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STOCK LIQUIDITY, GROWTH OPPORTUNITIES AND DEFAULT RISK AMONG NONFINANCIAL FIRM LISTED IN KENYA

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ABSTRACT

Objective: This paper analyses the impact of stock liquidity and growth opportunities on default risk of nonfinancial listed firms in Kenya.

Research Methodology: The study employs panel data analysis to study the 31 nonfinancial listed firms between 2011 and 2020. Default risk is estimated by Merton's (1974) distance to default, stock liquidity is conceptualized as price impact and trading quantity, while growth opportunities is measured by the ratio of market to book value. The study employs the random effect to test the hypotheses based on the results of the Hausman test.

Results and findings: The results revealed that the stock liquidity had statistically significant effect on default risk, while growth opportunities had a moderating effect. Furthermore, tangibility, institutional ownership, firm size, firm profitability and leverage were also found as exerting a significant effect on default risk.

Recommendations: Managers may consider financing growth opportunities by leveraging on stock liquidity, which may lower the likelihood of default risk.

Keywords: *Default risk, stock liquidity, growth opportunities, listed firms, Kenya*

1. Introduction

Businesses are commonly presumed to operate on a continuing concern basis, implying that they are in a financially stable situation. Indeed, it is possible that this may not be true, as firms can fail as a result of unforeseen circumstances. A firm's default has significant ramifications on its operations, resulting in supply chain interruptions and productivity disruptions, which in turn lead to the firm incurring legal and professional expenses. There has been a rise in the frequency of cases where Kenyan corporations have failed to fulfill their financial obligations (Ogachi *et al.,* 2020). The extensive occurrence of default in financial sectors and the subsequent financial losses incurred by stakeholders, particularly stockholders and bondholders, as well as the consequential effects on financial stability, have attracted the attention of policy-makers, academics, and practitioners in examining the determinants that affect a company's risk of default. Publicly traded companies in Kenya have encountered challenges in fulfilling their financial obligations, resulting

in their delisting or even closure. Kenya presents an intriguing opportunity to investigate the correlation between stock liquidity and default risk. This is due to a series of defaults by companies listed on the Nairobi Securities Exchange, and the inconclusive nature of past study findings.

Stock liquidity can impact default risk due to many factors. The repayment of a corporation's debt requires the company to have access to financial resources, and the company's ability to repay its debt depends on the level of stock liquidity it maintains. When a company requires external funding to repay debt, the level of activity and availability of buyers and sellers in the stock market becomes a critical factor in determining the company's ability to survive. Consequently, the probability of the company defaulting on its obligations naturally decreases (increases) in a market with high levels of activity (low levels of activity) (Duan & Zou, 2014). El Kalak et al. (2017) found that the relationship between stock liquidity, firm valuation, future cash flow, and the likelihood of debt default are interconnected. Increased stock liquidity is positively associated with higher business value and enhanced cash flow. This is due to the feedback effects that changes in stock prices have on the investments made by companies. Enhanced liquidity leads to heightened accuracy of stock prices as it empowers well-informed investors to capitalize on their exclusive insights, hence incentivizing them to acquire additional shares. The references for the above works are Holmstrom and Tirole (1993) and Subrahmanyam and Titman (2001).

Moreover, enhanced liquidity facilitates the process of investors divesting their stock holdings. Due to the sales, the stock price is experiencing downward pressure, which is disadvantageous for the manager as their compensation is tied to equity-based remuneration. Moreover, enterprises with enhanced access to financial markets and reduced direct issuance costs exhibit a diminished likelihood of defaulting on their debt commitments. This is due to their lower probability of defaulting on their debt obligations. Butler and Wan (2010) show that higher liquidity not only leads to a greater probability of issuing public debt, but it also leads to a significant decrease in the cost of issuing that debt directly. Bulter et al. (2005) found a strong and consistent negative relationship between the fees paid to investment banks and the stock market liquidity of the issuing firm in their analysis of seasoned equity issuance. Furthermore, Odders-White and Ready (2006) examine the correlation between credit ratings and the ease of buying and selling stocks. It has been observed that organizations with readily tradable stock possess superior credit quality compared to companies without easily tradable stock. Furthermore, a study conducted by Alimoradia, Khademvatanib, and Gholamic (2020) found a strong negative correlation between stock liquidity and the likelihood of default for petrochemical and petroleum product companies listed on the TSE.

Furthermore, this study examined whether the correlation between stock liquidity and default risk is influenced by growth prospects. Based on the research conducted by Lyandres and Zhdanov (2013), it was found that there is a gap in the current literature regarding the optimal default strategy for a company. They argue that this strategy depends on the specific combination of growth options and existing assets possessed by the company. Moreover, Arian et al. (2014) argue that the correlation between liquidity and corporate success may not be attributed to a direct causal effect of liquidity. They state this assertion in their essay titled "The Relationship between Liquidity and the Performance of a Company." They argue that the liquidity of the stock market may be interconnected with other factors that impact the company's worth. Spiegel and Wang (2005) establish that the relationship between stock liquidity and performance can be enhanced by favorable growth prospects. The rationale behind this is that companies experiencing rapid growth tend to have elevated market-to-book ratios, which can attract institutional investors. Arian et al.

(2014) found that these trades enhance market depth and increase stock liquidity by stimulating investor demand for securities. The connection between stock liquidity and default risk may be driven by the attractiveness of a firm's growth prospects to institutional investors. Conversely, past research supports the notion that organizations with growth potential tend to provide greater salaries to their employees, utilize stock options more frequently (Gaver & Gaver, 1993), and incur higher monitoring expenses (Anderson et al., 1993). The results were published in Gaver & Gaver's (1993) study. Consequently, this is expected to cause a widespread decline in the company's overall performance, finally resulting in a reduction in its cash inflows.

The points highlight the need for further research to support the notion that stock liquidity can influence default risk. Additionally, they suggest that growth opportunities may act as a moderating variable in the relationship between stock liquidity and default risk. Furthermore, the notion that stock liquidity might impact default risk is substantiated by the concept that growth prospects may engender a reciprocal influence. The concept that growth prospects might create a feedback loop supports the argument that stock liquidity may impact the likelihood of default. The aim of this study was to examine how growth prospects affect the relationship between stock liquidity and default risk in non-financial companies listed on the Nairobi Securities Exchange.

2. Review of empirical literature

2.1. Price impact and stock liquidity

Empirical evidence has demonstrated that the influence of price on a firm's performance leads to a decrease in the likelihood of default. Previous studies suggest that increased stock liquidity leads to greater profitability for investors who possess private information, hence incentivizing them to seek and act upon further information. Consequently, this results in stock prices that are more knowledgeable, as evidenced by studies conducted by Holden and Subrahmanyam (1992), Holmstrom and Tirole (1993), and Subrahmanyam and Titman (2001). Managers rely on stock prices to make decisions on business investments (Luo, 2005; Chen et al., 2006; Bakke & Whited, 2010). As a result, managers are able to make more informed investment decisions, leading to increased cash flows and decreased volatility in cash flow, ultimately resulting in reduced default risk. According to feedback theories, the impact of stock liquidity on a company's cash flows is directly related to how much the company's operations are affected by the information contained in stock prices (Arian et al., 2014).

According to Brogaard et al. (2017), enhancing the effectiveness of stock price information is a way in which stock liquidity decreases the likelihood of a company defaulting. The coefficient of the price efficiency measure change is statistically significant and consistently positive across all specifications. Therefore, when the price efficiency of a corporation improves, its default risk decreases. Stock liquidity enables knowledgeable investors to capitalize on their private information, thereby incentivizing investors to gather more information and make trades based on it, resulting in more accurate stock prices (Holden & Subrahmanyam, 1992; Holmstrom & Tirole, 1993; Subrahmanyam & Titman, 2001). Managers are said to acquire knowledge from the informational value of stock prices and utilize it to direct their company's investments. As a result, managers are able to make more informed investment decisions, leading to increased cash flows and decreased volatility in cash flow. This ultimately reduces the risk of default.

In addition to what has been discussed, Khanna and Sonti (2004) demonstrate that liquidity can have a positive impact on the success of a company by encouraging the participation of

knowledgeable investors, thereby making prices more informative for stakeholders. According to Khanna and Sonti (2004), traders that have access to information take into account how their trades will affect the behavior of managers when developing their trading strategy. They trade more aggressively, which leads to prices becoming more informational. The feedback effect enhances operational efficiency and alleviates financial distress.

H1. Price impact negatively influences default risk

2.2. Trading quantity and default risk

Trading volume is a crucial indicator of the liquidity of the stock market. Trading amount refers to the measure of stock turnover, as defined by Datar et al. (1998), which quantifies the trading volume aspect of liquidity. The turnover rate of a stock is calculated by dividing the total number of shares exchanged by the total number of shares that are currently available in the market. Turnover data have commonly been employed to analyze liquidity. Annual turnover trends, which represent the multiplication of the quantity of shares exchanged by their price, can be used as an indicator of market liquidity on a broader scale.

Research has demonstrated a relationship between the volume of trading and the likelihood of default, as influenced by the decision to use debt or equity funding. Bilinski and Mohamed (2015) argue that a high stock turnover leads to a decrease in the price response to debt issue announcements, indicating that debt financing may offer fewer advantages compared to equity financing. Massa, Yasuda, and Zhang (2010) found that firms exhibiting high stock turnover, high stock return volatility, or a high z-score (indicating proximity to financial distress) are less inclined to issue bonds compared to firms with high abnormal returns, a substantial asset base, high asset tangibility, significant capital expenditures, or high book leverage.

Abdulla and Ebrahim (2020) analyzed the influence of stock liquidity on capital structure by studying a group of 108 non-financial companies that are listed on the Tadawul stock market from 2007 to 2018. The findings suggest that there is no statistically significant correlation between stock liquidity and leverage.

H2. Trading quantity positively influences default risk

2.3. The moderating role of growth opportunities.

The stock market is a platform where traders leverage their knowledge to generate profits through trading. The actions of traders directly influence changes in stock prices, as they incorporate their information into the stock market. In their study, Dow and Gorton (1997) outline two functions of stock price that enhance the effectiveness of managers' investment choices: a forward-looking function and a backward-looking function. Managers often get knowledge from the stock market and make judgments based on pricing, as the market provides information that they lack, such as macroeconomic conditions, future industry prospects, and competitors' plans. Traders are motivated to generate information regarding the anticipated profitability of the investment project and engage in trading based on it. Furthermore, stock prices serve as a means to assess previous investment choices, thereby motivating management to make effective judgments. Subrahmanyam and Titman (2001) develop a feedback model wherein a firm's stakeholders utilize stock prices as a basis for decision-making, resulting in variations in the firm's future cash flows. They contend

that the feedback loop between stock prices and business fundamentals might significantly influence managers' motivation to get information from the stock market to inform their actual actions. Enhancing the efficiency of investment decisions can be achieved by having more informed stock prices, as these prices have a direct impact on managers' actual choices.

When stock liquidity increases, it leads to improved price efficiency. As a result, managers are more likely to make investment decisions that are based on the information reflected in stock prices and are more efficient. Managerial decision-making has a significant impact on a company's future cash flow, which in turn influences its ability to cover debt service costs and repay principle. Making more efficient investment decisions can lower the risk of bankruptcy for corporations by generating larger cash flows. Therefore, based on this reasoning, it is possible to hypothesize that there is an inverse correlation between the liquidity of a stock and the likelihood of a company defaulting. The study conducted by El Kalak et al. (2017) investigated the link between the liquidity of stocks and the probability of bankruptcy for small and medium-sized enterprises (SMEs). The researchers analyzed a dataset consisting of information on 5,075 small and medium-sized enterprises (SMEs) in the United States. The data covers the time span from 1984 to 2013. The study findings indicate that the liquidity of the stocks in the bankruptcies sample is inferior than that of the stocks in the non-bankruptcies sample. Several liquidity measurements exhibit a robust link between the two. In comparison to the non-bankruptcies sample, the bankruptcies sample exhibits Amihud's and turnover ratios that are around 2.5 times greater, a Florackis ratio that is twice as high, and a zero-return ratio that is 1.5 times higher. The liquidity ratios indicate that companies with less liquid stocks have a higher probability of declaring bankruptcy. Gniadkowska-Szymańska (2022) examined the correlation between share liquidity and the likelihood of bankruptcy. The study examines companies listed in the WIG index, OMXBBGI index, and DAX index from 31 March 2012 to 31 December 2017. The study discovered a direct correlation between the rate at which stocks are bought and sold (stock turnover rate) and the likelihood of bankruptcy. This implies that higher liquidity in a company's shares can elevate the risk of insolvency. Based on an analysis of data obtained from the Thomson Reuters DataStream and MintGlobal databases, Mohamed and Seelanatha (2014) discovered that there was a statistically significant negative correlation between share turnover and market leverage in the period before the global financial crisis (2003-2006). However, this relationship had no impact during the period after the crisis (2007-2011). The authors' conclusion is that in a stable economic setting, companies with readily available stock shares choose to utilize equity capital instead of borrowed capital.

In their study, Khediri et al. (2021) examined a sample of 23 non-financial enterprises that were listed on the Tunis Stock Exchange from 2000 to 2009. They found that there was a relationship between stock turnover and leverage. Eckbo and Norli (2005) examined the correlation between leverage, turnover, and liquidity following initial public offerings (IPOs) by analyzing a dataset of 6000 Nasdaq IPOs spanning from 1972 to 1998. The authors utilized the mean annual values of monthly turnover, derived from dividing the trading volume by the number of outstanding shares. The research findings indicated an inverse relationship between stock turnover and leverage, with equities exhibiting higher turnover demonstrating lower levels of leverage. Bouazzama and Torra (2022) conducted a study using a sample of 55 non-financial companies that were listed on the Casablanca stock exchange market from 2000 to 2020. The author discovered that the trading volume of equity securities on the market had a negligible and non-significant impact on the indebtedness of the chosen company. According to Wang (1994), there is a connection between

trading volume and the dissemination of information about a company's financial state. Wang argues that trading volume may increase when information about the company's financial troubles becomes public. Curry, Fissel, and Elmer (2004) found that declining stock prices, low returns, reduced dividends, and heightened return volatility were all indicative of bank failures during the period of 1989 to 1995, when they examined the influence of market indicators on predicting such collapses. Nevertheless, the authors found that market characteristics such as trading volume and share turnover did not provide a clear indication of bank failure. We therefore hypothesize that:

H3(a). Growth opportunities moderates the relationship between price impact and default risk

H3(b). Growth opportunities moderates the relationship between trading quantity and default risk

3. Research design

3.1. Data, sample

The study focused on listed nonfinancial firms in Kenya. As of 2022, Kenya had 65 listed firms of which 40 were nonfinancial and 25 financials across 13 sectors. The study applied an inclusion and exclusion criteria that; the firms ought to have had its shares trade throughout the study period between 2011 and 2020 and its financial and stock information must be available for consecutive 10 years. The final sample comprised of 31 firms that yielded 310 firm-year observations. Stock market data is extracted from the Nairobi Securities Exchange reports, while the rest of the data are hand-collected from the annual reports.

3.2. Measurement of variables

3.2.1. Dependent variable- Default risk

The study uses the Merton's (1974) model to measure default risk. As the baseline measure of default risk, the distance to default (DD) has been widely used to estimate default risk among non-financial firms (Bharath & Shumway, 2008; Chava & Purnanandam, 2010; Hovakimian et al., 2012). Distance to default (DTD) is inversely associated with default risk, meaning that a higher value of distance to default indicates lower default risk The study estimate the probability of default (Prob. Default) as the N (-DD). Where, N (-DD) is the CDF of normal distribution

3.2.2. Independent variable- Stock market liquidity

A liquid market is generally referred to as the market in which a large quantity is traded without any delay at lower transaction costs with minimum price impact. Thus, the reviewed studies have measured liquidity in the stock market by using a variety of liquidity measures that can fairly capture the key market liquidity characteristics, that is, depth (trading quantity) and breadth (price impact). All the four measures of stock liquidity were computed on yearly basis. Consequently, and based on literature this study employed the two main indicators of stock liquidity comprising of trading quantity and price impact (Le & Gregoriou, 2020; Tse & Zabotina, 2001; Boudt & Petitjean, 2014).

3.2.3. Moderating variable -growth opportunities

Growth opportunity is the moderating variable. Following standard convention in the literature, this study uses the market-to-book asset ratio as an index of the firm's growth opportunities. Market-to-book ratio (MTB), is the market value of an equity divided by its book value (Lyandres & Zhdanov, 2013). Importantly, Adam and Goyal (2003) provide evidence that the market-to-book asset ratio is the best proxy for growth opportunities, demonstrating that it has the highest correlation with a firm's actual investment opportunities, reflects the information in other proxies, and is least affected by confounding factors.

3.2.4. Control Variables

The study also control for several relevant firm characteristics that could affect default risk in the regression model: (1) Profitability, the ratio of net income to total assets; (2) Tangibility; the ratio of property plant and equipment (3) Size, measured using the logarithm of total assets; (4) institutional ownership, the ratio of institutional ownership to total shareholding (5) Firm age; which is the natural logarithm of the number of years since incorporation (6) leverage; the ratio of total debt to total assets (Atif & Ali, 2021; Kabir, Miah, Ali & Sharma, 2020; Nadarajah *et al.*, 2021; Nie, Ling & Chen, 2023; Yildirim, 2020). Table I provides detailed definitions, constructions, and economic rationales for these variables.

Variable	Definition	Notation
Default risk	The default risk is derived from Merton (1974) Distance to Default. The probability of default given as P D = N(−DD), where N is the standard normal distribution function and DD is the distance-to-default.	PD
Firm size	Nature logarithm of total assets denominated in Kenyan Shillings	FS
Firm Age	Natural logarithm of number of years since incorporation	FA
Firm performance	Return on assets	ROA
Tangibility	Ratio of plant property and equipment to total assets	TAN
Leverage	Ratio of debt to assets	
Institutional ownership	Proportion of shares held by institutional investors	INOW
Price impact	Annual Amihud (2002) illiquidity- Annual average of the daily ratio of absolute value of stock return divided by shilling trading volume.	PI
Trading quantity	Turnover ratio, which is the average of the daily number of shares traded scaled by the average number of shares outstanding over 12 months	TQ
Growth opportunities	Market value of an equity divided by its book value	GOP

Source: (Authors 2023)

3.3. Estimation model

We empirically investigate the effect of stock liquidity on default risk, and moderating role of growth opportunities using the model given below:

$$PD_{it} = \beta_0 + \beta_1 FP_{it} + \beta_2 TAN_{it} + \beta_3 FS_{it} + \beta_4 FA_{it} + \beta_5 INOW_{it} + \beta_6 PI_{it} + \beta_7 TQ_{it} + \beta_8 TC_{it} + \beta_9 GO_{it} + \beta_{10} PI * GO_{it} + \beta_{11} TQ * GO_{it} + \varepsilon_{it}$$

Where; PD = probability of default, FP = firm performance of firm i at year t, TAN = Tangibility of firm i at year t, FS = Firm size of firm i at year t, INOW = Institutional Ownership of firm i at year t, PI = Price impact of firm i at year t, TQ= Transaction quantity of firm i at year t, TC= Transaction cost of firm i at year t, GO= Growth opportunities of firm i at year t. β1 to β8 = coefficients of the equations, t = time, i = firm and ε_{it}= error term

4. Findings and discussion

4.1. Descriptive Statistics

The descriptive statistics for the untransformed data are presented in Table II The mean probability of default and standard deviation of is close to 0 0.279 and 0.328 reported by Shih, Wang, Zhong and Ma (2021) in China and 0.2601 reported by Trinh *et al.,* (2021) among Vietnam firms between 2010 and 2020. However the mean probability of default is lower than 0.9723, 0.5167 and 0.9057 reported by Gniadkowska-Szymańska (2022) in Germany, Baltic countries and Poland respectively. The mean price impact was 0.1063325 (minimum= .0054704 and maximum = .2216345; standard deviation = .0464336). The mean price impact is close to 0.169 reported by Doostian and Farhad Toski (2022) in the Tehran Stock Exchange. Further, the average trading quantity (measured by turnover ratio) was 0.18933 (minimum= 0. 06351 and maximum = 0. 75262; standard deviation = 0. 1458865). Growth opportunities had a mean value of 2.958 (minimum= .0038 and maximum = 58.806; standard deviation = 7.812). The average firm size was 7.189 (minimum= 0.929 and maximum = 9.023; deviation = 5.104). The average tangibility of the selected firm was 0.3691107 (minimum= 0.001 and maximum = 0. 9415659; standard deviation = .2728815). The firm age was 61.145 (minimum= 1.000 and maximum = 152; standard deviation = 39.41155). The mean institutional ownership was 0.3691107 (minimum= 0.001 and maximum = 0. 9415659; standard deviation = .2728815). The mean institutional ownership is close to that reported by Alimoradi *et al.,* (2020) among Iranian petroleum firms. The table further demonstrates that mean firm performance was 0.0642881 (minimum= -0.420 and maximum = 0.5909452; standard deviation = 0.1529423. Finally, the mean leverage was 0.4440806 (minimum= .0260912 and maximum = 0.5909452; standard deviation = 0.937913)

Table I. Summary descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
PD	310	.2787133	.3009113	0.000	1.000
TAN	310	.3691107	.2728815	0.001	.9415659
INOW	310	.7066368	.1643937	0.000	0.970
LEV	310	.4440806	.1359944	.02609	.9379133
FA	310	61.145	39.41155	0.000	152.000
ROA	310	.0642881	.1529423	-0.420	.5909452
FS	310	7.095973	.8466186	5.198698	9.405137
PI	310	.1063325	.0464336	.0054704	.2216345
TQ	310	.18933	.1458865	0.06351	.75262
GOP	310	2.958	7.812	.0038	58.806

Source: Researcher 2023

4.2. Correlation analysis

The purpose of correlation analysis is to understand the nature and magnitude of the relationship between research variables. The pairwise correlation coefficients for the study variables are presented in table 4.8. Pearson pairwise correlation results in the table show that the relationship between tangibility (r= *-0.2097;* ρ< *0.05*), leverage (r= *0.2349;* ρ< *0.05*), institutional ownership (r= *0.3366;* ρ< *0.05*), price impact (r= 0.3503*;* ρ< *0.05*). The result also indicated that firm age (r= -0.1615*;* ρ< *0.05*), firm size *(*r= -0.5281*;* ρ< *0.05*), firm performance (ROA) (r= -0.3452*;* ρ< *0.05)* and default risk are negatively and statistically correlated. The table further indicate that the correlation between trading quantity (r= -0.4629*;* ρ< *0.05*) and growth opportunities (r= -0.5815*;* ρ< *0.05*) and default risk was negative and significant.

Table II. Correlation analysis

	PD	TAN	LEV	ROA	FS	FA	INOW	PI	TQ	GOP
PD	1.0000									
TAN	0.2097*	1.0000								
LEV	0.3950*	0.1274*	1.0000							
ROA	-0.3452*	-0.0875	-0.2273*	1.0000						
FS	-0.5413*	0.1040	-0.1225*	0.3866*	1.0000					
FA	-0.1615*	-0.1384*	-0.1223*	0.0471	0.1246*	1.0000				
INOW	0.3503*	-0.0165	0.2659*	-0.0868	-0.2263*	-0.0182	1.0000			
PI	0.3503*	0.0586	0.0514	-0.0130	-0.0686	-0.0685	0.0934	1.0000		
TQ	-0.4629*	-0.1447*	-0.2044*	0.2223*	0.4067*	0.1952*	-0.039	-0.0591	1.0000	
GOP	-0.5815*	-0.1030	-0.2240*	0.2756*	0.2464*	0.0994	-0.0952	-0.4162*	0.1048	1.0000

***p<0.05**

4.3. Regression results

We estimate the random regression effect to test the effect of stock liquidity and growth opportunities and control factors on default risk, this is supported by the results of the Hausman test. The results are presented in table IV. Our H1 stated that: *Price impact has no significant effect on default risk among listed firms in Kenya.* Table IV show that price impact had a significant positive effect on default risk ($\beta 1$ = 0.079 ρ-*value<0.05)*; hence, (H_{01}) was rejected. Further, a unit decrease in price impact leads to a 0.079 unit increase in default risk. The findings of this study suggests that firms with stocks with a high price impact are less likely to report default risk. Gniadkowska-Szymańska (2022) also found that liquidity (expressed as ILLIQ) had a positive impact on the risk of bankruptcy. The author concluded that the greater the liquidity of the company's shares, the lower the risk of bankruptcy. Consequently, high liquidity lowers a firm's exposure to default risk. Price impact is a measure of the daily price impact of the order flow—the premium that a buyer must pay or the discount that a seller must offer in order to fulfill a market order—caused by unfavorable selection costs and inventories. According to earlier research on informed trading, such as that by Huang and Stoll (1996), the price impact of trade captures information asymmetry since it transmits private knowledge. A significant trade may draw additional traders because it is possible that it is driven by information. A high price impact indicates lower liquidity and higher cost of equity. Furthermore, price impact in the stock market is positively related to the investor risk aversion and the stock return volatility, and negatively related to the equity premium and the stock market liquidity.

Our second hypothesis H2 stated that: *Trading quantity has no significant effect on default risk among listed firms in Kenya.* The results indicate a significantly negative association between trading quantity and default risk ($\beta 2$ = -0.085, ρ *<0.05*); therefore, H_{02} was rejected. Based on the regression results a unit increase in trading quantity reduces default risk by 0.085 units. A high trading quantity denotes high liquidity since a large number of shares are being traded, which is attributed to a large pool of buyers and sellers. Market depth usually enables market participants

to execute transactions fast with minimal slippage. Consequently, increase trading quantity increases a firm's prospect of using equity finance instead of debt thus lowering the probability of default. Number of trades which is a measure of the trading quantity appears to have a negative relationship with all types of spreads, confirming to prior research (Kim and Ogden, 1996; Heflin and and Shaw, 2000; Giouvris and Philppatos, 2008) who also found significant negative relationship between number of trades per day and the components of the bid-ask spread. Number of trades can be explained as a way of reducing information asymmetry in the market. If a stock is relatively traded frequently, traders relate frequency of the trade as a high liquid stock, therefore the spread tightens between the bid and the ask prices. Using a sample of 6,300 Nasdaq IPOs between 1972 and 1998, Eckbo and Norli (2005) found that IPO stocks are significantly less leveraged and exhibit significantly greater liquidity (stock turnover) than non-IPO firms that are matched on stock exchange, equity size, and book-to-market ratio. The authors concluded that increased stock liquidity is crucial because it raises the possibility of a liquidity-based explanation for the lower projected returns on IPO equities. The authors further observed that firms that issued IPOs had lower debt levels and fewer assets.

The third moderating hypothesis had two sub-hypotheses that were tested as follows. Hypothesis 3(a**)** stated that; *Growth opportunities does not significantly moderate the relationship between price impact and default risk among listed firms in Kenya.* The regression results revealed that growth opportunities significantly moderate the relationship between price impact and default risk (β*= -0.1314334and* ρ*<0.05*); hence hypothesis $H05_a$ was rejected. Hypothesis 3(b) stated that; *Growth opportunities does not significantly moderate the relationship between trading quantity and default risk among listed firms in Kenya.*. The results growth opportunities moderate the relationship between trading quantity and default risk (β*= -0.0405521and* ρ*<0.05*). Consequently, hypothesis $H05_b$ was rejected. According to research findings by Pagano et al. (1998; Fischer, 2000; Bharath and Dittmar (2006), firms with significant growth are likely to gain from listing on a market since it will help them get past their financial constraints by offering them access to low-cost external finance. Aslan and Kumar (2011), Marosi and Massoud (2007), and Bharath and Dittmar (2006) find firms with good prospects for growth opt to stay active in the stock market to raise additional funding. Therefore, growth opportunities enables firms to easily offload their share in the stock market, thus use less debt associated with default risk.

As for control variables the study found as follows. Consistent with the findings of Nadarajah *et al.,* (2021) and Goyal and Wang (2013), the study found the probability of default risk (PD) is lower for firms that are more profitable. This is evidenced by the statistically negative regression beta coefficient ($\beta 1$ = -0.1553 *and* ρ*-value<0.05)*. The association between financial leverage and default risk is positive and significant ($\beta 1$ = 0.2000 *and* ρ*-value<0.05).* This mean that less leveraged firms are less likely to fall in default. Firms that are capital intensive (have a higher proportion of fixed assets as measured by tangibility) are more likely to default ($\beta 1$ *=0.1154078 and* ρ*-value<0.05)*. However, Shih, Wang, Zhong and Ma, (2021) found no association between tangibility and default risk among listed firms in China. The results are in line with Rajan and Zingales' analysis on capital structure in the G-7 economies, which revealed a positive relationship between tangibility (measured as the ratio of fixed to total assets) and leverage. Bradley, Jarrell and Kim (1984) and Titman and Wessels (1988) found positive relationships between tangibility and leverage. Additionally, it is claimed by Scott (1977), Williamson (1988), Harris and Raviv (1990), that a corporation with a lot of collateral to secure debt may be able to access borrowed capital more easily, increasing their default risk.

Additionally, the study document that firm size is negatively and significantly related to default risk (β = *-0.0334 and ρ-value<0.05)*. Firm age has no statistically significant effect on default risk (β *=0.0018432 and ρ-value<0.05),* however, the positive beta coefficient suggest that mature firms have a higher propensity of falling into financial distress. Institutional ownership has a positive and significant effect on default risk (β = .1817874 *and ρ-value<0.05).* The results agree with those of Switzer and Wang (2013b) who found that higher institutional shareholdings increase default risk for US commercial banks. However, they disagree with Chiang, Chung and Huang (2015) who found an inverse relationship between default risk and institutional ownership in Taiwanese non-financial firms. A study by Switzer and Wang (2013) are reported that institutional shareholdings reduce default risk in US non-financial firms. Similarly, using a sample Canadian firms, Switzer, Wang and Zhang (2018) found that higher ownership by institutional investors was associated with a lower default risk for financial firms, but not for nonfinancial firms

Consistent with the wealth distribution theory, institutional shareholders may not oversee managers effectively and may even put pressure on them to participate in risky projects in order to extract private gains at the expense of debtholders and minority shareholders. This, in turn, causes future cash flows to be more volatile and concurrently raises the risk of default. There are a number of causes for this unfavorable impact of institutional shareholdings on a firm's stability. First, despite increasing monitoring costs, investors are not imposing disciplinary pressure on management. Almazan, Hartzell and Starks (2005) suggest that monitoring costs are often cheaper for active institutional investors, such as independent investment advisers and investment companies, than for passive institutional investors, such as bank trust departments and insurance groups. Additionally, they might form an alliance with managers and put insiders' interests ahead of other minority shareholders' goals of maximizing their wealth. This occurs more frequently when management and institutional investors are linked by political or commercial connections (Cornett et al., 2007). Second, the institutional investors who are well-diversified may practice moral hazard. They might persuade managers to assume greater risk since, while the additional risk posed by a marginal firm won't have a large impact on their portfolio, the additional earnings from riskier enterprises could have a significant impact if they succeed. Prior to the global financial crisis, Erkens, Hung and Matos (2012) examined the impact of institutional shareholding on firms' risk-taking and discovered that institutional shareholders encouraged managers to take on more risk, which led to greater losses for shareholders

Table III. Regression results random effect and fixed effect

PD	Random effect	Fixed Effect
CONSTANT	1.451(0.256)**	1.838(0.461)**
TAN	.068(0.022)**	.064(0.025)**
LEV	.082(0.0322)**	.095(0.033)**
ROA	-.062(0.029)**	-.085(0.031)**
FS	-.484(0.088)**	-.624(0.161)**
FA	.019(0.018)**	.020(0.019)
INOW	.106(0.036)**	.091(0.039)**
PI	.079(0.022)**	.064(0.025)**
TQ	-.085(0.030)**	-.087(0.032)**
GOP	-.071(0.010)**	-.079(0.011)**
GOP*PI	-.163(0.038)**	-.158(0.039)**
GOP*TQ	-.035(0.010)**	-.021(0.010)**
R-squared	0.7753	0.7554
Observation	310	310
Hausman Chi2	5.86	
Prob>chi2 =	0.9513	

** significance at 5%. Definition of variables provided in table I

5. Conclusions and implications

The level of liquidity of shares can significantly influence the likelihood of default. The growing liquidity in stock trading might result in heightened share price volatility for a specific company and hinder the ability of managers to effectively monitor market activity. Increased liquidity of shares can mitigate the danger of bankruptcy by enhancing corporate governance for investors and improving the efficiency of valuing the company's securities. Studies have also demonstrated that a rise in the liquidity of trading in shares of a specific firm can result in an augmentation of its value, a highly sought-after outcome for investors. Although the importance of liquidity in explaining default risk is evident, the exact relationship between stock liquidity and default risk has not been well established in empirical studies. This study aimed to investigate if the relationship between stock liquidity and default risk is moderated by growth potential.

The study determined that the trading quantity of a security can impact the likelihood of default by altering market views, pricing trends, and liquidity circumstances. High trading volume might give rise to apprehensions regarding the financial well-being of a borrower, escalate the expenses associated with obtaining finance, and hinder the borrower's capacity to liquidate securities in the market if required. Borrowers must recognize the major influence of trading volume on the risk of default and implement suitable strategies to mitigate liquidity risk, uphold market trust, and resolve any apprehensions arising from substantial trading activity. The analysis determined that trading expenses exert a significant influence on default risk through their impact on market liquidity, capital availability, and risk management capacities. High trading expenses can hinder a borrower's capacity to procure cash or efficiently sell assets, hence augmenting the likelihood of default.

Borrowers must prioritize the evaluation of trading costs as a component of their risk management and financing plans. They should actively explore methods to reduce costs and provide sufficient liquidity to limit the risk of default.

Given the impact of trading volume on the likelihood of non-financial companies listed on the Nairobi Securities Exchange defaulting, it is crucial for regulatory authorities and market participants to focus on enhancing market liquidity and implementing effective risk management strategies. Ample liquidity is essential for maintaining an organized market and minimizing the risk of default associated with illiquid securities. Regulatory entities should be responsible for promoting market-making activities, enhancing trade infrastructure, and ensuring equal access to information for all players. Market participants must to establish suitable risk management frameworks, including strategies for diversification and a precise evaluation of trading volumes, to further mitigate the risk of default. If market participants cultivate a liquid and well-regulated environment, they can enhance market efficiency, reduce default risk, and increase investor trust in non-financial companies listed on the Nairobi Securities Exchange.

Considering the influence growth opportunities have on the connection between stock liquidity and default risk of non-financial firms listed on the Nairobi Securities Exchange, it is recommended that regulatory authorities and market participants prioritize the promotion and facilitation of growth opportunities for these firms. Enhancing growth possibilities might help decrease the probability of non-financial enterprises defaulting on their debts by facilitating the generation of adequate cash flows and meeting their financial obligations. The purpose of regulatory agencies is to create a favorable regulatory framework that promotes investment in industries with significant growth opportunities, fosters innovation, and facilitates access to funding for enterprises seeking to expand their operations. Market participants, including investors and financial institutions, must take initiative in recognizing and promoting opportunities for expansion by providing funding, establishing collaborations, and delivering advisory services. Creating a conducive climate for growth can enhance the resilience of non-financial firms, mitigate the risk of default, and encourage stakeholders to contribute to the overall growth and stability of the Nairobi Securities Exchange.

Although the findings of this study are new and interesting, there are numerous constraints that need to be acknowledged. Initially, the study's dataset is restricted to non-financial enterprises in Kenya. However, it would be advantageous to broaden the scope of the study by incorporating data from other established and emerging nations. This expansion would offer valuable insights into how variations in contexts influence the relationship between the variables. Furthermore, the study aims to examine the relationship between stock liquidity and default risk across multiple nations, taking into account variations in institutional factors. Furthermore, doing a thorough examination of potential corporate governance factors, such as the gender composition of the board and CEO remuneration that could impact the correlation between stock liquidity and default risk could prove beneficial. Furthermore, future research endeavors could investigate the impact of institutional determinants on the relationship between stock liquidity and default. Additionally, future studies should investigate the impact of ownership structure and board features on the correlation between stock liquidity and default risk.

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