Journal of Business and Administrative Studies (2022) Vol. 14(2), 12-30
ISSN (Online): 2958-3810
ISNN (Print): 2077-3420

JBAS Journal of Business and Administrative Studies
Home page: JBAS (aau.edu.et)

The interaction effects of financial development on slack and performance nexus of African firms

Demis Hailegebreal Hailu[1]

KEY WORDS
Banking sector, Stock market, Slack, Performance

ABSTRACT

While the resource-based theory argued that financial slack derives firm performance, agency theory asserted that it harms firm performance. Moreover, the pecking order and corporate finance theories argued that the well-functioning financial system eliminate the agency problems and asymmetric information; and could shape the corporate governance of firms, thereby facilitate the proper use of firms' internal finance. But existing literature completely overlooked this issue. This study thus investigated the interaction effects of the banking sector and the stock market development on slack performance nexus by using African sample firms. The result confirmed that financial development eliminates the adverse effects of high available slack on firm performance but create an undesirable impact of low available slack on firm performance. Conversely, financial development weakens the favorable effect of high potential slack on firm performance but aggravate the adverse effects of low potential slack on firm performance.

1. Introduction

The resource-based (Barney, 1991) and the behavioral (Cyert & March, 1963) theories argued that financial slack drive firm performance by helping them to survive in hostile and dynamic environments. However, agency theory claimed that financial slack is a source of management inefficiency, and agency problems that create unreasonable investments, raise misuse of resources increase agency costs (Jensen & Meckling, 1976). Agency theory suggested firms eliminate agency problem and corporate finance theory (Tirole, 2010) asserted that financial development help overwhelm the agency problems. Financial development could facilitate the proper use of financial slack by shaping the corporate governance of firms. However, this argument has never been scientifically explored. Moreover, existing literature focused on developed nations and ignored studying the area using datasets of African firms. However, it has been argued that countries' financial and legal system might lead to a unique financial slack accumulation in firms.

Developed and developing nations are characterized by the developed and underdeveloped financial system, respectively. Thus, the financing choices of firms in developed and developing countries would be different. The cost of external finance is more expensive in developing countries, leading firms dependent on internal funds. However, external funding is cheaper and accessible in developed countries leading firms using more external funds. Besides, developing nations usually suffer from weak legal judiciary system and weak institutions that ultimately lead to weak corporate governance (Young, Peng, Ahlstrom, Bruton, & Jiang, 2008). Notably, it is challenging for African countries to maintain good corporate governance due to lack of effective regulatory frameworks, institutional frameworks, transparency, and market discipline (Rossouw, 2005). Hence, while firms in developed countries have good corporate governance (Kuchta-Helbling & Sullivan, 2002), firms in developing countries have poor corporate governance (Rabelo & Vasconcelos, 2002).

These variations in economic development and corporate governance in developing and developed countries might influence the efficiency and allocation of financial resources differently. Besides, it might also have different influences on the financing choices of firms and the accumulation of financial slack that might have different

[1] *Jimma University, Jimma-Ethiopia, Po Box.: 378, Jimma, Ethiopia. E-mail: dhgebreal@gmail.com*

firm performance implications. Therefore, overlooking slack and performance studies using firms in developing countries would make the existing literature incomplete. Hence, this study has the following contribution to the existing literature. First, considering the variations of the financial and legal system between developed and developing countries, this study is the first by exploring the slack and performance nexus of African firms. Second, this study applied the split sample analysis to explore the influence of different levels of financial slack on firm performance. Third, this study is also the leading in exploring the interaction effects of financial development on the slack and performance nexus.

The main objectives this study is to evaluate the interaction effects of financial development on slack and performance nexus of African firms. More specifically, this study is designed to evaluate the interaction effects of banking sector development on slack and performance nexus; and the interaction effects of stock market development on slack and performance nexus.

2. Literature and Hypothesis Development

The resource-based theory (Barney, 1991) argued that financial slack drive firm performance by helping them survive in hostile and dynamic environments. However, agency theory claimed that slack is a source of management inefficiency and agency problems that hinders firms' performance (Jensen & Meckling, 1976). According to pecking order theory (Myers, 1984) , asymetric information in the credit market derives agnecy problems leading to either moral hazard or adverse selection, that result in market failures; and it raises the costs of external finance. The practical implication of pecking order theory is that mitigating asymetric information eliminates agency problems that inturn improves efficient use of financial slack. Improving information efficiency and quality are the best instruments in reducing asymmetric information (Freixas & Rochet, 1998). Pecking order (Myers, 1984) and corporate finance (Tirole, 2010) theories further asserted that financial system development improves information efficiency and quality by brining providers and users of funds together in the capital market. Financial development could eliminate asymmetric information from credit market. For example, banks may agree to compile and share information via its credit bureau. Moreover, Besley and Ghatak (2014) asserted that loan contract and equity arrangement are the best way to deal with agency problems in the credit market. Draper and Hoag (1978) argued that financial intermediaries, in particular banks, involved in (1) acquainting information about the economic entities, (2) processing it, and (3) packaging or repackaging the financial claims of those economic entities. In the language of pecking order theory (Myers & Majluf, 1984), banks are viewed as an inside source of "financial slack." Also, Greenwald, Stiglitz, and Weiss (1984) explained that external finance raises firms' internal-finance leading to an increase in current and future investment. A well-functioning banking sector provides the optimal level of financial slack in the firm that leads to the superior firm performance. Similarly, Diamond (1984) alleged that banks have an incentive to monitor the actions of firms and ensure that they are operating efficiently. Banks do much of the trading derivatives and other securities for risk management (Allen, 2001; Allen & Santomero, 1997). They argued that risk is being allocated to the places where it can be best to be born by an imperfect set of markets and the role of financial institutions and their interaction with markets are crucial in this process (Allen & Gale, 2001).

Like the banking sector, the presence of the stock market alleviates the existence of asymmetric information in the financial market. Demirgüç-Kunt and Maksimovic (1996) argued that the well-functioning stock market improves information flow, corporate governance, and management competency, thereby alleviate underinvestment. The efficient market hypothesis (EMH) stated that the price of any assets in the market must fully reflect all its relevant available information (Fama, 1991). Fama (1991) further argued that the efficient capital market provides symmetric information associated with asset prices, which in turn offers adequate resources allocation. Moreover, a well-functioning stock market help firm's share traded more actively. Holmström and Tirole (1993) stated that managers' compensation is more closely tied to shareholders' wealth when a firm's shares traded more actively. Such a manager's compensation crucially eliminates the agency problem in the firm. The effective managers always aspire for better opportunity and remuneration from the market, and the market estimate the manager's ability by their prior performance. For this reason, the managers have to prove their worth by maximizing the value of the firm, and this increases the effectiveness and efficiency of the managers, thus yields superior firm performance (Panda & Leepsa, 2017). In conclusion, the well-functioning of the stock market help overwhelm the asymmetric information and agency problems, thereby facilitates the effective use of financial slack that, in turn, leads to superior firm performance.

We, however, argue that the influence of financial development on firms' efficiency might be different depending on the types and levels of financial slack. Jensen and Meckling (1976), argued that the accumulation of high available slack is waste incurred by an agent's pursuit of own interest, apathy, and incompetence, thereby harms firms' performance. Also, Leibenstein (1969) and Nohria and Gulati (1996) argued that high available slack encourages imprudent and unreasonable investments in the firm. This implied that slack downsizing leads to economic

efficiency and financial development by eliminating agency problems and management inefficiency (Tirole, 2010).

However, there might be a trade-off. While the financial development eliminates the adverse effects of high available slack, it might create adverse effects of low available slack on firm performance. In this study, the low financial slack firms have little current assets and high debt levels. The presence of a well-functioning financial system encourages firms to borrow more, leading to a huge cost of debt and the massive costs of debt might be associated with the little available slack in the firm. Thus, the financial development may generate a harmful effect of available slack and aggravate the adverse effects of potential slack on firms' performance with low financial slack. In the developed stock market, equity financing substitutes debt financing, thereby produces optimal debt-equity mixes. However, Africa is a bank dominance continent, and the region's stock market is in its infancy stage of development (Demis Hailegebreal, 2018). Demirgüç-Kunt and Maksimovic (1996) argued that in its infancy stage of development, the role of the stock market is not beyond information dissemination that encourages firms to borrow more, thereby producing a higher debt for firms. Therefore, further debt will create enormous interest payments for the firm. Due to insufficient current assets, such firms may not be able to cover their debt obligation. Therefore, both the banking sector and the stock market (financial development) in Africa will lead to a high debt level in firms.

Summing up, financial development could shape corporate governance and eliminate agency problems, thereby alleviate the adverse effect of high available slack on firm performance. Contrarily, financial development facilitates debt financing and produces a high-interest payment that needs to be paid off current assets. On the other way, financial development creates more debt for high potential slack firms (firms with low debt) and indebted the low financial slack firms (firms with high debt). Thus, firms with low financial slacks are forced to use their current assets to cover their interest payments that, in turn, hinders their performance. Based on these rationales, the following hypotheses are developed.

Hypothesis 1: *Financial development eliminates the adverse effects of high available slack but creates the adverse effects of low available slack on firm performance*

Hypothesis 2: *Financial development weakens the favorable effects of high potential slack but aggravates the adverse effects of low potential slack on firm performance*

3. Data and Method

3.1 The data and the sample

The source of firm-level data is the *Osiris* database and the source of country-level data is the World Bank database. Financial institutions such as banks and insurance companies are excluded by considering their slack accumulation might be unique and may affect the result. The sample comprises 923 non-financial firms in ten Africa countries with ten years data (2011-2020). This study categorized the sample firms as high and low financial slack firms for categorical analysis based on the level of their financial slack. The extant literature defined financial slack as a resource over the minimum requirement in the firms (Bourgeois, 1981). However, existing literature did not explicitly determine how much is the excess slack resources in the firm. It is difficult to specify the resource above the minimum requirement of firms due to their different characteristics such as the industry engagement, operation, size, and age, among others. Therefore, as far as the researcher knows, there is no standard (benchmark) to categorize financial slack as high and low. Due to the lack of such parameters in theories and existing literature, the regional average financial slack is used as a benchmark to classify firms as high and low financial slack firms.

The regional average available slack and potential slack are 2.1 and 0.75, respectively. The current ratio is the measure of available slack, and an increase in this ratio indicated a rise in available slack (Bourgeois, 1981). Therefore, firms are classified with current ratio (cr) greater or equal to the regional average (i.e., $cr \geq 2.1$) as "high available slack" firms and firms with current ratio below the regional average (i.e., $cr < 2.1$) as "low available slack" firms. The operational definition of potential slack is different from the available slack. The debt-equity ratio is the measure of potential slack. A decrease in the debt-equity ratio indicated that an increase in the potential slack and vice versa (Bourgeois, 1981). Thus, firms are categorized with debt-equity ratio (de) below the regional average (i.e., $de < 0.75$) as "high potential slack" firms and firms with debt-equity ratio equal to and higher than the regional average (i.e., $de \geq 0.75$) as "low potential slack firms." Therefore, firms with available slack greater or equal to 2.1 and potential slack less than 0.75 are high financial slack firms. In contrast, firms with available slack less than 2.1 and potential slack greater or equal to 0.75 are low financial slack firms.

In doing so, firms with overlapped financial slack are screened. By "overlapped financial slack," that is a single firm's available and potential slack is below and above the regional average during the study period, and it is difficult to group such firms either under a high or a low financial slack category. Again, firms with mixed financial slack are filtered out. It has been found a single firm with high available slack and low potential slack or low available slack and high potential slack. Thus, the phrase "mixed

financial slack" is used to denote firms with high available slack and low potential slack and low available slack and high potential slack. It is also difficult to classify such firms under a high or a low financial slack group of firms because they have mixed financial slack. Based on these criteria, 393 firms are dropped from the overall sample (i.e., from a sample of 923 firms). The final sample, thus, become 530 firms comprising 212 high financial slack firms and 318 low financial slack firms. The split sample analysis, hence, is based on 212 high and 318 low financial slack firms— a total of 530 firms.

The sample is classified across countries, industries, and group of firms. Table 1 presents a sample distribution. Panel 'A' of Table 1 reports a sample distribution across sample countries. A total sample of this study is 923 non-financial firms in ten African countries. Accordingly, 295 firms (32 %) of the sample firms are Egyptian, accounted for the largest number. The second-largest, 222 firms (24 %) of the sample are South African firms. The third-largest, 127 (14 %), are Nigerian firms. Also, 84 firms (9 %), 71 firms (8 %), 52 (6 %), and 30 firms (3 %) of the sample are Kenyan, Moroccan, Tunisian, and Ghanaian firms. The smallest, 2 percent, and 1 percent of the sample firms are Zambian and Tanzanian and Ugandan firms, respectively. Panel 'B' of Table 1 presents a sample distribution across industries. Industries are classified into 12 industry groups based on the Global Industry Classification Standard (GICS). The first-largest, 151 firms (16%) of sample firms are engaged in Services. The second-largest, 136 firms (15%) of the sample are manufacturing firms. From a total sample, 106 firms (12%) and 86 firms (9%) are Construction and Food & Beverage firms, Trade & Investment, and Energy industries, respectively. Also, 73 firms (8%), 58 firms (6%), 50 firms (5 %), 44 (5 %), 35 firms (4 %), and 19 firms (2%) of the sample firms are Transport, Agriculture, Media & Entertainment, Hotel & Tourism, IT & Telecom, and Health care firms respectively. Panel C of Table 1 reported the sample distribution based on the level of firms' financial slack. The subsample that comprises high and low financial slack includes 530 firms. This subsample, in particular, contains 212 high financial slack firms and 318 low financial slack firms. In percentage, 40 per cent of the firms are high financial slack, while 60 per cent of them are low financial slack firms.

Table 1. Sample distribution

Panel A: Sample distribution across countries			Panel B: Sample distribution across industries			Panel C: Sample distribution across groups of firms		
Country	Number of firms	%	Industry type	Number of firms	%	Firm type	Number of firms	%
Egypt	295	32	Service	151	16	High financial slack	212	40
South Africa	222	24	Manufacturing	136	15	Low financial slack	318	60
Nigeria	127	14	Construction	106	12			
Kenya	84	9	Food & Beverage	86	9			
Morocco	71	8	Trade &Investment	85	9			
Tunisia	52	6	Energy	80	9			
Ghana	30	3	Transport	73	8			
Zambia	18	2	Agriculture	58	6			
Tanzania	16	2	Media & Entertainment	50	5			
Uganda	8	1	Hotel and Tourism	44	5			
			IT and Telecom	35	4			
			Healthcare	19	2			
Total	923	100		923	100		530	100

3.2 Variables and Measurements

3.2.1 Firm performance

The dependent variable of this study is firm performance which is proxied by return on assets (ROA) and Tobin's q. These two proxies are used to capture both accounting-based (ROA) and market based (Tobin's q) firm performance. Mathematically, they are computed as follows.

$$ROA = \frac{Net\ Income}{Total\ Assets}$$

Tobin's q $= \frac{\text{MVE} + \text{BVD}}{\text{TA}}$ *(Where* MVE is market capitalization or market value of equity (the price of share*number of common shares outstanding), BVD the book value of total debt, TA is the book value of total assets)

3.2.2 Financial slack

Again it needs to recall that this study explored the interaction effects of financial development on the relationship between financial slack and firm performance. Thus, the independent variable is financial slack. The existing literature broadly defined financial slack as a resource over the minimum requirement in the firm (Bourgeois, 1981). Also slack is defined as a disparity between available resources and payments (demands) and not committed resources to a necessary expenditure (Cyert & March, 1963). Slack can be human, physical, technological, and financial resources, however, this study emphasized financial slack which is a resource that exists over the minimum requirement in the firm. Bourgeois (1981) classified financial slack as available and potential slack. Available or unobserbed slack exists as financial reserves that a firm can maintain by holding cash or financial instruments. The current ratio is used as a proxy of available slack which is suggested by Bourgeois (1981).

$$Current\ ratio = \frac{Current\ Assets}{Current\ liabilities}$$

Financial slack also exists when the firm borrows less than it potentially could borrow, which is called potential slack. Bourgeois (1981) again suggested debt equity ratio as a measure of potential slack. According to Bourgeois (1981), an increase in debt-equity ratio shows a decrease in potential slack and vice versa. This kind of slack indicates the ability of a firm to secure resources with the structure of external financing — debt and equity financing. This study employed a leverage ratio as a measure of potential slack. Mathematically, the potential slack is computed as follows.

$$Potential\ slack = \frac{Debt}{Equity}$$

3.2.3 Financial development

Financial development has different measurement dimensions. The World Bank develops proxies for the size of financial institutions and markets (i.e., financial depth), among others (Cihak, Demirgüç-Kunt, Feyen, & Levine, 2012). The relative size of financial development is an important issue in the financial development literature. The size of banking sector development predominantly measured by the bank deposit to the share of the country's gross domestic product (Beck, Demirgüç-Kunt, & Levine, 2000). Bank deposit to GDP is the ratio of all checking, savings, and time deposits in banks relative to GDP. The banking sector development is, thus, measured as the percentage share of bank deposits to GDP. Stock market capitalization (stock market cap) to GDP, among others, measures the size of stock market development (Beck et al., 2000). This study employ stock market capitalization to GDP% as a measure of the stock market development.

$$Bank\ deposit\ to\ GDP\% = \frac{Bank\ deposit}{GDP} * 100,$$

$$Stock\ market\ capitalization\ to\ GD = \frac{Stock\ market\ capitalization}{GDP} * 100$$

3.2.4 Control variables

Selling and general administrative expenses (sgaes)

The selling and general administrative expenses should move proportionately with the firm's revenue. An increase in the ratio of selling and general administrative expense to sales between two periods shows a negative signal about future profitability and firm value (Anderson, Banker, Huang, & Janakiraman, 2007). More importantly, the ratio of selling and general administrative expense is a measure of operating efficiency. An increase in the ratio reveals management inefficiency and inability to control the costs and vice-versa. Such inefficiency possibly adversely affects firm performance and, thus, the selling and general administrative expense to sales ratio are controlled in this study.

$$\text{sgaes} = \frac{sgaes}{Sales}$$

Firm growth

Firm growth is controlled in this study because it is closely associated with its survival and is a way to introduce innovation and is a knowledge of technological change that influences performance. Unless the firm is survived, performance and innovation are unthinkable. Firm growth is measured in two ways—sales growth and employment growth (Vickers & Lyon, 2014). Sales growth is computed as a disparity between current period sales and the previous period sales scaled by previous period sales. Employee growth is calculated the same as sales growth is computed.

$$\text{Sales growth (firm)} = \frac{Sales_t - Sales_{t-1}}{Sales_{t-1}}$$

$$\text{Employee growth (employee)} = \frac{Employee_t - Employee_{t-1}}{Employee_{t-1}}$$

Firm size (size)

Literature found conflicting result on the link between firm size and performance. some found that large firms invest more on R&D projects so that secure better performance

(Aduralere Opeyemi, 2019; Lun & Quaddus, 2011). Contrarily, others confirmed that large firms may become bureaucratic and less efficient, thereby adversely affects firm performance (Hedija, 2015; Olawale, 2017). Due to these arguments, this study controls firm size, and employed the natural logarithm of total asset of firms as a measure of firm size.

R&D investment

In today's global competition, there is a general agreement that innovation is critical for a firm's competitiveness and superior performance. The R&D investment decision made today influences a firm's growth, competitiveness, and performance in the future. Hay (1979) argued that high investment in R&D is generally a high-risk-high-return strategy that is more attractive to shareholders in expectation of better financial performance. Based on this argument, R&D investment is controlled in this study.

$$R\&D\ investment\ (rds) = \frac{R\&D\ expenditure}{Sales}$$

Economic growth

Studies empirically suggested that changes in the economic situation have influenced the performance and investment decisions of firms operating there. Studies further argued that business success and economic conditions are highly linked (Giroud & Mueller, 2017). As this study emphasized a cross country investigation, the economic growth of individual countries could influence firm performance. Firms in better economic growth may be more profitable than firms in relatively lower economic growth. An annual GDP growth rate of sample countries is used based on constant 2010 U.S dollars (the World Bank computation of annual GDP growth rate).

Governance indicators

The World Bank has defined 'good governance' as *"epitomized by expected, open and enlightened policy-making; a bureaucracy imbued with a professional ethos; an executive arm of government accountable for its actions, and a strong civil society participating in public affairs; and all behaving under the rule of law "*. There are six world-wide governance indicators— (1) voice and accountability, *(2)* political stability and absence of violence, (3) regulatory quality, (4) government effectiveness, (5) control of corruption, and (6) the rule of law. These indicators have similar measurements ranging from -2.5 (indicating weak governance) to 2.5 (indicating good governance). Due to such similarity, these indicators have higher collinearity with each other. To avoid severe collinearity among the indices, only three less correlated, namely control of corruption, the rule of law, and regulatory quality are controlled.

3.3 Econometric models and estimation techniques

Model 1 is developed to estimate the interaction effects of the financial development on the slack and performance nexus.

$$Tobin'sq_{ij,t}(ROA_{ij,t}) = \alpha + \beta_1 cr_{ij,t} + \beta_2 de_{ij,t} + \beta_3 bdgdp_{j,t} + \beta_4 stmktgdp_{j,t} + \beta_5 \text{interact1\_rc} + \beta_6 \text{interact2\_rc} + \beta_7 \text{interact3\_rc} + \beta_8 \text{interact4\_rc} + \beta_9 SGAES_{ij,t} + \beta_{10} rds_{ij,t} + \beta_{11} size_{ij,t} + \beta_{12} firm_{ij,t} + \beta_{13} employee_{ij,t} + \beta_{14} gdp_{j,t} + \beta_{15} CC_{j,t} + \beta_{16} RQ_{j,t} + \beta_{17} RL_{j,t} + \mu + \delta + \theta + \varepsilon \quad (1)$$

Where $Tobin'sq_{ij,t}$ and $ROA_{ij,t}$ are the performance of a firm i, in a country j and a time t, $cr_{ij,t}$ and $de_{ij,t}$ are available and potential slacks of a firm i, in a country j, at a time t, $bdgdp_{j,t}$ is banking sector development of a country j at a time t, $stmktgdp_{j,t}$ is stock market development of a country j at a time t, $SGAES_{ij,t}$ is selling general and administrative expense to sales ratio of a firm i, in a country j, at a time a t, $rds_{ij,t}$ is R&D investment of a firm i, in a country j, at a time t, $size_{ij,t}$ is the size of a firm i, in a country j, at a time t, $firm_{ij,t}$ is firm's sales growth of a firm i, in a country j, at a time t, $employee_{ij,t}$ is employment growth of a firm i, in a country j, at a time t, and $gdp_{j,t}$ is the annual GDP growth rate of a country j at a time t, $CC_{j,t}$ is control of corruption of a country j at a time, t, $RQ_{j,t}$ is regularity quality of a country j at a time, t, $RL_{j,t}$ is rule of law of a country j at a time t interact1_rc, interact2_rc, interact3_rc, and interact4_rc are the residual centered interaction term between available slack (cr) and banking sector development (bdgdp), potential slack (de) and banking sector development (bdgdp), available slack (cr) and stock market development (stmktcgdp), and potential slack (de) and stock market development (stmktcgdp), respectively. β_1 to β_4 estimate the effects of first-order predictors, β_5 and β_6 predict the moderating effects of banking sector development on slack and performance nexus, β_7 and β_8 estimate the moderating effects of the stock market development on the slack and performance association, β_9 to β_{16} evaluate the impacts of control variables on firm performance, α is constant,μ,σ, and θ are country, industry, and year effects, respectively, and ε is the error term.

Model 1 estimates the interaction effects of the financial development on the slack and performance association. This study employed the robust Ordinary Least Square

(OLS) following the Hausma fixed-random specification, Breusch-Pagan Lagrange multiplier (LM), and Breusch-Pagan / Cook-Weisberg tests. The Breusch-Pagan / Cook-Weisberg test (*chi2 (1) = 3064.05, Prob > chi2 = 0.000*) suggested that there exists a heteroscedasticity problem and a robust OLS is employed to handle such a problem as suggested by Wilcox and Keselman (2004).

4. Result

4.1 Descriptive analysis

Table 2 reported the descriptive statistics. For example, Ugandan firms reported the highest return on assets (roa) and Tobin's q implying they are more profitable firms than their counterparts. The highest (2.42) and the lowest (1.82) average available slack (cacl) is reported by South African and Ghanaian firms, respectively. Again, the average potential slack (de) ranges from 1.26 by South African firms to 0.036 by Tanzanian firms. Overall, African firms reported available slack and potential slack of 2.1 and 0.75, respectively. African firms, overall, reported an average R&D investment (rds) of 0.009, which is less than 1 per cent. Across countries, the average R&D investment ranges from 0.02 by Zambian firms to 0.00002 by Nigerian, Kenyan, and Ugandan firms from 2007 to 2016. The average selling general and administrative expense to sales ratio range from 0.616 in Ghanaian firms to 0.24 in Ugandan firms, indicating there exist a heterogeneous selling general and administrative expense to sales ration across African countries. While Nigerian firms are found to be more growing firms (sales growth of 0.93), Tunisian firms are less growing firms (sales growth of 0.04) for the last ten years. Tunisian firms reported the highest average employment growth of 0.89. However, employment growth has shown contraction in Egypt and Nigeria, with an average growth rate of -0.18 and 0.68, respectively. Nigerian firms are larger, with an average logarithm of total assets of 5.87, while Tanzanian firms are smaller, with an average logarithm of total assets of 0.42.

The average bank deposit to GDP ranges from 82.87 in Morocco to 14.33 in Uganda. The average stock market development again ranges from 64.03 in Morocco to 3.92 in Tanzania. This depicted that Morocco has a relatively well-developed banking sector and the stock market. Contrarily, while Uganda is behind in banking sector development, Tanzania left behind in stock market development from other African countries. The continent reported an average banking sector and stock market development of 52.19 and 32.86, respectively, during the study period. While Ghana is the fastest growing economy with an average annual GDP growth rate of 6.8, South Africa is the slowest growing economy with an average annual GDP growth rate of 2.17. On average, Africa reported an average GDP growth rate of 3.99 during the last ten years (2007-2016).

Countries such as Nigeria, Uganda, Kenya, and Egypt suffer from a relatively high level of control of corruption (cc) with an average control of corruption index of -1.098, -0.962, -0.990, and -0.653, respectively. However, South Africa has the strongest average control of corruption (cc) of 0.075, indicating South Africa strongly fights corruption. The regulatory quality (rq) is relatively the worst in Nigeria, Egypt, and Zambia, with an average index of -0.78, -0.482, and -0.474, respectively. However, there exists a positive, relatively strong regulatory quality (rq) in South Africa and Ghana with an average index of 0.375 and 0.018, respectively. The rule of law (rl) is relatively the worst again in Nigeria, Kenya, Egypt, and Zambia, with an average index of -1.08, -0.77, -0.397, and -0.376, respectively. However, the rule of law is relatively strict in South Africa and Ghana, with an average index of 0.124 and 0.029, respectively. In conclusion, while South Africa and Ghana have relatively good governance, Nigeria, Egypt, and Kenya have weak governance. On the other hand, eight out of ten countries have given a negative governance score for the last ten years. This implied that governance, in the region, is very weak.

On average, high financial slack firms reported an average available slack (cr) and potential slack (de) of 3.8174 and 0.2436, respectively. Low financial slack firms reported an average available slack and potential slack of 1.1598 and 2.1809, respectively. The average Tobin's q and ROA of high financial slack firms is 2.4754 and 2.5296, respectively. However, low financial slack firms reported an average of Tobin's q and ROA of 1.0360 and 0.0878, respectively. An average R&D investment (rds) of high financial slack during the study period is 0.0097 (0.97 %). However, an average R&D investment of low financial slack firms is only 0.0005 (0.05 %). High financial slack firms reported average logarithm total assets of 5.8807, while the low financial slack firms reported average logarithm total assets of 2.8561. On average, high financial slack and low financial slack reported the selling general and administrative expense to sales ratio of 0.1831 and 0.1895, respectively. High financial slack reported better sales growth than their low counterparts. High and low financial slack firms reported an average sales growth of 2.0246 and 0.6603, respectively. While high financial slack firms reported the average employment growth of 0.6985, low financial slack firms reported average employment growth of -0.2546.

Table 2.Descriptive statistics

Panel A: Descriptive statistics across countries												Panel B: Descriptive statistics across subsamples	
Variables	Egypt	Ghana	Kenya	Morocco	Nigeria	South Africa	Tanzania	Tunisia	Uganda	Zambia	All countries	High financial slack	Low financial slack
ROA	0.060 (0.100)	0.0440 (0.100)	0.054 (0.120)	0.070 (0.067)	0.060 (0.100)	0.053 (0.240)	0.150 (0.190)	0.050 (0.110)	0.150 (0.210)	0.070 (0.100)	0.060 (0.140)	2.5296 (2.7379)	0.0878 (0.7248)
Tobin's q	0.850 (0.990)	1.050 (0.942)	0.981 (1.407)	0.940 (1.150)	0.880 (1.910)	1.350 (6.230)	0.810 (0.700)	0.940 (0.970)	1.740 (2.080)	0.857 (1.003)	1.010 (3.260)	2.4754 (27.8263)	1.0360 (4.9636)
cr	2.330 (4.540)	1.820 (1.753)	1.950 (2.2)	1.870 (1.060)	1.290 (0.950)	2.420 (7.620)	1.910 (1.010)	2.000 (1.730)	0.500 (0.250)	2.000 (1.950)	2.100 (4.700)	3.8174 (1.7673)	1.1598 (0.4426)
de	0.970 (3.740)	0.071 (0.160)	0.045 (0.138)	0.350 (0.750)	0.640 (16.910)	1.260 (1.840)	0.036 (0.040)	0.270 (0.770)	0.150 (0.230)	0.090 (0.470)	0.750 (6.700)	0.2436 (0.2054)	2.1809 (1.9065)
sgae	0.153 (2.163)	0.616 (4.691)	0.269 (0.497)	0.176 0.186)	0.260 (0.250)	0.310 (1.93)	0.270 (0.190)	0.250 (0.240)	0.240 (0.080)	0.270 (0.150)	0.240 (1.730)	0.1831 (2.2025)	0.1895 (0.2381)
rds	0.010 (0.100)	0.003 (0.018)	0.00002 (0.0002)	0.0003 (0.0053)	0.00002 (0.00018)	0.017 (0.120)	0.0001 (0.0004)	0.0004 (0.0013)	0.00002 (0.00013)	0.020 (0.170)	0.009 (0.086)	0.0097 (0.0742)	0.0005 (0.0034)
size	5.160 (1.300)	1.151 (4.072)	0.490 (0.259)	0.500 (0.190)	5.870 (1.300)	5.810 (1.770)	0.420 (0.220)	0.530 (0.480)	0.520 (0.300)	0.430 (0.230)	4.030 (2.710)	5.8807 (1.2255)	2.8561 (2.6956)
firm	0.900 (1.3)	0.07 (0.536)	0.061 (0.110)	0.070 (0.065)	0.930 (0.690)	0.730 (2.240)	0.200 (0.160)	0.040 (0.090)	0.070 (0.072)	0.130 (0.150)	0.610 (1.380)	2.0246 (52.3860)	0.6603 (19.6356)
employee	-0.180 (0.390)	0.580 (5.789)	0.850 (1.436)	0.740 (2.960)	-0.680 (0.470)	0.050 (0.610)	0.850 (1.150)	0.890 (0.840)	0.880 (1.820)	0.800 (4.170)	0.101 (1.740)	0.6985 (15.5908)	-0.2546 (0.7147)
bdgdp	64.670 (7.130)	20.914 (2.203)	37.954 (2.861)	82.870 (4.240)	20.730 (5.760)	59.960 (2.050)	18.090 (0.650)	51.000 (3.980)	14.330 (1.620)	18.170 (1.110)	52.190 (20.050)		
stmktgdp	40.100 (24.70)	7.839 (0.826)	30.678 (5.017)	64.030 (14.050)	17.750 (9.730)	32.500 (10.790)	3.920 (0.280)	18.550 (3.470)	20.770 (5.830)	13.380 (0.860)	32.860 (20.840)		
gdp	4.190 (1.84)	6.844 (3.195)	5.229 (2.091)	3.870 (1.280)	4.98 (2.62)	2.170 (1.750)	6.700 (1.040)	2.770 (2.170)	6.130 (1.990)	6.520 (2.340)	3.990 (2.400)		
CC	-0.653 (0.077)	-0.082 (0.085)	-0.990 (0.070)	-0.308 (0.099)	-1.098 (0.112)	0.075 (0.126)	-0.580 (0.157)	-0.146 (0.102)	-0.962 (0.096)	-0.383 (0.068)	-0.513 (0.404)		
RQ	-0.482 (0.288)	0.018 (0.113)	-0.244 (0.079)	-0.140 (0.060)	-0.780 (0.089)	0.375 (0.092)	-0.407 (0.053)	-0.191 (0.198)	-0.213 (0.034)	-0.474 (0.033)	-0.254 (0.324)		
RL	-0.397 (0.216)	0.029 (0.073)	-0.770 (0.239)	-0.198 (0.079)	-1.088 (0.073)	0.124 (0.035)	-0.434 (0.068)	-0.027 (0.111)	-0.359 (0.046)	-0.376 (0.111)	-0.350 (0.371)		

4.2 Correlation analysis

Table 3 reported the correlation analysis. The absolute value of correlation coefficients of 0.7 is a threshold for a strong relationship between two variables (Dormann et al., 2013). The highest correlation in this study is 0.529 between regulatory quality and control of corruption. The correlation coefficient between the rule of law and control of corruption and the rule of law and regulatory quality are 0.481 and 0.446, respectively. However, the association between other variables are reasonably small. For instance, the correlation coefficient between available slack and selling general and administrative expense to sales ratio is -0.0019 suggesting an increase in the selling general and administrative expense would lead to a decline in available slack and vice versa. The correlation between potential and available slacks is 0.0119, indicating an increase in the available slack leads to an increase in the potential slack (i.e., a decline in debt level). This might imply that the accumulation of available slack leads firms to use such resources in supporting their investment, thereby decreasing their need for external finance (debt). Similarly, GDP is negatively (r=-0.306) and positively (r=0.168) correlated with the banking sector and the stock market development. The rule of law has a weak (r=-0.288) and a moderate negative (r=-0.608) correlation with GDP and banking sector development, respectively. A small association between other variables are also existed (see Table 3).

Table 3.Correlation analysis

		1	2	3	4	5	6	7	8	9	10	11	12	13
1.	sgaes	1												
2.	cr	-0.002	1											
3.	de	0.001	-0.014	1										
4.	rds	0.014	-0.02	-0.012	1									
5.	size	0.001	-0.02	0.072	-0.160	1								
6.	firm	0.012	0.013	0.019	-0.074	0.261	1							
7.	employee	0.211	0.007	-0.014	-0.006	-0.239	-0.068	1						
8.	gdp	-0.006	-0.028	-0.002	-0.022	-0.193	-0.025	-0.015	1					
9.	bdgdp	0.034	0.057	0.039	0.049	0.061	0.017	0.037	-0.306	1				
10.	stmktgdp	0.039	0.003	0.019	0.024	-0.029	0.003	0.027	0.168	0.472	1			
11.	CC	-0.024	0.011	0.014	0.052	0.116	0.011	0.026	-0.384	0.453	0.081	1		
12.	RQ	-0.020	0.008	0.006	0.051	0.047	0.016	0.032	-0.280	0.393	0.235	0.529	1	
13.	RL	-0.011	0.009	0.002	0.058	0.089	0.017	0.028	-0.288	0.608	0.332	0.481	0.446	1

4.3 Multicollinearity test

The interaction analysis requires interaction terms in the model that will lead to severe collinearity between the first-order predictors and their product terms. Such collinearity creates an unstable estimate and bounces beta weights (Pedhazur, 1982). Existing literature argued that the application of mean (Cohen, 1978) or residual centerings (Lance, 1988) tackle this problem. However, mean-centering is not a powerful method in eliminating such severe collinearity (Little, Bovaird, & Widaman, 2006). Little et al. (2006) suggested residual centering (a two-stage OLS) effectively eliminates the collinearity among the first-order predictors and their product terms. Besides, residual centering has the following advantages (Little et al., 2006). First, the coefficients and standard errors of the first-order predictors remain unchanged. Second, the significance of the interaction term is unbiased by the orthogonalized process. Third, orthogonalizing through residual-centering ensures full independence between the product terms and its constituent main effects. Hence, this study employed the residual centering by following the *Stata tip 118* "orthogonalizing powered and product terms using residual centering" (Sauer, 2014).

Table 4 reported the Variance Inflation Factors (VIF) before interaction terms (Panel A), before residual centering (Panel B), and after residual-centring (Panel C). There is no VIF value exceeding the threshold value of 10 in Panel A, indicating there is no higher collinearity among the first-order predictors. However, the VIF of available slack (cr) and interact1 (interaction term between available slack and banking sector development) are 10.42 and 23.41, respectively, suggesting there exists a multicollinearity problem. This result proved that the inclusion of interaction terms in the interaction model creates a severe multicollinearity problem. However, the residual centering (see Panel C), reduced these higher VIF values to 1.16 (VIF of cr) and 2.28 (VIF of interact1_rc), suggesting multicollinearity is not a problem anymore. Because residual centering effectively eliminated higher collinearity between first-order predictors and their interaction terms, this study used residual-centered interaction terms (interact1_rc to interact4_rc) instead of the interaction terms (interact1 to interact4) in the regression analysis.

Table 4.Multicollinearity test

Panel A: Before interaction terms			Panel B: Before residual-centring			Panel C: After residual-centring		
Variable	VIF	1/VIF	Variable	VIF	1/VIF	Variable	VIF	1/VIF
CC	6.82	0.1466	CC	6.85	0.1461	CC	6.85	0.1461
RL	6.42	0.1558	RL	6.52	0.1535	RL	6.52	0.1535
RQ	3.78	0.2647	RQ	3.79	0.2639	RQ	3.79	0.2639
stmktcgdp	3.4	0.2943	stmktcgdp	5.63	0.1776	stmktcgdp	3.44	0.2911
bdpgdp	3.06	0.3267	bdpgdp	5.75	0.1739	bdpgdp	3.1	0.3229
size	2.56	0.3909	size	2.56	0.3904	size	2.56	0.3904
employee	2.4	0.4159	employee	2.41	0.4156	employee	2.41	0.4156

gdp	1.38	0.7228	gdp	1.4	0.7154	gdp	1.4	0.7154
rds	1.2	0.8302	rds	1.21	0.8280	rds	1.21	0.8280
de	1.13	0.8843	de	3.81	0.2625	de	4.59	0.2176
firm	1.09	0.9171	firm	1.1	0.9114	firm	1.1	0.9114
sgaes	1.09	0.9173	sgaes	1.1	0.9077	sgaes	1.1	0.9077
cr	1.05	0.9492	cr	10.42	0.0959	cr	1.16	0.8651
			interact1	23.41	0.0427	interact1_rc	2.28	0.4395
			interact2	8.55	0.1169	interact2_rc	2.25	0.4448
			interact3	8.4	0.1190	interact3_rc	2.26	0.4422
			interact4	6.22	0.1607	interact4_rc	5.58	0.1792
Mean VIF	2.72		Mean VIF	5.83		Mean VIF	3.03	

interact1 is cr*bdgdp, interact2 is de*bdgdp, interact3 is cr*stmktcgdp, interact4 is de*stmktcgdp, interact1_rc is residual-centered interaction terms between available slack (cr) and banking sector development (bdgdp), interact2_rc is residual-centered interaction term of potential slack (de) and banking sector development (bdgdp), interact3_rc is resid-centered interaction term of available slack (cr), and stock market development (stmktcgdp), and interact4_rc is residual-centered interaction terms between potential slack (de) and stock market development (stmktcgdp)

4.4 Regression result and Discussion

A moderator is a variable that alters the strength or direction of the relationship between the independent and the dependent variables (Baron & Kenny, 1986). Such impact might be (1) enhancing (strengthening the association between independent and dependent variables), (2) buffering (weakening the relationship between the independent and dependent variables), and (3) antagonistic (reversing the correlation between the explanatory and the outcome variables). This study thus evaluates the moderating (interaction) effects of the financial development (banking sector and the stock market development) on the slack-performance nexus based on theoretical arguments. This study employed a robust OLS regression model based on three samples—overall (923 firms), high (212 firms), and low (318 firms) financial slack firms. This study further used residual-centered interaction terms to eliminate severe collinearity between the first-order predictors and their interaction terms. Table 5 reported the interaction effects of the financial development on the slack-performance relationship of overall firms (Panel A), high slack-performance nexus (Panel B), and low slack-performance association (Panel C).

While both the banking sector (interact1_rc and interact2_rc) and the stock market development (interact3_rc and interact4_rc) have no interaction effect on the association between financial slack (cr and de) and Tobin's q, they moderate the relationship between financial slack (cr and de) and ROA of overall firms (see Panel A). This result might mask the real interaction effects of the banking sector and the stock market development on the slack-performance nexus. Hence, this study run a split sample analysis, and discuss the interaction analysis. Panels B and C of Table 5 reported the interaction effects of financial (banking and the stock market) development on high slack and performance and low slack and performance nexus, respectively. The result is impressive. The relationship between high available slack (cr) and Tobin's q is negative and significant ($r=-0.228$, $p<0.05$). The relationship between interact1_rc (the interaction between available slack and banking sector development) and Tobin's q remains negative but insignificant ($r=-0.08$, $p>0.05$). Also, the association between high available slack (cr) and ROA is negative and significant ($r=-0.25$, $p<0.05$). However, the association between interact1_rc (the interaction between available slack and banking sector development) and ROA is positive and significant ($r=0.09$, $p<0.05$). This implied that the presence of a well-functioning banking sector reduces/ eliminates the adverse effects of high available slack on firms' market performance. The result also shows evidence of interaction effects of banking sector development on low available slack and performance nexus (see Panel C). Low available slack (cr) has a significant positive association with both Tobin's q ($r=0.1384$, $p<0.05$) and ROA ($r=0.171$, $p<0.05$). The interact1_rc (the interaction between low available slack and banking sector development) has an insignificant positive relation with Tobin's q ($r=0.01$, $p>0.05$) and significant negative association with ROA ($r=-0.07$, $p< 0.05$). This result implied that the banking sector development weakens the positive relationship between low available slack and Tobin's q and antagonizes the association between low available slack and ROA. This indicated that the banking sector development creates an adverse effect of low available slack on firms' accounting performance (ROA). In this study, low financial slack firms are firms with a low current ratio (available slack) and high debt-equity ratio (low potential slack). This result thus implied that the presence of a well-functioning

banking sector makes debt financing more accessible in the credit market. However, the cost of debt financing might be huge in such firms. Thus, in such firms (firms with high debt), available slack might be associated with interest payments, thereby yields a negative return. Therefore, the banking sector development weakens the positive association between low available slack and firms' market performance and creates the adverse effect of low available slack on firms' accounting performance.

The study also evidence of interaction effects of stock market development on high available slack-performance nexus. Remember that high available slack has a strong negative association with both Tobin's q and ROA. The interact3_rc (the interaction between available slack and stock market development) has a significant positive correlation with Tobin's q ($r=0.08$, $p<0.05$) and significant negative association with ROA ($r=-0.07$, $p<0.1$). The relationship between interact3_rc and ROA is weaker as compared to the association between high available slack and ROA, indicating the stock market development weakens the adverse effects of high available slack on firms' accounting performance. These results implied that the development of the stock market eliminates and weakens the adverse effects of high available slack on long-term (Tobin's q) and short-term (ROA) firm performance, respectively. The result further confirms the interaction effects of the stock market development on the low available slack-performance nexus. Remember that low available slack (cr) has a significant positive association with Tobin's q and ROA. The interact3_rc has significant negative association with Tobin's q ($r=-0.13$, $p<0.05$) and ROA ($r=-0.02$, $p<0.05$). This result implied that the stock market development has an antagonistic effect on the low available slack and performance nexus. That is, the stock market development changes the positive association between low available slack and firm performance into negative. In other words, the stock market development creates the adverse effects of low available slack on firm performance. This result is highly associated with the infancy stage of African stock market development. As explained earlier, the African stock market is in the infancy stage of development. In this stage, the role of the stock market is more of the provision of information that encourages firms to borrow more (Demirgüç-Kunt & Levine, 1996). Such initial stock market development produces a high debt-equity ratio in firms, leaving them indebted. Hence, the interest payments might go to the internal resources (i.e., available slack), thereby harms firms' performance. These results, in short, show that while the banking sector and the stock market development reduces the adverse effects of high available slack, they create the harmful impact of low available slack on firm performance. Thus, *hypothesis 1* is confirmed.

The financial development also moderates the relationship between high potential slack and firm performance. High potential slack (de) has a positive and significant association with Tobin's q significant ($r=-0.05$, $p<0.05$) and ROA ($r=-0.2024$, $p<0.05$). However, interact2_rc (the interaction between potential slack and banking sector development) has an insignificant negative correlation with Tobin's q (0.017, $p>0.05$) and ROA ($r=0.035$, $p>0.05$). The negative sign between high potential slack (de) and firm performance (Tobin's q and ROA) indicated their positive association between them. The positive sign between interact2_rc and firm performance (Tobin's q and ROA) shows their negative correlation between them. The result implied that the development of the banking sector reduces the potential slack (increase the debt level) of firms. An increase in debt level, however, will bring persistent interest payment, thereby adversely affects firm performance. The result further shows that the banking sector development interacts in the relationship between low potential slack and firm performance. Low potential slack (de) has an insignificant negative association with both Tobin's q ($r=0.03$, $p>0.05$) and ROA ($r=0.04$, $p>0.05$). Similarly, interact2_rc has negative but significant association with both Tobin's q ($r=0.02$, $p<0.05$) and ROA ($r=0.01$, $p<0.05$). The positive signs between low potential slack (de) and firm performance (Tobin's q and ROA) and interact2_rc and firm performance (Tobin's q and ROA) show a negative relationship between them. The significant negative association between interact2_rc and firm performance (Tobin's q and ROA) implied that the banking sector development enhances the negative relationship between low potential slack and firm performance. Firms with low potential slack are highly indebted (i.e., they have high debt). Thus, further development in the banking sector will lead firms to borrow more, thereby adversely affects their performance. In short, the banking sector development aggravates the adverse effects of low potential slack (high debt) on firm performance.

Stock market development also moderates the relationship between high potential slack and firm performance. Once again, remember that high potential slack has a significant positive association with Tobin's q ($r=-0.05$, $p< 0.05$) and ROA ($r=-0.2024$, $p<0.05$).The interact4_rc (the interaction between high potential slack and stock market development) has an insignificant negative and positive association with Tobin's q ($r=-0.05$, $p> 0.05$) and ROA ($r=0.04$, $p> 0.05$), respectively. This result implied that the stock market development buffers the positive association between high potential slack and firm performance (Tobin's q and ROA). This result is highly associated with the infancy stage of the stock market development in Africa. The stock market in Africa is still in its infancy stage (Adjasi & Yartey, 2007; Afego, 2015; Demis, Wang, Misraku, & Yidersal, 2018; Yülek & Yeda, 2018). In this

regard, Demirgüç-Kunt and Levine (1996) argued that in its infancy stage, the role of the stock market is not beyond the provision of information. Besides, Demirgüç-Kunt and Levine (1996) pointed out that such information provided by the stock market encourages firms to borrow more, thereby produces a higher debt in firms. Such high debt, in turn, hinders firm performance. Also, the stock market development moderates the relationship between low potential slack and firm performance. As explained earlier, low potential slack (de) has an insignificant negative association with both Tobin's q ($r=0.30$, $p>0.05$) and ROA ($r=0.04$, $p>0.05$). However, interact4_rc (the interaction between low potential slack and stock market development) has a significant negative relationship with both Tobin's ($r=0.01$, $p<0.05$) and ROA ($r=0.001$, $p<=0.05$). This result indicated that the stock market development enhances the negative association between low potential slack and firm performance. Low financial slack firms are firms with high debt-level (i.e., high debt-equity ratio). As explained earlier, the infancy stage of African stock market development provides information, thereby encourages firms to borrow more. Additional borrowing by the firms, however, harms their return. This result further implied that external equity financing doesn't substitute external debt financing in the region due to the infancy stage of stock market development. In short, both the banking sector and the stock market development reduces the positive impact of high potential slack and enhance the adverse effects of low potential slack on firm performance. This result confirms *hypotheses 2*.

This study has shown an interesting result on the influence of financial development on firm performance. Specifically, the banking sector and the stock market have a strong moderating role on the slack and performance nexus. However, both the banking sector and the stock market have no strong direct effect on African firm performance. This implied that the banking sector and the stock market development affect firm performance by affecting corporate governance. This also implied that the banking sector and the stock market development affect firm performance by eliminating the agency problems and management inefficiencies in the firm. Precisely, the banking sector development has a weak negative association with the performance of firms with low financial slack. Low financial slack firms are firms with low available slack (i.e., low current ratio) and low potential slack (i.e., high debt-equity ratio). The low current ratio and the high debt-equity ratio implied that these firms have low current assets and high debts. Such firms faced a shortage of internal finance and excess debts. Though such firms have a limited potential to borrow, further development in the banking sector make it possible to happen. Thus, these firms could borrow more, which aggravate the adverse effects of their performance. Hence, by providing more debt for the already indebted firms, the development of the banking sector adversely affects the performance of firms with low financial slack. However, stock market development (stmktcgdp) has a positive association with the performance of all types of firms. This result implied that stock markets offer platforms for equity financing that eliminates firms financing constraints, thereby improves firm performance.

Table 5 also illustrated the relationship between control variables and firm performance. Amazingly, R&D investment (rds) has a positive association with the performance of the overall sample (Panel A), high (Panel B), and low (Panel C) financial slack firms. This particular result indicated R&D investment has a favourable effect on African firms' performance. The favourable impact of R&D investment is stronger on the performance of low financial slack firms. This particular result is attributable to the effectiveness of low financial slack firms in managing R&D investment. The selling general and administrative expense to sales ratio (sgaes) and firm performance (i.e., overall, high, and low financial slack firms) are negatively associated. Its relationship is stronger with the performance of low financial slack firms. This implied that, as an expense, the selling general administrative expense adversely affects the performance of all types of firms. However, its adverse effect is stronger on the performance of firms with low financial slack. Also, firm size (size) is negatively associated with the performance of all types of firms. Astonishingly, the negative relationship of firm size is stronger with the performance of firms with high financial slack. This implied that large firms with high financial slack are more bureaucratic and less efficient than their counterparts, thereby has a strong adverse effect on their performance. Although it is not statistically significant, firms' sales growth (firm) is negatively associated with the performance of all types of firms. This result implied that firm growth in terms of sales is not always favourable for firms' returns. However, employment growth (employee) has a positive association with firm performance with all levels of financial slack. This implied that human capital is more favourable for firms' returns. This might be because human capital leads firms to have skilled employees that possibly create change and innovate in the firm.

This study also found a positive association between the annual GDP growth rate (gdp) and the performance of all types of firms. However, its association is stronger with the performance of firms with low financial slack. This result implied that economic growth positively influenced African firms' performance. Also, this study found an interesting relationship between governance indicators and African firms' performance. Regulatory quality (RQ) and the rule of law (RL) have a strong positive association with firm performance of all types of firms. Astonishingly, the association of this governance indicators (i.e., RQ and RL)

is stronger with the performance of low financial slack. However, control of corruption (CC) has a negative association with firm performance. Its relationship is stronger with the performance of low financial slack firms. This result implied that corruption is substantial in Africa, and African firms are suffering from it. The result also shows that fighting corruption remains a challenge for Africa.

Table 5.The interaction effects of the financial development on slack and performance nexus

	Panel A: The moderating effects of the banking sector and stock market development on slack-performance nexus of Overall firms (923 firms)		**Panel B**: The moderating effects of the banking sector and stock market development on high slack-performance nexus (212 firms)		**Panel C:** The moderating effects of the banking sector and stock market development on low slack-performance nexus (318 firms)	
	Tobin's q	ROA	Tobin's q	ROA	Tobin's q	ROA
cr	-0.0027	-0.0075**	-0.228*	-0.250*	0.1384*	0.171**
	(0.0044)	(0.0033)	(0.0065)	(0.0061)	(0.0406)	(0.0073)
de	-0.0162	-0.0296*	-0.0500**	-0.2024*	0.0300	0.0400
	(0.0100)	(0.0101)	(0.1052)	(0.0611)	(0.0067)	(0.00080
bdpgdp	0.0013	0.0022***	0.0069	0.0008	-0.0012	-0.0012***
	(0.0010)	(0.0008)	(0.0053)	(0.0029)	(0.0028)	(0.0005)
stmktcgdp	0.0035**	0.0074***	0.0126***	0.0041	0.0003	0.0003
	(0.0016)	(0.0011)	(0.0048)	(0.0026)	(0.0036)	(0.0005)
interact1_rc	-0.0004	-0.0002	-0.0800	0.0900**	0.0100	-0.0700**
	(0.0004)	(0.0003)	(0.0006)	(0.0004)	(0.0022)	(0.0004)
interact2_rc	-0.0003	-0.0007*	0.0170	0.0350	0.0200**	0.0100**
	(0.0003)	(0.0002)	(0.0052)	(0.0032)	(0.0004)	(0.00005)
interact3_rc	-0.00002	-0.0002	0.0800**	-0.0700**	-0.0130*	-0.0200*
	(0.0003)	(0.0001)	(0.0004)	(0.0003)	(0.0021)	(0.0003)
interact4_rc	0.0001	0.0005	-0.0500	0.0400	0.0100*	0.0010*
	(0.0004)	(0.0003)	(0.0036)	(0.0021)	(0.0005)	(0.0001)
rds	0.2593	0.4918*	0.2232	0.6270*	0.8594*	0.6674*
	(0.3617)	(0.3974)	(0.9367)	(0.9316)	(0.4350)	(0.6976)
sgaes	0.0108	-0.2318*	-0.1168	-0.1121	-0.0842**	-0.0587*
	(0.0531)	(0.0365)	(0.1159)	(0.0842)	(0.1269)	(0.0115)
size	-0.0024	-0.0113	-0.0348*	-0.1096*	-0.0164	0.0130*
	(0.0128)	(0.0111)	(0.0338)	(0.0221)	(0.0190)	(0.0020)
firm	0.0026	-0.0043**	-0.0004	-0.0027	0.0067	-0.0018
	(0.0082)	(0.0018)	(0.0240)	(0.0043)	(0.0124)	(0.0012)
employee	0.0104	0.4360*	0.0239	0.3861*	0.0494	0.0139*
	(0.0275)	(0.0364)	(0.0604)	(0.0671)	(0.0458)	(0.0042)
gdp	0.0033	0.0011	0.0083	0.0042	0.0311*	0.0025***
	(0.0071)	(0.0059)	(0.0171)	(0.0128)	(0.0142)	(0.0014)
CC	-0.4340**	-0.1811*	-0.4979	-0.5676***	-0.3304	-0.0173
	(0.1799)	(0.1410)	(0.4054)	(0.3084)	(0.3289)	(0.0324)
RQ	0.0532**	0.1146**	0.1698*	0.4632**	0.0881**	0.0778**
	(0.1371)	(0.1060)	(0.2994)	(0.2120)	(0.2620)	(0.0366)
RL	0.1273**	0.2403*	0.0232**	0.4847**	0.2155*	0.0212*
	(0.1261)	(0.1259)	(0.2716)	(0.2187)	(0.2889)	(0.0449)
_cons	0.9860*	0.8079*	0.7794*	0.4310*	0.0817*	0.0073
	(0.1348)	(0.1574)	(0.3123)	(0.3410)	(0.1935)	(0.0284)
Number of obs	9,230	9,230	2,120	2,120	3,180	3,180
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

R-squared	0.238	0.9209	0.567	0.9296	0.396	0.9606
County fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes

The robust standard error in parenthesis. The prob>F is 0.000 in all models, suggesting the models are a good fit. The R-squares for the second model (i.e., when ROA is the dependent variable) are above 90 in all Panels, indicating the variables included in this study have more explanatory power on ROA than on Tobin's q. The country, industry, and year fixed effects are controlled. All variables (except the governance indicators) are winsorized to 1 and 99 percentiles to remedy the effects of outliers, interact1_rc, interact2_rc, interact3_rc, and interact4_rc are the residual-centered interaction term between available slack (cr) and banking sector development (bdgdp), potential slack (de) and banking sector development (bdgdp), available slack (cr) and stock market development (stmktcgdp), and potential slack (de) and stock market development (stmktcgdp), respectively, * p < 0.01, ** p < 0.05, *** p < 0.1

4.5 Robustness check

The main result shows that both the financial (banking sector and the stock market) development moderates the high financial slack and performance, and the low financial slack and performance nexus differently. The result shows that financial development buffer the adverse and favourable effects of high and low available slacks on firm performance, respectively. Conversely, the financial development buffers and enhances the positive and the negative effects of high and low potential slacks on firm performance, respectively. However, the researcher is concerned about the endogeneity problem, which is an obstacle to understand the accurate linkage of variables of interest in corporate finance (Abdallah, Goergen, & O'Sullivan, 2015). Besides, Li (2016) argued that variables are naturally endogenous, instruments are scarce, and causality relations are involved in corporate finance. The argument in this regard is that there might be causality (simultaneity) from firm performance to financial slack. For example, more profitable firms may accumulate more financial slack compared to their unprofitable counterparts. Such causality or endogeneity may leads to biased and inconsistent parameter estimates and incorrect inference, which provide a misleading conclusion and inappropriate theoretical interpretation (Ullah, Akhtar, & Zaefarian, 2018). The use of lagged dependent variables has become a powerful remedy for the endogeneity problem (Abdallah et al., 2015).

Statisticians suggested IV estimator to deal with endogeneity issues (Ebbes, Papies, & van Heerde, 2016). This study, thus, applied instrumental variables to deal with a potential endogeneity problem. A valid instrument is a variable that has a strong correlation with the independent variable but only affects the dependent variable via its effect on the independent variable. The significant level of the Durbin and Wu–Hausman tests implied that financial slack is endogenous and should be treated as an endogenous variable (see Table 6). This study uses tax payments and wages & salaries as instrumental variables. The argument for choosing these variables is that both tax payments and wages & salaries could significantly affect financial slack, thereby impacts firm performance. The idea is that firms with high tax payments and wages & salaries might have little financial slack, which in turn, influences their performance, and the reverse is true for firms with low tax payments and wages & salaries. These variables are chosen following the post estimation tests that confirm that tax payments and wages & salaries are valid and strong instruments (see Table 6). This study applied the two-stage least square (2sls) regression which exhibits robust results on split sample analysis. The result is also robust regarding the relationship between control variables and firm performance for split samples (see Table 6).

Table 6. Robustness check using instrumental variables

	Panel A: The moderating effects of the banking sector and stock market development on slack-performance nexus of Overall firms		Panel B: The moderating effects of the banking sector and stock market development on high slack-performance nexus		Panel C: The moderating effects of the banking sector and stock market development on low slack-performance nexus	
	Tobin's q	ROA	Tobin's q	ROA	Tobin's q	ROA
cr	-0.1731	-0.0277**	-0.0678*	-0.0668*	0.2598*	0.0972*
	(0.1309)	(0.0829)	(0.34530	(0.2317)	(0.6033)	(0.1387)
de	-0.8861	-0.4515*	-0.9905*	-0.5217*	0.1514	0.0350
	(0.4995)	(0.3165)	(0.9578)	(0.3258)	(0.2500)	(0.0216)
bdpgdp	0.0058**	0.0007***	0.0066	0.0099	-0.0473	-0.0023***

	(0.0027)	(0.0017)	(0.0091)	(0.0061)	(0.0291)	(0.0025)
stmktcgdp	0.0098*	0.0042***	0.0371***	0.0055	0.0410	0.0002
	(0.0040)	(0.0025)	(0.0719)	(0.0482)	(0.0258)	(0.0022)
interact1_rc	-0.0021	-0.0009	-0.0007	0.0008**	0.0374	-0.0022***
	(0.0011)	(0.0007)	(0.0009)	(0.0006)	(0.0245)	(0.0021)
interact2_rc	-0.0160	-0.0077*	0.0134	0.0122	0.0400**	0.0200**
	(0.0089)	(0.0057)	(0.0091)	(0.0061)	(0.0013)	(0.0001)
interact3_rc	-0.0022	-0.0014	0.0003**	-0.0007**	-0.0238*	-0.0003*
	(0.0013)	(0.0008)	(0.0018)	(0.0012)	(0.0159)	(0.0014)
interact4_rc	0.0261	0.0137	-0.0233	0.0007	0.0900*	0.0200**
	(0.0149)	(0.0094)	(0.0730)	(0.0490)	(0.0010)	(0.0001)
rds	0.7482	0.6052*	0.7229	0.8489*	0.6217*	0.4001*
	(0.7721)	(0.4892)	(2.7307)	(0.8319)	(0.631)	(0.5915)
sgaes	-0.1432	-0.1611**	-0.0651	-0.2489	-0.5415*	-0.0733**
	(0.1103)	(0.0699)	(0.2461)	(0.1651)	(0.4238)	(0.0367)
size	-0.0321	-0.0521	-0.1537*	-0.0405*	-0.0860	0.0173*
	(0.0503)	(0.0319)	(0.0589)	(0.0395)	(0.0611)	(0.0053)
firm	0.0092	-0.0014	-0.0109	-0.0021	0.0159	-0.0037**
	(0.0154)	(0.0098)	(0.0311)	(0.0208)	(0.0217)	(0.0019)
employee	0.1379	0.4931	0.1151	0.5110***	0.0428	0.0156*
	(0.0939)	(0.0595)	(0.4159)	(0.2790)	(0.0833)	(0.0072)
gdp	0.0175	0.0092	0.0051	0.0009	0.0329*	0.0021**
	(0.0128)	(0.0081)	(0.0383)	(0.0257)	(0.0222)	(0.0019)
CC	-0.6287*	-0.0647	-0.3192**	-0.4462**	-0.8655	-0.0363
	(0.2369)	(0.1501)	(0.4294)	(0.2880)	(0.6247)	(0.0541)
RQ	0.1280	0.0763	0.7215*	0.3752*	0.7328**	0.0992***
	(0.1831)	(0.1160)	(2.1909)	(0.4697)	(0.6485)	(0.0561)
RL	0.3461**	0.4819**	0.0561**	0.3186*	0.7911*	0.0517**
	(0.3117)	(0.1975)	(0.5859)	(0.3931)	(0.7905)	(0.0684)
_cons	0.8279*	0.4890*	0.8154*	0.6194*	0.1461*	0.2846**
	(0.5227)	(0.3312)	(0.1488)	(0.4415)	(0.6518)	(0.1429)
No of obs.	9,230	9,230	2,120	2,120	3,180	3,180
Wald	137.53*	148.48*	108.62*	133.65*	145.02*	159.62*
Durbin	15.32*	13.73*	16.78*	15.77*	17.37*	15.81*
Wu-Hausman	12.64*	11.85*	13.33*	12.83*	13.64*	12.87*
Eigenvalue	13.85		13.89		12.05	

The null hypothesis of the Durbin and Wu–Hausman tests is that the financial slack can be treated as exogenous. Here both test statistics are highly significant in all models, so the null of exogeneity is rejected; financial slack (available and potential) slacks are treated as endogenous. The difference between the Durbin and Wu–Hausman tests of endogeneity is that the former uses an estimate of the error term's variance based on the model assuming the variables being tested are exogenous, while the latter uses an estimate of the error variance based on the model assuming the variables being tested are endogenous. The minimum eigenvalue statistic tests for a weak instrument (Stock & Yogo, 2002), and the eigenvalue greater than 10 shows instruments are strong (Staiger & Stock, 1994) which is confirmed in this study. Standard errors are in parenthesis. * $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$

5. Conclusions, Implication, and Future Research Direction

5.1 Conclusion

This study explores the interaction effects of financial development on the slack and performance nexus using a sample of 923 non-financial African firms from 2011 to 2020. The study employed a split sample analysis based on different levels of financial slack. For doing so, this study breakdowns the overall sample into subsamples that comprise 212 high and 318 low financial slack firms. This study uses the overall sample (923 firms) to show how the result is ambiguous and masks the real slack-performance nexus and moderating effects of financial development on the slack and performance association. This study employ current and debt-equity ratios to capture financial slacks. Firm performance is measured using Tobin's q and ROA. Financial development is proxied by bank deposit and the stock market capitalization to share of GDP. All variables

(except for the governance indices) are winsorized to their 1 and 99 percentiles of distributions to alleviate the potential outlier effects.

The findings of this study are imperative. The overall sample analysis reveals ambiguous results. Accordingly, while available slack has adverse influence, potential slack has a favourable impact on African firms' performance. It also shows that both the banking sector and the stock market development have no moderating effect on the slack and performance nexus. These results implied that using the overall sample provides ambiguous results. This study thus contributes to the existing literature by alleviating the above ambiguous results using the split sample analysis.

The split sample analysis shows that while high available slack has adverse effects, low available slack has a favourable impact on firm performance. However, the result shows that while high potential slack has a positive influence, low potential slack hurts African firms' performance. This study also finds impressive results on the interaction effects of financial development on slack and performance nexus. Both the banking and the stock market development strongly interact the association between different levels of financial slack and firm performance. In particular, they interact the relationship between high and low available slacks and firm performance. This study also reveals that both the banking sector and the stock market development help eliminate the adverse effects of high available slack on firm performance but create the harmful impact of low available slack and firm performance. The study further confirms the interaction effects of the banking sector and the stock market development on the association between different levels of potential slack and African firms' performance. It indicated that both the banking and the stock market development weaken the favourable effect of high potential slack but aggravates the adverse impacts of low potential slack on firm performance.

In general, the results of this study have three necessary demonstrations. First, different components of financial slacks have a different impact on firm performance. Second, various levels of financial slacks have different effects on firm performance. Third, slack and performance nexus is influenced by financial system development.

5.2 Implication

This study finally offers the following essential *managerial implications.* The result shows that high available slack negatively influenced firm performance, while low available slack positively impacts firm performance. This result implies that accumulating too much available slack harms African firms' performance, whereas keeping little available slack is beneficial to performance. Hence, managers should understand that keeping too much available slack generates negative returns. The result also shows while high potential slack positively impacts firm performance, low potential slack adversely influences firm performance. This implied that low debt (i.e., high potential slack) has a favourable impact, while high debt (i.e., low potential slack) adversely influenced African firms' performance. Therefore, managers have to understand that a high debt level harms firm performance, and they should be aware that additional loans lead to bankruptcy.

This study also has important *theoretical implications*. As explained earlier, while high available slack adversely impacts firm performance, high potential slack favourably affects firm performance. These results, thus, implied that while the resource-based theory generates strong prediction when dealing with high potential slack, the agency theory offers reliable prediction when dealing with high available slack. This result further implied that the combination of resources-based and agency theories is essential in explaining the slack and performance nexus. The result also suggested that examining the impact of different levels of financial slack on firm performance is necessary.

This study offers essential *policy implications.* The result shows that financial development help overwhelm the agency problems in the firm. This implied that the financial development improves corporate governance and management efficiency and reduce the agency problems, thus facilitate the effective use of available slack in the firm. Therefore, the continent should work hard to promote the banking sector and the stock market. The result, however, indicated that the banking sector and the stock market development weaken the favourable impact of high potential slack and aggravates the adverse effects of low potential slack on firm performance. This implied that the banking sector provides more debt for firms, and the interest payment adversely impacts their performance. Likewise, the African stock market, instead of facilitating equity financing, facilitates firms to get more debt. This is highly associated with the infancy stage of the stock market development in Africa. The stock market in Africa is still in its infancy stage, and its role at this stage is not beyond the provision of information. Such information provides by the stock market encourages firms to borrow more, thereby produces a high debt in the firm. Such high debt, in turn, harms firms' performance. This study finally suggested that Africa has to do more in improving the stock market so that it provides equity financing. Such equity financing, in turn, will lead to an optimum capital structure mix for firms that strengthens firms' financial performance.

This study finally suggested African countries *who didn't launch stock market* to think of it. Because, stock market along with banking sector provides information symmetry and alleviates agency problems by improving corporate governance. Particularly, this study strongly suggested Ethiopian government to launch stock market sooner.

5.3 Future research direction

This study emphasized financial slack and firm performance based on data availability. However, the researcher is concerned that non-financial slacks have a substantial impact on firm performance. Thus, future researches should consider non-financial slacks such as human, physical, and technological slacks in exploring the slack and performance nexus. Financial system development (i.e., the banking sector and the stock market development) has different dimensions such as size, access, efficiency, and stability. This study again limited to the size of the banking sector and stock market development as measured by bank deposit and stock market capitalization to share of GDP. This study, thus, suggested that future studies should consider other dimensions of financial system development in investigating the interaction effects of the banking sector and the stock market development on the slack and performance nexus.

References

Abdallah, W., Goergen, M., & O'Sullivan, N. (2015). Endogeneity: How failure to correct for it can cause wrong inferences and some remedies. *British Journal of Management, 26*(4), 791-804. doi: https://doi.org/10.1111/1467-8551.12113

Adjasi, C. K., & Yartey, C. A. (2007). *Stock market development in Sub-Saharan Africa: Critical issues and challenges*: International Monetary Fund.

Aduralere Opeyemi, O. (2019). The Impact of Firm Size on Firms Performance in Nigeria: A Comparative Study of Selected Firms in the Building Industry in Nigeria. *Asian Development Policy Review, 7*(1), 1-11. doi: 10.18488/journal.107.2019.71.1.11

Afego, P. N. (2015). Market efficiency in developing African stock markets: what do we know? *The Journal of Developing Areas, 49*(1), 243-266. doi: 10.1353/jda.2015.0022

Allen, F. (2001). Do financial institutions matter? *The journal of finance, 56*(4), 1165-1175. doi: 10.1111/0022-1082.00361

Allen, F., & Gale, D. (2001). *Banking and markets*: Citeseer.

Allen, F., & Santomero, A. M. (1997). The theory of financial intermediation. *Journal of Banking & Finance, 21*(11-12), 1461-1485. doi: /10.1016/S0378-4266(97)00032-0

Anderson, M., Banker, R., Huang, R., & Janakiraman, S. (2007). Cost behavior and fundamental analysis of SG&A costs. *Journal of Accounting, Auditing & Finance, 22*(1), 1-28. doi: 10.1177/0148558x0702200103

Barney, J. (1991). The Resource based view of strategy: Origins. *Implications, and Prospects*.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology, 51*(6), 1173.

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2000). A new database on the structure and development of the financial sector. *The World Bank Economic Review, 14*(3), 597-605.

Besley, T. J., & Ghatak, M. (2014). Solving agency problems: Intrinsic motivation, incentives, and productivity. *Background paper for the 2014 World Development Report*.

Bourgeois, L. J. (1981). On the measurement of organizational slack. *Academy of Management review, 6*(1), 29-39. doi: 10.5465/amr.1981.4287985

Cihak, M., Demirgüç-Kunt, A., Feyen, E., & Levine, R. (2012). Benchmarking Financial Systems around the World. World Bank Policy Research Working Papers WPS6175,(6175), 1–58.

Cohen, J. (1978). Partialed products are interactions; partialed powers are curve components. *Psychological Bulletin, 85*(4), 858. doi: 10.1037/0033-2909.85.4.858

Cyert, R. M., & March, J. G. (1963). A behavioral theory of the firm. *Englewood Cliffs, NJ, 2*, 169-187.

Demirgüç-Kunt, A., & Levine, R. (1996). Stock market development and financial intermediaries: stylized facts. *The World Bank Economic Review, 10*(2), 291-321. doi: 10.1093/wber/10.2.291

Demirgüç-Kunt, A., & Maksimovic, V. (1996). Stock market development and financing choices of firms. *The World Bank Economic Review, 10*(2), 341-369. doi: 10.1093/wber/10.2.341

Demis, Wang, Misraku, & Yidersal. (2018). Financial slack and firm performance: The mediating effects of the banking sector and stock market development. *Global Journal of Management and Business Research: B Economics and Commerce, 18*(7), 31-47.

Demis Hailegebreal, M. W., Misraku Molla and Yidersal Dagnew. (2018). Financial slack and firm performance in Africa: The mediating effects of the banking sector and the stock market development.

Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *The review of economic studies, 51*(3), 393-414. doi: 10.2307/2297430

Dormann, C. F., Elith, J., Bacher, S., Buchmann, C., Carl, G., Carré, G., . . . Leitão, P. J. (2013). Collinearity: a review of methods to deal with it and a simulation study evaluating their performance. *Ecography, 36*(1), 27-46. doi: 10.1111/j.1600-0587.2012.07348.x

Draper, D. W., & Hoag, J. W. (1978). Financial intermediation and the theory of agency. *Journal of Financial and Quantitative Analysis, 13*(4), 595-611.

Ebbes, P., Papies, D., & van Heerde, H. J. (2016). Dealing with endogeneity: A nontechnical guide for marketing researchers. *Handbook of market research*.

Fama, E. F. (1991). Efficient capital markets: II. *The journal of finance, 46*(5), 1575-1617. doi: 10.1111/j.1540-6261.1991.tb04636.x

Freixas, X., & Rochet, J. (1998). Ch. Microeconomics of Banking: The MIT Press, Cambridge, Massachusets London, England.

Giroud, X., & Mueller, H. M. (2017). Firms' Internal Networks and Local Economic Shocks: National Bureau of Economic Research.

Greenwald, B. C., Stiglitz, J. E., & Weiss, A. (1984). Informational imperfections in the capital market and macro-economic fluctuations: National Bureau of Economic Research Cambridge, Mass., USA.

Hay, D. A., Morris, D.J. . (1979). Industrial Economics: Theory and Evidence. *Oxford Bulletin of Economics and Statistics University Press, Oxford*.

Hedija, R. F. a. V. (2015). The Relationship between Firm Size And Firm Growth: The Case Of The Czech Republic. *ACTA UNIVERSITATIS AGRICULTURAE ET SILVICULTURAE MENDELIANAE BRUNENSIS, 63*, 1639-1644.

Holmström, B., & Tirole, J. (1993). Market liquidity and performance monitoring. *Journal of Political Economy, 101*(4), 678-709. doi: 10.1086/261893

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics, 3*(4), 305-360. doi: 10.1016/0304-405X(76)90026-X

Kuchta-Helbling, C. L., & Sullivan, J. D. (2002). Instituting Corporate Governance in Developing, Emerging, and Transitional Economies: A Handbook: Washington, DC: Center for International Private Enterprise.

Lance, C. E. (1988). Residual centering, exploratory and confirmatory moderator analysis, and decomposition of effects in path models containing interactions. *Applied Psychological Measurement, 12*(2), 163-175. doi: 10.1177/014662168801200205

Leibenstein, H. (1969). Organizational or frictional equilibria, X-efficiency, and the rate of innovation. *The Quarterly Journal of Economics, 83*(4), 600-623. doi: 10.2307/1885452

Li, F. (2016). Endogeneity in CEO power: A survey and experiment. *Investment Analysts Journal, 45*(3), 149-162. doi: https://doi.org/10.1080/10293523.2016.1151985

Little, T. D., Bovaird, J. A., & Widaman, K. F. (2006). On the merits of orthogonalizing powered and product terms: Implications for modeling interactions among latent variables. *Structural Equation Modeling, 13*(4), 497-519.

Lun, Y. V., & Quaddus, M. A. (2011). Firm size and performance: A study on the use of electronic commerce by container transport operators in Hong Kong. *Expert Systems with Applications, 38*(6), 7227-7234. doi: https://doi.org/10.1016/j.eswa.2010.12.029

Myers, S. C. (1984). The capital structure puzzle. *The journal of finance, 39*(3), 574-592. doi: 10.1111/j.1540-6261.1984.tb03646.x

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics, 13*(2), 187-221. doi: 10.1016/0304-405X(84)90023-0

Nohria, N., & Gulati, R. (1996). Is slack good or bad for innovation? *Academy of management Journal, 39*(5), 1245-1264.

Olawale, L. S., Ilo, Bamidele M.Lawal, Fatai K. (2017). The effect of firm size on performance of firms in Nigeria. *THE IEB INTERNATIONAL JOURNAL OF FINANCE, 15*, 2-21. doi: 10.5605/IEB.15

Panda, B., & Leepsa, N. (2017). Agency theory: Review of theory and evidence on problems and perspectives. *Indian Journal of Corporate Governance, 10*(1), 74-95. doi: 10.1177/0974686217701467

Pedhazur, E. J. (1982). Multiple regression in behavioral research (2nd edV New York: Holt. *Rinehart & Wmston*.

Rabelo, F. M., & Vasconcelos, F. C. (2002). Corporate governance in Brazil. *Journal of Business Ethics, 37*(3), 321-335. doi: 10.1023/A:1015249300794

Rossouw, G. (2005). Business ethics and corporate governance in Africa. *Business & Society, 44*(1), 94-106. doi: https://doi.org/10.1177/0007650305274851

Sauer, C. (2014). Stata tip 118: Orthogonalizing powered and product terms using residual centering. *The Stata Journal, 14*(1), 226-229.

Staiger, D., & Stock, J. H. (1994). Instrumental variables regression with weak instruments: National Bureau of Economic Research.

Stock, J. H., & Yogo, M. (2002). Testing for weak instruments in linear IV regression: National Bureau of Economic Research.

Tirole, J. (2010). *The theory of corporate finance*: Princeton University Press.

Ullah, S., Akhtar, P., & Zaefarian, G. (2018). Dealing with endogeneity bias: The generalized method of moments (GMM) for panel data. *Industrial Marketing Management*, *71*, 69-78. doi: https://doi.org/10.1016/j.indmarman.2017.11.010

Vickers, I., & Lyon, F. (2014). Beyond green niches? Growth strategies of environmentally-motivated social enterprises. *International Small Business Journal*, *32*(4), 449-470. doi: https://doi.org/10.1177/0266242612457700

Wilcox, R. R., & Keselman, H. (2004). Robust regression methods: Achieving small standard errors when there is heteroscedasticity. *Understanding Statistics*, *3*(4), 349-364. doi: 10.1207/s15328031us0304_8

Young, M. N., Peng, M. W., Ahlstrom, D., Bruton, G. D., & Jiang, Y. (2008). Corporate governance in emerging economies: A review of the principal–principal perspective. *Journal of management studies*, *45*(1), 196-220. doi: https://doi.org/10.1111/j.1467-6486.2007.00752.x

Yülek, M. A., & Yeda, V. (2018). Broadening Financial Intermediation in Sub-Saharan Africa *Financing Sustainable Development in Africa* (pp. 93-119): Springer.