited and Wu, 2006, Guariglia, 2008), board characteristics (Agyei-Mensah, 2021a), and board diversity ??Ullah et al., 2020), information friction (Stein, 2003), firm's earning quality or financial reporting quality (Chen et al., 2011 ?? Li and Wang, 2010, Biddle et al., 2009, Verdi, 2006, Graham et al., 2005, Bushman and Smith, 2001), corporate disclosure ??Östberg, 2006, Kanodia and Lee, 1998), and gender diversity ??Ullah et al., 2020). efficiency of investment. Mainly, but perhaps the most pervasive and essential factors influencing corporate investment decisions' efficiency arise from informational asymmetries and agency problems (Stein, 2003), resulting in financing constraints. Because of information asymmetry, the firm faces a lack of finance to the available investment projects, which

## 2 II. REVIEW OF LITERATURE AND HYPOTHESIS DEVELOPMENT A) FINANCING CONSTRAINTS AND INVESTMENT EFFICIENCY

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results in two investment inefficiency scenarios, namely overinvestment and underinvestment. We also argue that financing constraints affect firm investment efficiency.

On the other hand, earning quality (along with financial reporting quality attributes) as a corporate governance mechanism mitigates the information asymmetries and resolve agency problem ?? Asghar et al., 2020). Firms with high earning quality could mitigate financing constraints and increase their external finance access to fund their investment opportunities. In this case, we argue that earning quality could act as a moderating variable in the relation between firms financing constraints and investment efficiency.

Despite several studies investigating the relationship between financial constraint and investment decision, there are limited studies conducted on African firms. We rarely see studies investigating how the firm's earning quality can mitigate financing constraints on investment efficiency, especially for the African data set. Thus, this study analyzes the relation between firm financing constraints and investment efficiency among African firms. We also investigate the influence of financial constraints on the two inefficient investment scenarios: overinvestment and underinvestment. In further, we examine how the earning quality of the firm determines this relationship. We investigate the earning quality as a moderating variable on the relationship between financing constraints and investment efficiency.

Using samples of non-financial firms from 15 African countries, we evidenced that financing constraints affect investment efficiency in both overinvestment and underinvestment scenarios, and investment efficiency is strongly sensitive to internal cash flow. The findings also indicate that investment efficiency is sensitive to cash flow when the firms are externally constrained, and they use internal cash flow to make their investment. The result is more pronounced in financially constrained firms than unconstrained firms. The evidence showed that financially constrained firms showed highly inefficient investment while the unconstrained firms are more efficient. In further, the results reveal that the relationship between financing constraints conditional to the earning quality. A firm with high earning quality can reduce financing constraints and manage in getting finance for their investment opportunities, whereas firms with low earning quality could not.

Moreover, the sensitivity of investment efficiency is conditional to the earning quality. The firm with high earning quality less sensitive to internal cash flow because they would get external finance than firms with low earning quality. These results hold for the two inefficient investment scenarios, overinvestment and underinvestment.

We contribute to the literature in four ways; first, this study links corporate finance and corporate governance theories by showing how corporate governance tools, namely corporate financial disclosure (earning quality), could play a role in easing financing constraint effects on firm investment decisions. Second, we contributed to the literature by showing how financial constraints and accounting quality impact the two investment inefficiency scenarios, overinvestment, and underinvestment using the Africa data set where prior studies were overlooked to investigate. Third, the study gives a signal showing that earning quality, as a corporate governance tool, can avoid financing constraints and improve investment efficiency. We believe this crucial addition to the literature shows evidence from the developing world where prior studies concluded that the value relevance of financial reporting quality is non-existent. Fourth, since the first to study a data set from Africa, we believe it has a valuable contribution to the literature by showing that the effect of financing constraints is conditional to the firm's earning quality. We contribute to the literature by evidencing that earning quality could mitigate overinvestment and underinvestment using data set from developing countries. We break this conclusion by showing that accounting information has excellent relevance in firm economic (investment) decisions in developing countries as it does for advanced nations. The result is robust to the alternative measurement of investment efficiency using Chen et al. (2011) and ??hen and Lin (2013).

The paper's remaining part is organized as follows; Section 2 discusses literature review and hypotheses development. Section 3 describes the research methodology. Then, section 4 presents the results and discussion. Finally, section 5 is conclusions.

## 2 II. Review of Literature and Hypothesis Development a) Financing constraints and investment efficiency

Prior studies explored that financing constraints affect firm investment behavior ??Schauer et al., 2019, Modigliani and Miller (1958) assumed that investment only depends on its profitability in the frictionless world. Their model assumes that external and internal finance entirely substitute. When firms face difficulty in raising external finance, they use internal funds to finance their investment project. However, Fazzari et al. (1988) showed that internal and external capital is not entirely substituted. In their view, investment depends on internal finance availability, access to external finance, or credit markets' functioning. They measure a firm's financial constraints based on the dividend payout, age, size, and credit as external financial constraints proxies. Guariglia (2008) also points out that firm age, size, and dividend payout are proxies for the degree of external financial constraints faced by the firms.

The effects of financial status on investment vary with the accessibility to external finance and internal funds available for investment opportunities. For instance, (Guariglia, 2008, Cleary et al., 2007, Lu, 2017) showed that firms' investment responds differently to internal and external financing constraints. Guariglia (2008) studied the extent to which the sensitivity of investment to cash flow using the panel data of UK firms over the period 1993-

2003 and found that the response of investment to internal funds is different from that of external finance. Bond et al. (2003) empirically investigated the effect of financial factors on investment in four European countries. They found that financial constraints on investment are severe in the more market-oriented company. They concluded that internal finance availability appears to have been a more significant constraint on company investment in the more market-oriented country. Mulier et al. (2016) noted that a firm is financially constrained if its internal fund's generation limits its investment because it cannot obtain sufficient external funds. These imply that when firms are unable to raise external capital because of associated costs, they look internally to finance their investment and use internal cash flows. Since the internal fund might not be good enough to fund the investment opportunities, they forego the available investment projects.

On the other hand, agency theory argues that firms with ample funds could deviate from their optimal investment efficiency level due to information asymmetry by overinvesting in unprofitable projects (Myers, 1977). As a result, firms face underinvestment or overinvestment in their investment decision. Hovakimian and Hovakimian (2009) have also shown that the limited accessibility of external funds intensifies the sensitivity of investment to the cash flow. So, based on the above analysis, we propose the following hypotheses; H1: The relationship between cash flow and investment efficiency level is positive for the total sample and the constrained and unconstrained firm.

Since we also need to investigate that the effect of financing constraints the two suboptimal investment efficiency, as an extension of the central hypothesis, we posit the following hypothesis H1a: Sensitivity of investment efficiency to cash flow is positive for both underinvestment and overinvesting firms.

Based on the above analysis, we also posit the following hypothesis to investigate the financial constraint effect on investment efficiency.

H2: Financing constraints and investment efficiency have a positive relationship for the total sample and constrained firms but negative for unconstrained firms.

As an extension of the H2, we framed the following hypothesis concerning overinvestment and underinvestment scenarios H2a: There is a negative relationship between financing constraint and investment inefficiency in both underinvestment and overinvestment scenarios for constrained and unconstrained firms but negative for the overall data.

### 3 b) The moderating effect of earning quality

Agency theory suggests that owners and their management are separate (Jensen and Meckling, 1979). Due to this separation of role raise agency friction among the stakeholders. The theory also suggested that financial reporting as corporate governance tools can mitigate agency problems from agency frictions ??Graham et al., 2005, Bushman and Smith, 2001). Roychowdhury et al. (2019) have discussed two scenarios in which earning quality matters for an investment decision. First, information asymmetry gives rise to agency frictions, such as adverse selection and moral hazard costs. Second, the existence of uncertainty about growth opportunities. They framed that the earning quality of the firm influences investment efficiency by facilitating external finance and monitor managers and thus reduce managerial incentives to over-invest. Salehi et al. (2018) found a positive relationship between earnings quality and managerial access to bank debt financing. They also indicated that a negative relationship between earnings quality and managerial access to internal debt financing. Kurt (2018) also noted that accruals are likely to offer more significant perceived benefits and have lower expected costs for constrained firms than unconstrained firms, constrained firms are expected to report higher income-increasing accruals that financial reporting and disclosure can mitigate both under-and overinvestment problems, increasing overall investment efficiency. The above analysis shows that earning quality influences investment efficiency by providing access to external capital.

The constrained firm cannot raise external funds from capital providers, which leads to inefficient investment. Under such situations earning quality plays a crucial role in solving this problem. High earning quality would help the firm to reduce the cost of external finance. On the other hand, the manager also invests in unprofitable projects for the sake of their benefit, which raises the issue of inefficient investment decisions (over investment). Earning quality could curb this problem by disciplining managers not to invest in unprofitable projects. Moreover, (Leonel Carvalho and Elie Guimarães Kalatzis, 2018) noted that better-earning quality improves investment efficiency decisions decreasing investment-cash flow and information asymmetry. Another study also showed how the corporate governance components like board independence and board size use accounting conservatism (accounting reporting) to monitor the manager's economic decisions (Nasr and Ntim, 2018).

Based on the above analysis and arguments, earning quality affects the relationship between financing constraints and investment efficiency through reducing to cost of external finance and enabling managers to invest in visible projects. So, we posit the following hypothesis; H3: The sensitivity of investment efficiency and both (underinvestment and overinvestment) to cash flow is conditional to the earning quality.

### 4 H4:

The relationship between financing constraints and investment inefficiency, and both underinvestment and overinvestment conditional to Earning quality.



payout ratio as control variables in our investment models. We also control the year to control year variability. To address omitted country-level specific variables, we include country as a dummy variable.

9 d) Model specification i. Financing constraints and cash flow  
sensitivity of investment efficiency

To investigate the effect of financial constraints and cash flow on investment efficiency, we estimate the following model:<sup>4</sup>

Where  $\eta_{it}$  is an overall investment inefficiency, measured as the absolute residuals of investment efficiency from Biddle et al. (2009) model.  $FC_{it}$  is the financing constraint index of firm  $i$  at year  $t$ .  $CashFlow_{it}$ , represent net cashflow scaled by lagged total asset,  $Control_{it}$  represents the list of control variables, including tangibility, leverage, firm size, firm age, interest coverage ratio, dividend payout ratio, etc.  $Year_{it}$  and  $Country_{it}$  represents year, and country dummies respectively. In this model  $\alpha_1$  and  $\alpha_2$  measure the financing constraint effects and the cash flow sensitivity of the investment efficiency.

To estimate the impact of financing constraints and cash flow on the two inefficient investment scenarios (overinvestment and underinvestment), we apply the same model only by changing the dependent variable to underinvestment (Under\_Inv) or overinvestment (Over\_Inv).

## 10 ii. The moderating role of earning quality

This study investigates the moderating role of earning quality on the relationship between financing constraints and investment efficiency. To investigate the moderating role of earning quality, we include the interaction terms in the prior models from eqn(4) as follows; Cash flow: We use the operating cash flow as the second independent variable to analyze the cash flow's investment efficiency sensitivity. We measure it as net cash flow from operating activities scaled by the total asset.

Where Size  $\ln A_{i,t-1}$  is the natural log of the firm's lagged total asset,  $\frac{EBIT_{i,t-1}}{EBIT_{i,t-1} + Interest_{i,t-1}}$  EBIT over interest expenses of firm  $i$  at year  $t-1$  calculated.  $\frac{NI_{i,t-1}}{TA_{i,t-1}}$  is net income over total assets, and  $\frac{Cash_{i,t-1}}{TA_{i,t-1}}$  is cash holding over the beginning-of-year total. The same procedure applied to the overinvestment and underinvestment scenarios.  $Fin\_Cons_{i,t} = 0.123 * Size_{i,t-1} + 0.024 * \frac{EBIT_{i,t-1}}{EBIT_{i,t-1} + Interest_{i,t-1}} + 0.404 * \frac{NI_{i,t-1}}{TA_{i,t-1}} + 1.716 * \frac{Cash_{i,t-1}}{TA_{i,t-1}} + \epsilon_{i,t}$  (2)

IV.

## 11 Empirical Results

12 a) Descriptive statistics

Table ?? provides detailed summary statistics of all variables. Panel A, B, and C present the descriptive statistical summary of all variables for overall data and subsamples (unconstrained and constrained firms). The columns include the number of observations, mean value, standard deviation, and the minimum and maximum value of each variable for both the overall sample and subsamples. The mean of corporate investment efficiency (Inv\_Eff) is 0.552, 0.550, and 0.559 for overall samples, unconstrained, and constrained firms, respectively. The minimum value of Inv\_Eff is 0.383, while its maximum value approximately 0.922 across all total samples and subsamples. This value indicates there are no extreme values.

investment efficiency, we estimate the following model by adding the interaction variable,

To investigate the role of earning quality in the relationship between financing constraints and Likewise, Table II reports that cash flow (CashFlow) and financing constraints (Fin\_Con) the mean and the standard deviation of financing constraint indicators. Cash flow has a mean value of 0.097, 0.085, and 0.159 for whole samples, unconstrained and constrained subsamples, respectively. In comparison, financing constraints have a mean value of 1.496, 3.740, and 3.420 for total samples, unconstrained and constrained subsamples.

### 13 b) Correlation analysis

Table ??II reports the pair wise correlations among all the variables used in the study analysis. The result shows that cash flow and financing constraints positively and significantly correlate with investment efficiency, indicating investment efficiency is highly affected by firms financing constraints and sensitive to their internal cash flow. Cash flow and financing constraint indicators have a positive and significant correlation to each other. Similarly, earning quality also shows a positive and significant correlation with investment efficiency, indicating that higher-earning quality leads to efficient capital investment; the result is consistent with previous studies (Gomariz and Ballesta, 2014). Concerning earning quality and cash flow and financing constraint indicator relations, the result indicates that earning quality has a positive and significant correlation with cash flow. In contrast, it has a negative and significant correlation with financing constraint indicators. Underinvestment (Under Inv) has a

## 16 D) OVERINVESTMENT ON FINANCING CONSTRAINTS AND CASH FLOW WITH MODERATING VARIABLE EFFECTS

mean of 0.542, 0.540, and 0.539 for the overall data set, unconstrained and constrained, respectively. The minimum and maximum values are 0.383 and 0.552, both for the total and constrained samples. But for the unconstrained firm, it is 0.390 and 0.552. All the minimum and maximum amounts of the overinvestment and underinvestment variable shows no extreme value.

Overinvestment (Over\_Inv) has a mean of 0.563, 0.562, and 0.568 for overall samples, unconstrained and constrained firms, respectively. For overall samples, the minimum and maximum values of Over\_Inv are 0.552 and 0.922, respectively. However, for the unconstrained subsample, the minimum and maximum values are 0.5516 and 0.6828, while for constrained, it is 0.5515 and 0.9222, respectively. Correlation between all independent and controlling variables is not high, showing that our data set has no collinearity problem. The correlation coefficient between the interest coverage (Inter\_Cov) and financing constraint indicator is -0.627, which is relatively the highest coefficient, but it is less than the threshold value of 0.7 (Dormann et al., 2013). These all show that there are no such high multicollinearity problem among the variables used for the analysis.

### 14 Inv\_Eff

### 15 c) Investment efficiency on Cash flow and financing constraints with moderating variable

Table ??V presents the estimation results of the investment efficiency on cash flow (cash flow) and financing constraints (Fin\_Cons) with the effect of earning quality (EQ) as moderating variables across all total samples and subsamples. Panel A depicts the regression result without moderating variable, whereas panel B reports the regression's moderating variable. In panel A, the result indicates that both cash flow and Fin\_Cons variables are significant at 1% across all the overall samples and the two subsamples (Constrained and Unconstrained firm). As predicted in hypotheses (H1) and (H2), the result confirms that Cash Flow has positively associated with investment efficiency across all samples, whereas Fin\_Cons has a positive coefficient for the overall and constraint subsample except for unconstrained firms, which is negative. The positive coefficient shows that the firm's investment efficiency is sensitive to internal cash flow and their investment activities affected by the financing constraints, which is consistent with previous studies (Hovakimian and Hovakimian, 2009). It indicates when companies are externally constrained, they tend to look for internal cash flow.

However, in panel B, after we include the interaction terms (Cash Flow\*EQ) between cash flow and earning quality, the strengthening of the cash flow coefficient dramatically reduced due to the moderating effect of earning quality across total, constrained, and unconstrained firms. The result proved hypothesis three (H3) that the sensitivity of investment efficiency is conditional to its earning quality. Moreover, this evidence reveals that earning quality, as a corporate governance tool, reduces investment efficiency on internal cash flow and helps the firm get external finance for their investment projects. The result also consistent with the theory that states earning quality, as corporate governance tools, facilitate external finance for capital investment by providing relevant accounting information to an external party so as to reduce the dependency of investment decisions on the internal funds (Sloan, 2001, Bushman and Smith, 2001).

Similarly, panel B also reports the interaction term, Fin\_Cons\*EQ, is significant and has a positive coefficient for the overall sample and constrained firms but negative for unconstrained firms. Fin\_Cons' coefficient of financing constraints indicator, Fin\_Cons, decreases after we employed the interaction term (Fin\_Cons\*EQ), proving that earning quality has a conditional effect on the relationship between financing constraints investment efficiency is expected. It implies that accounting quality as a corporate governance mechanism improves the firm's investment decision, reducing financing constraints by curbing information asymmetry. The result is consistent with the work of (Leonel Carvalho and Elie Guimarães Kalatzis, 2018, Chen et al., 2011, Beatty et al., 2009, Verdi, 2006) that earning quality mitigates investment inefficiency by curbing information asymmetry between the shareholders and managers.

### 16 d) Overinvestment on financing constraints and cash flow with moderating variable effects

Panel a of Table ?? presents regression results of overinvestment (inefficiency) over financing constraint and cash flow, whereas panel B shows the moderating effects of earning quality. Both Cash flow and Fin\_Cons are significant at 1% across all samples. Cash flow is positively related to overinvestment across all sample sizes, whereas Fin\_Cons has a positive coefficient for the total sample but negative for constrained and unconstrained firms. The result indicates that as the internal cash flow increases, the manager tends to overinvest to attract the investor. On the other hand, the estimated result proved that constrained firms more likely overinvest than unconstrained using their internal cash flow. This result aligns with previous empirical work (Naeem and Li, 2019, Laghari and Chengang, 2019, Lerskullawat, 2018).

Financing Constraints, Earning Quality and Investment Efficiency: Evidence from Africa be it constrained and unconstrained, has to reduce overinvestment the ability to avoid financing constraints to finance their projects. On the other hand, the result implies that as cash flow increases, the managers tend to underinvest for the sake of personal benefit. The result is consistent with previous studies (Roychowdhury et al., 2019, Lin et al., 2016).

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## 17 e) Underinvestment on financing constraints and cash flow with moderating variable effects

Panel a of Table VI reports the regression results of underinvestment over financing constraint and cash flow. In contrast, panel B depicts moderating variables or interaction (Cashflow\*EQ, and Fin\_Cons\*EQ) on the model's relationship. In panel A, the result demonstrates both cash flow and financing constraint Financing Constraints, Earning Quality and Investment Efficiency: Evidence from Africa significant at 1% across all samples except for financing constraints indicators(Fin\_Cons) under total samples, accounting for 10%. Cashflow has a positive coefficient across all samples, whereas Fin\_Cons shows negative to the subsamples but positive for the total asset. The results illustrate that underinvestment highly sensitive to internal cash flow. The Unconstrained and constrained tends to use their internal cash flow when they are underinvesting situation. Panel B illustrates the effects of moderating variables or the two interaction terms, Cashflow\*EQ and Fin\_Cons\*EQ, on the relationship between cash flow and overinvestment. The results indicate that the Cashflow\*EQ is significant at least 10% across all samples, whereas Fin\_Cons\*EQ is significant at least 5%. The coefficient of Cashflow\*EQ is positive for total samples but negative for the remaining constrained and unconstrained firms. Similarly, Fin\_Cons\*EQ has a positive coefficient for the overall sample but negative for unconstrained firms. It indicates that earning quality has increasing power for the total sample but decreasing power for constraining and unconstrained firms. The result implies firm with high earning quality, The results in Panel B confirm both interaction variables, Cashflow\*EQ and Fin\_Cons\*EQ variables, are significant, at least 10% across all samples. Cashflow\*EQ interaction is negatively related across all samples except for the constrained category, a positive coefficient. While the interaction Fin\_Cons\*EQ variable has a negative for the total sample and constrained but positive to unconstrained firms. It indicates that earning quality has to decrease power for the total sample but increasing power for constraining and unconstrained firms.

## 18 f) Robustness check and additional analysis i. Robustness check using an alternative measurement of investment efficiency

To check our result's robustness(Chen et al., 2011) as an alternative measurement for investment measure.?????  
??,?? = ?? 0 + ?? 1 ?????? ??,???1 + ?? 2 %???????????????? ??,???1 + ?? 3 ?????? \* ????????????????? ??,???1  
+ ?? ????

Where ?????? ??,?? , investment computed as total capital expenditure on fixed assets of the firm in period  
t Financing Constraints, Earning Quality and Investment Efficiency: Evidence from Africa scaled by total asset,  
?????? ??,???1 an indicator which takes one if revenue growth is negative value, 0 otherwise. %????????????????  
??,???1 , the percentage growth of revenue.

Accordingly, we proved that the result is robust. The regression results report that all variable of interest is  
significant and similar to our main regression results. Tables 7, 8, and 9 reports the regression results of our  
analysis using the alternative measurement of investment efficiency, overinvestment, and underinvestment.

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## 19 ii. Robustness checks (Endoginty issues)

In many corporate governments and corporate finance, variables can be affected by the previous performance.  
For example, in our baseline model, investment efficiency might be influenced by the firm's prior year investment  
performance. It raises the issue of the endogeneity problem in the model. So, to handle this problem, we  
employed a generalized two-step method of moments (GMM). GMM is powerful estimation technique than OLS  
in solving unobserved heterogeneity and endogeneity problems (Wintoki et al., 2012). Prior studies examining  
corporate governance variables have also proved that GMM can solve the endogeneity problem (Ullah et al.,  
2020b, Sewpersadh, 2019). Thus, we estimate our analysis using lagged variables for investment efficiency,  
overinvestment, and underinvestment in the GMM method. We find consistent results with the previous result  
we got using ordinary least square (OLS). We lose some observations due to the requirement of the GMM.

Tables X, XI, and XII, report the GMM estimation results for all the hypotheses we predicted in the study,  
and the regression results of two-step GMM confirm robust results. The results of lagged variable also significant  
in all cases. Thus, the two-step GMM model offers us a robust result.

## 20 Conclusion

The study's main objective was to examine the effects of financing constraints on firm investment efficiency  
and the role of earning quality has in moderating this effect among African firms. Many studies showed that  
financial constraints have a limited impact on firm investment decisions. We extend this to the African context  
by providing robust results for different proxies and empirical evidence on the relationship between financing  
constraints, earning quality, and investment efficiency. Our findings the firms are externally constrained. They  
use internal cash flow to make their investment for African firms. It is more pronounced in financially constrained  
firms than unconstrained firms. The estimated result proved that constrained firms more likely overinvest than

unconstrained using their internal cash flow. The external financing constraints level is more pronounced for constrained firms than unconstrained ones. The underinvestment is very sensitive to cash flow for constrained firms than unconstrained firms. Based on corporate governance and financial disclosure theory, we showed that earning quality has conditional effects on the relationship between financing constraints and investment inefficiency. The results reveal that earning quality reduces the relationship between financing constraints and investment efficiency. The firm with high earning quality can avoid financing constraints to finance their projects by avoiding overinvestment and underinvestment of both constrained and unconstrained firms

In conclusion, we believe this study contributes to the literature in four ways; first, this study links corporate finance and corporate governance theories by showing how corporate governance tools, namely corporate financial disclosure (earning quality), could play a role in easing financing constraint effects on firm investment decisions. Second, we contributed to the literature by showing how financial constraints and accounting quality impact the two investment inefficiency scenarios, overinvestment, and underinvestment using the Africa data set where prior studies were overlooked to investigate. Third, the study gives a signal showing that earning quality, as a corporate governance tool, can avoid financing constraints and improve investment efficiency. We believe this crucial addition to the literature shows evidence from the developing world where prior studies concluded that the value relevance of financial reporting quality is non-existent. Fourth, since the first to study a data set from Africa, we believe it has a valuable contribution to the literature by showing that the effect of financing constraints is conditional to the firm's earning quality. We contribute to the literature by evidencing that earning quality could mitigate overinvestment and underinvestment using data set from developing countries. We break this conclusion by showing that accounting information has excellent relevance in firm economic (investment) decisions in developing countries as it does for advanced nations.

Figure 1:



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Financing Constraints, Earning Quality and Investment Efficiency: Evidence from Africa  
 financing. Ding et al. (2016), using a sample consisting  
 of privately held firms, found that better earnings quality  
 increases private firms' access to debt financing and  
 lowers their cost of debt. Li and Wang (2010) suggest  
 Year Information Technology Mate- 7290.62geria  
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VolumeSouth Africa Zambia Zimbabwe overinvestment, 6,867 100 b) Variables definitions and measurements  
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Figure 2:

Figure 3:

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[Note: C]

Figure 4: Table 1 :

interest coverage and tangibility.  
 $\gamma$  and  $\delta$  represents the year, and country dummies, respectively

Figure 5:

2

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[Note: C]

Figure 6: Table 2 :

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Figure 7: Table 3 :

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[Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ , Variable definition as given in table 2]

Figure 8: Table 4 :

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[Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ , Variable definition as given in table 2]

Figure 9: Table 5 :

6

Figure 10: Table 6 :

7

Variables		Panel A		Panel B	
		Overall	Constrained	Unconstrained	Overall
Chen_Inv	CashFlow	0.420***	0.067***	0.230**	0.155***
		(0.056)	(0.007)	(0.117)	(0.058)
Fin_Cons		0.003	0.018 -		0.008***
			0.060**		
EQ		(0.002)	(0.002)	(0.024)	(0.003)
					-
Year	Cashflow*EQ	-	0.001	0.002	-
	Fin_Cons*EQ	0.008			0.325***
2021					(0.037)
					0.875***
					(0.078)
					0.006
Firm_Growth		(0.004)	(0.001)	(0.006)	(0.001)
		0.663***	0.009***		0.552***
Volume			0.019		
		(0.027)	0.049**	(0.023)	0.007* (0.003)
XXI		-0.002 (0.008)	0.010** (0.005)	-0.005 (0.015)	-0.014*** (0.004)
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Figure 11: Table 7 :

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Financing Constraints, Earning Quality and Investment Efficiency: Evidence from Africa

Figure 12: Table 8 :

Variables		Panel A			Panel B		
	Overall	Constrained	Unconstrained	Overall	Constrained	Unconstrained	
Chen_UI							
Cashflow	0.041* (0.023)	0.018*** (0.002)	0.125** (0.062)	0.056*** (0.013)	0.015*** (0.002)	0.130* (0.078)	
Fin_Cons	0.010** (0.002)	-0.005*** (0.001)	-0.023* (0.012)	-0.012** (0.002)	-0.004*** (0.001)	0.022* (0.012)	
EQ				-0.003** (0.001)	-0.049*** (0.009)	0.118*** (0.017)	
Year	Cashflow*EQ			0.002*** (0.000)	-0.023** (0.004)	0.485*** (0.049)	
2021	Fin_Cons*EQ			-0.119** (0.050)	0.009*** (0.003)	0.003*** (0.001)	
TQ	-0.001	-0.002***	-	-0.001	-0.002***	-0.003***	
Volume			0.010***				
FirmGrow	(0.001)	(0.003)	(0.003)	(0.001)	(0.001)	-	(0.001)
XXI Tang Size	0.006** (0.003)	-0.004 (0.001)	-0.028** (0.014)	-0.002 (0.003)	0.006 (0.001)	-0.002 (0.002)	
Is- Age In-	0.007 (0.008)	0.002*** (0.001)	0.760*** (0.036)	-0.009 (0.012)	0.001** (0.011***	-0.011** (0.005)	
sue ters_Cov	0.002** (0.001)	0.001*** (0.001)	0.009** (0.004)	0.001 (0.001)	(0.002)	-	0.001
II Ver-	-0.004* (0.002)	-0.001 (0.001)	0.001* (0.000)	-0.004* (0.002)	0.003	0.001 (0.001)	(0.001)
sion I	-0.002* (0.001)	0.011 (0.001)	-0.007 (0.007)	-0.004** (0.001)		-0.004** (0.002)	
( ) Div	0.083* (0.049)	-0.211*** (0.017)	0.006 (0.023)	-0.079 (0.051)	-0.196*** (0.018)	-0.044 (0.033)	
C GlobalLev	0.011* (0.006)	0.011*** (0.001)	0.035*** (0.012)	0.016** (0.007)	0.010*** (0.001)	0.007* (0.004)	
Jour- Reg_Q	-0.008* (0.005)	-0.001 (0.001)	-0.038 (0.028)	-0.009* (0.005)	0.001 (0.001)	-0.008 (0.007)	
nal Constant	0.690*** (0.013)	0.534*** (0.006)	-76.072* (40.428)	-0.664*** (0.016)	(0.006)	yes	-0.725***
of Country-	yes yes	yes 1,946	yes yes	yes 1,434	yes 1,890	yes 408	
Man- dummy	1,432	0.342	408	0.161	0.362	0.696	
age- Year-	R-squared						
ment dummy							
and Obser-							
Busi- vations							
ness R-squared							
Re-							
search							
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Global							
Journals							

Figure 13: Table 9 :

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Figure 14: Table 10 :

Variables		Panel A		Panel B			
		Overall	Constrained	Unconstrained	Overall	Constrained	Unconstrained
Over_Inv							
L_Over_Inv		0.1215*** (0.0040)	0.0865*** (0.0048)	0.1355*** (0.0218)	0.1196*** (0.0041)	0.0871** (0.0410)	0.1094*** (0.0290)
CashFlow		0.0970*** (0.0009)	0.0858*** (0.0009)	0.1022*** (0.0033)	0.0962*** (0.0009)	0.1160*** (0.0304)	0.1033*** (0.0077)
Fin_Cons		0.0002** (0.0001)	-0.0020 (0.0004)	- (0.0105)	0.0001* (0.0001)	-0.0002 (0.0002)	0.0018** (0.0007)
Year EQ	Cash-				0.0040*** (0.0006)	0.0050 (0.0118)	-0.0197*** (0.0064)
2021	Flow*EQ				-0.0022*** (0.0003)	-0.0237 (0.0792)	0.0591** (0.0288)
	Fin_Cons*E				0.0030*** (0.0005)	0.0004** (0.0002)	-0.0029*** (0.0011)
VolumEQ		0.0001*** (0.0001)	0.0007*** (0.0001)	- (0.0009***)	0.0001*** (0.0001)	-0.0003 (0.0006)	-0.0010*** (0.0004)
XXI FirmGrow		0.0035*** (0.0002)	0.0038*** (0.0002)	(0.0003)	0.0013*** (0.0004)	0.0020 (0.0031)	0.0078*** (0.0027)
Is- Tang Size		0.0001 (0.0001)	0.0013*** (0.0002)	(0.0007)	0.0004 (0.0004)	0.0014 (0.0016)	0.0031 (0.0039)
sue Inters_Cov		-0.0021 (0.0004)	0.0002*** (0.0001)	(0.0032)	0.0010 (0.0002)	-0.0030 (0.0002)	0.0002 (0.0003)
II Age		-0.0002 (0.0002)	0.0005*** (0.0002)	(0.0003)	-0.0020 (0.0003)	0.0006 (0.0007)	-0.0344 (0.0423)
Ver-			-0.0003** (0.0002)	(0.0264)	-0.0002 (0.0002)	-0.0002 (0.0003)	0.0010 (0.0007)
sion				(0.0007)			
I (							
) C							
GlobalDiv	Lev	-	-0.0004***	-	-0.0004***	-0.0028	-0.0052
Jour- Reg_Q		0.0004*** (0.0001)	(0.0001)	0.0158*** (0.0033)	(0.0001)	(0.0022)	(0.0068)
nal Constant		0.0046*** (0.0003)	0.0049*** (0.0001)	(0.0036***)	0.0047*** (0.0003)	0.0058*** (0.0017)	0.0037*** (0.0012)
of Country-		0.0008*** (0.0003)	-0.0039*** (0.0003)	(0.0010)	-0.0008*** (0.0003)	-0.0003 (0.0004)	0.0082** (0.0032)
Man- Dummy		0.0008*** (0.0003)	0.4880*** (0.0032)	0.0070** (0.0031)	0.4746*** (0.0022)	0.4855*** (0.0218)	0.8823* (0.4942)
age- Year-		0.4740*** (0.0021)	yes yes	(0.3109)	yes 1,538	yes 1,053	yes yes 447
ment Dummy		yes yes	1,055 0.315	yes yes	0.327 0.536	0.62 0.869	0.193 0.589
and Obser-		1,538	0.539	447 0.381			
Busi- vations		0.392		0.672			
ness AR(2)		0.52					
Re- Hansen							
searchtest							
© 2021							
Global							
Journals							

Figure 15: Table 11 :

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Figure 16: Table 12 :



Variables		Panel A			Panel B		
	Overall	constrained	unconstrained	Overall	constrained	unconstrained	
Under_Inv							
L_Under_Inv	0.4147*** (0.0094)	0.2709*** (0.0158)	0.3341*** (0.0644)	0.3630*** (0.0086)	0.3140*** (0.0647)	0.3549*** (0.1176)	
CashFlow	0.0371*** (0.0008)	0.0436*** (0.0016)	0.0572*** (0.0036)	0.0407*** (0.0012)	0.0358*** (0.0089)	0.0495*** (0.0136)	
Fin_Cons	0.0030* (0.0005)	0.0021*** (0.0004)	- 0.0104*** (0.0029)	0.0011 (0.0002)	-0.0007 (0.0005)	-0.0017 (0.0002)	
EQ_Cash- Flow*EQ				-0.0026 (0.0017)	0.0105** (0.0050)	-0.0050 (0.0176)	Year 2021
				-0.0004** (0.0002)	-0.0053* (0.0031)	0.1906 (0.3737)	
Fin_Cons*EQ				-0.0707*** (0.0012)	-0.0541 (0.0333)	0.0872* (0.0450)	
TQ	- 0.0002*** (0.0001)	-0.0003*** (0.0001)	- 0.0037*** (0.0009)	-0.0002*** (0.0001)	-0.0013*** (0.0003)	-0.0016 (0.0020)	
FirmGrow	0.0039*** (0.0002)	0.0030*** (0.0004)	0.0006 (0.0007)	0.0037*** (0.0004)	0.0006*** (0.0002)	0.0017 (0.0014)	
Tang	0.0006 (0.0005)	0.0008 (0.0010)	0.0039 (0.0038)	0.0018*** (0.0007)	0.0010 (0.0008)	0.0021 (0.0030)	
Size	0.0001** (0.0001)	0.0002*** (0.0001)	-0.0008** (0.0003)	0.0010 (0.0002)	0.0002 (0.0001)	-0.0006 (0.0006)	
Inters_Cov	0.0001*** (0.0001)	-0.0010 (0.0007)	0.0000*** (0.0001)	0.0001** (0.0001)	0.0027 (0.0018)	0.0304*** (0.0058)	
Age	0.0001 (0.0001)	-0.0010 (0.0001)	-0.0002 (0.0005)	0.0011 (0.0001)	0.0002 (0.0002)	-0.0004 (0.0010)	( ) C
Div	0.0007** (0.0003)	0.0084 (0.0064)	0.0012 (0.0009)	0.0001 (0.0003)	0.0042 (0.0114)	0.0003 (0.0019)	
Lev	-0.0001 (0.0002)	0.0001 (0.0004)	0.0016** (0.0007)	0.0013*** (0.0002)	-0.0033 (0.0041)	0.0023 (0.0017)	
Reg_Q	-0.0001 (0.0004)	0.0005 (0.0006)	0.0043*** (0.0015)	0.0008** (0.0004)	0.0012 (0.0011)	0.0033 (0.0022)	
Constant	0.3137*** (0.0050)	0.3994*** (0.0101)	0.0001 (0.0001)	0.3429*** (0.0045)	0.3512*** (0.0344)	0.0000 (0.0000)	
CountryDummies	yes	yes	yes	yes	yes	yes	
YearDummy	yes	yes	yes	yes	yes	yes	
Observations	1,875	1,680	173	1,875	1,663	173	
AR(2)	0.378	0.201	0.252	0.307	0.671	0.51	
Hansen test	0.201	0.286	0.57	0.397	0.549	0.9	

Figure 17:



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## 20 CONCLUSION

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