# Influence of Liquidity Risk Hedging on Performance of Real Estate Firms in Meru County, Kenya

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## Abstract

Real estate investments are long-term and capital intensive projects which outperform other asset classes attracting many investors. Real estate contributes greatly to the gross domestic product of many nations. However, financial risks, such as liquidity risk, may largely affect the performance of real estate firms. Though financial risks are global, Kenya experiences high uncertainty of returns due to market volatility and economic fluctuations. This study aimed to assess the influence of Liquidity risk hedging on the performance of real estate firms in Meru County, Kenya. The study adopted a descriptive survey design, and was anchored on the liquidity preference theory. Questionnaires and secondary data schedules were used to collect data from 24 real estate firms. Using stratified random sampling method, a sample size of 131 officers was derived using Krejcie and Morgan formula. The senior managers and financial, operations, risk, sales and legal officers from the 24 real estate firms constituted the respondents. To test the reliability and validity of the instruments, 14 questionnaires were pretested in 3 real estate firms in Tharaka Nithi County. Data was analyzed through SPSS version 23, and results presented using descriptive and inferential statistics. The results indicated that liquidity risk hedging had the highest positive influence on NOI, ROE, but less influence on ROA. The study recommends that banks and the financial market players train the real estate firms on available financial innovations so as to hedge risks. The findings challenge the existing paradigms and offers a new perspective on the use of derivatives in hedging real estate liquidity risk. This research aligns with the Kenyan government housing project agenda, and provides a platform for a further discussion on pitfalls to avoid in real estate investments, and the available opportunities.

**Keywords:** *Liquidity risk, Hedging, real estate firm, performance, Meru, Kenya*

## 1.0 Introduction

Globally, real estate is a booming business that has attracted many investors. UN predicts that by the year 2030, at least 60% of 8.3 billion people in the world will live in cities (Glandolini, 2016). The projections predict the need for housing. Real-estate investments involve adding value to land, before renting it out or selling it with the aim of making profit. It therefore entails buying properties, holding and renting out or selling. Real estate business goes beyond a house for shelter, to include office spaces, residential houses, hospitals, apartments, industrial plants, supermarkets, five-star hotels among others. Real estate is defined as land and any property above it (Nguyen, 2019).

In Africa many investors are attracted to real estate investment due to their perceived low risk on capital invested, unlike investments in other financial instruments like stocks and bonds (Baum, 2019). While real estate investors have a major aim of receiving high returns on the capital invested, financial risks affect the investment performance leading to high uncertainties. Regularly, the property markets in Africa faces numerous challenges, including lack of data, low transparency and high risk features (Olaleye, 2019).

Financial risk in real estate may be broadly classified into systematic risk and unsystematic risk. A systematic risk can be defined as the risk that can be controlled by the firms through proper management. On the other hand, unsystematic risks are risks caused by external factors that cannot be controlled directly through management efforts (Amoo et al., 2023). Liquidity risk hedging is one core goal of enterprise risk management. It involves assessing business risks, establishing a risk management team, implementing risk mitigation plans, monitoring and evaluating risk management process, and preparing a report to frequently inform the management decisions (Septyanto & Nugraha, 2021).

In Kenya real estate sector is regulated by government ministries and other subsidiaries, such as Kenya properties developer's association (KPDA), and Estate Agents Registration Board (EARB). In bid to curb the global warming effects, real estate developers are turning to green housing, which emit zero carbon. This involves using materials that emit less carbon during construction, use of renewable energy, and efficient energy resources (Kaklauskas, 2021). Okuta, (2020), noted that real estate sector in Kenya has been characterized by unpredictable financial risks that lead to poor financial performance and loss of investor confidence.

In order to overcome this challenge, real estate firms need to conduct assessment of risk. Assessment of risk involves identifying possible risks that may affect a firm, their probability or likelihood of occurrence, and their impact on the firm performance (Soltanizadeh et al., 2019). Some risks have high likelihood of occurrence and their consequences are very harmful to a firm's performance. Such risks should be given high priority, and the mitigation measures be thoroughly implemented. Other risks may have high likelihood of occurrence but carry low impact on firm performance. Therefore, risks must be classified according to their probability of occurrence and the impact they have on the firm (Shatnawi & Eldaia, 2020).

Liquidity risk is an inherent risk in real estate. Naturally, the real estate is highly illiquid due to inability to easily and readily convert into cash. A real estate firm without adequate cash flow can fall into financial distress and operational instability. This may largely affect its investment performance.

> *"While real estate investors have a major aim of receiving high returns on the capital invested, financial risks affect the investment performance leading to high uncertainties."*

### Statement of the Problem

Real estate contributes to over 15% of the Kenya's Gross domestic Product (GDP). It is an investment that requires high capital, yet it sometimes yields low returns due location, vacancy, structural, and market risks, among others. Liquidity risk hedging involves ensuring that a firm manages its asset and always remains afloat in order to easily meet its financial obligations when they fall due. Inadequacy of cash flow results from poor management of Liquidity risks which largely affects the firm's performance.

Hass Consult (2022) reports that in Kenya there is stagnation of rental and sales prices, high cost of materials, non-performing mortgage loans, oversupply and undersupply of house units, which indicate the need for risk management(Okuta et al., 2022). World Bank estimates a housing deficit of 2.0 million housing units, yet in Kenya, the supply is only 200,000 units annually (World Bank, 2020). Proper management of the risks affecting real estate firms could lead to over $460 million per year of income (Hass Consult, 2022). In Kenya, there is a dearth of information on liquidity risk hedging and specifically in Meru County. Globally, most studies that have explored liquidity risk lack emphasis on liquidity risk hedging, hence the knowledge gap that this study seeks to fill. Further, the study has established methodological and contextual gaps that it endeavors to fill. This study seeks to investigate the influence of liquidity risk hedging on the performance of real estate firms in Meru County, Kenya.

### Purpose of the Study

To examine the influence of liquidity risk hedging on performance of real estate firms in Meru County, Kenya.

### Hypothesis of the Study

$H_01$: Liquidity risk hedging has no statistically significant influence on the performance of real estate firms in Meru County, Kenya.

### Theoretical Review

This study is underpinned by liquidity preference theory. Liquidity preference theory is a constituent of classical theory of interest rate which was propagated by Keynes (1936). The theory posits that investors prefer to hold assets that can be easily converted to cash in order to be able meet their financial obligations when they become due. Real estate assets like bonds, are long-term securities that may easily expose a firm to financial distress (Loutzenhiser, 2021). Therefore, investors prefer liquid assets, over the long-term

investments even when the interest rates are favorable. For instance, bonds are investment options with well-paying interests; but due to their long term maturity period, most investors would still prefer to hold liquid assets (Toporowski, 2020).

This theory identifies the three motives for liquidity; namely, transaction, speculative and precautionary. Regarding transaction motive, real estate firms need to hold liquid assets to fund the daily operations, while precautionary motive entails the need to hold cash to meet the emergencies and unexpected expenses. Speculative motive involves holding cash to take opportunity of upcoming investment avenues that can yield the firm high returns (Deng et al., 2019). Therefore, the theory is relevant to this study since real estate assets are illiquid and hence, the firms must be able to manage the risk in order to reduce exposure to financial distress.

### Empirical Review

As indicated by Janabi and Mazin (2021), liquidity is the capacity of a firm, organization, or even a person to pay their obligations whenever they fall due. Liquidity risk hedging in this study is indicated by cash flow management, quality management, property location and operational cost management (Pitelli Britto et al., 2021). According to Katiti et al. (2020), liquidity can be expressed as a current or quick ratio, calculated as current asset divided by current liabilities. The ratio establishes a company's readiness to settle its debt obligations within one year or when they become due (Kenton, 2020). A higher liquidity ratio is favorable as it indicates that the firm has enough assets that can cover its debt obligations (Hayes, 2020).

According to Chen et al. (2020), liquidity hazard fundamentally influences real estate firms and cannot be disregarded. Their study concentrated on 43 commercial banks in Kenya and modeled liquidity risk and performance. It found a negative link between cash flow coverage ratios and firm's profitability. However, the study focused on bank investments and failed to test the indicators of liquidity risk hedging.

Further, Mugetha (2019) notes that liquidity affects real estate firm performance. The study noted that liquidity is the major determinant of the financial health of a firm since it enhances the effective working of a real estate firm. Liquidity provides a reliable supply of cash flow that in turn enhances the future financial sustainability of a firm. Adebayo et al. (2019) showed a critical connection between liquidity risk and performance. The results reveal that there is a significant impact of only liquid ratio on ROA, while insignificant on ROE and ROI. The findings further indicate that ROE is not significantly affected by current ratio, quick ratio, and liquid ratio; while ROI is greatly influenced by the three ratios. However this study failed to show the ability of a firm to cover its expenses with its Net Operating Income (NOI) (Adebayo et al., 2019).

Further, Hoang et al.(2021) found a strong and direct relationship between liquidity and firm performance. They noted that liquid investors tend to be more profitable. They further observed a tradeoff between holding the liquid asset and investing them to achieve higher returns. Therefore, the opportunity cost of holding the liquid asset is higher than that of investing them for better returns. However these studies were carried in developed

countries, and their results can only be generalized with caution in Meru County, Kenya. Similarly, Dunn et al. (2021) investigated liquidity hazard in valuing the assurance of real estate returns. Their studies found out that house prices were highly sensitive to liquidity risks. However, there is scanty data on liquidity risk on the cross-sectional performance of real estate firms, especially during an economic crisis. There was timing and methodological gaps which could alter the findings. Zhen's inquiry was a nationwide longitudinal survey, while this study adopted a descriptive survey design to examine risk hedging in real estate firms in Meru County.

Most studies on risk hedging have failed to show liquidity risk hedging parameters and their impact on firm performance. Murunga (2017) encourages operating hedging and finance hedging in reducing liquidity risk among real estate firms, while Mian andSantos (2018) encouraged refinancing as a tool to ensure firms remain afloat.

## 2.0 Materials and Methods

A descriptive survey design was adopted to collect primary data using questionnaire. Secondary data was collected from the real estate firms' websites. The target population was the real estate firms in Meru County, Kenya. A sample size of 131 officers working in real estate firms was arrived at using Krejcie and Morgan formula. Senior managers, financial officers, operations officers, risk officers and sales officers informed the study. Stratified random sampling method was used to select participants in each stratum identified by Krejcie and Morgan formula. To test the instruments' reliability and validity, 14 questionnaires were pretested in 3 real estate firms in Tharaka Nithi County. Simple random sampling method was used to select the participants. SPSS version 23 and Excel were used to analyze the data. Descriptive statistics, including frequencies and percentages tables and figures were used to present the findings. In addition, inferential statistics such as Regression, and ANOVA were used to present the results.

## 3.0 Results and Discussion

The study had a target population of 131; however, 114 participated, representing 87% response rate. The Cronbach's alpha value result was 0.904. According to Taber (2018), Cronbach's alpha value ranges between 0 and 1; where 0.7 and above is deemed reliable. Therefore, a Cronbach's (a=0.904) implied that the instrument was reliable to investigate and inform on the study problem.

### *Influence of Liquidity Risk on Real Estate Firm Performance*

The researcher examined the influence of liquidity risk hedging on performance of real estate firms in Meru County. A five level Likert scale was used to test the extent to which the participants agreed with various statements about liquidity risk; where 1= strongly disagree, 2=disagree, 3=neutral, 4=agree and 5 =strongly agree. The results are indicated in the Table 1;

**Table 1**

*Liquidity risk*

| Statements | Strongly disagree | Disagree | Neutral | Agree | strongly Agree | Mean |
|---|---|---|---|---|---|---|
| This firms monthly revenues generate adequate cash flow to meet our financial obligations | 21(18.4%) | 19(16.7%) | 9(7.9%) | 28(24.6%) | 37(32.5%) | 2.98 |
| This firm maintains high quality through regular value addition thus reducing the conversion cycle. | 7(6.1%) | 18(15.8%) | 27(23.7%) | 32(28.1%) | 30(26.3%) | 3.42 |
| This firm's assets are strategically located thus easily attracting occupants. | 14(12.3%) | 7(6.14%) | 11(9.65%) | 18(15.8%) | 64(56.1%) | 3.74 |
| This firm has always had enough cash to meet short-term obligations when they become due. | 13(11.4%) | 14(12.3%) | 18(24.6%) | 28(24.6%) | 41(35.9%) | 3.58 |
| These firms' operational costs per month are very high thus straining the revenues realized. | 11(9.6%) | 12(10.5%) | 6(5.3%) | 36(31.6%) | 49(42.9%) | 3.65 |
| The demand for real estate in this location is very high therefore; firm's liquidity is relatively high. | 0(0%) | 16(14%) | 20(17.5%) | 30(26.3%) | 48(42.1%) | 3.76 |
| This firms Loan repayment has distressed cash flow thus affecting business performance. | 7(6.1%) | 6(5.3%) | 2(1.8%) | 46(40.4) | 53(46.5%) | 3.82 |
| Average | | | | | | 3.61 |

The findings in table 1 indicate that the average mean was 3.69. Majority of the respondents agreed that liquidity risk greatly influence firm performance. Conversion of the real estate into cash had the highest mean at 3.9. Most respondents 44(38.6%) agreed with

the statement, while 35(30.7%) strongly agreed. These findings are corroborated by Phan et al. (2021) who found a strong direct connection between liquidity and performance of real estate firms. Liquidity risk is firm specific and can be hedged against through proper cash flow management and diversification (Boscoianu, 2020). Revenue generation had lowest mean of 2.98. This implies that though cash flow management is an essential element in reducing liquidity risk, many of the firms did not have enough revenue which largely affected how the firm performed. These results concurred with those of Deng andOng (2020) who noted that cash flow management largely influences the firms earnings.

The quality and location of the asset had a mean of 3.42. Majority of the participants 32(28.1%) agreed to the assertion that location influenced liquidity risk, while 30(26.3% strongly agreed. This implies that that in the current competitive environment, managers must select marketable locations and maintain high quality services in order to remain afloat. These results agree with those of Amoo et al. (2023) who observed a strong relationship between liquidity risk hedging ,and real estate construction firms performance. It also concurred with Chu et al.(2021) who asserts that firms need to diversify investments by location in order to thrive during economic recessions.

Regarding operational cost, majority of the respondents 49(42.9%) strongly agreed, while 36(31.6%) agreed that high operational costs strain revenues realized. This implies that in order for investors to have highly performing businesses, there is need to minimize the operational cost, such as maintenance costs, to a sustainable level. These findings marry with those of Benedettini and Neely (2019) who noted that firms need to partner with manufacturers who offer best terms in order to minimize liabilities and maintenance cost.

The demand for real estate in the specified location had a mean of 3.76. Majority of the officers 48(42.1%) strongly agreed that demand influenced liquidity, while 30(26.3%) agreed. This implies that quality and location of the asset are very essential in management of the firm's liquidity since they influence demand. These findings are consistent with those by Ahmad (2018) who noted that firm-specific factors can influence demand, thereby changing a firm's liquidity risk to the betterment of its performance. High demand for real estate implies that businesses can attract regular cash flow, and thus be able to meet short-term obligations.

The statement that firms' investment's current assets exceed the current liabilities had a mean of 3.74. Majority 64(56.1%) strongly agreed and 18(15.8%) agreed. This implies that assets owned by firms need to generate earnings for firms to finance business liabilities without putting it in a financial distress. These findings agreed with those of Ngoc et al. (2021) who noted that firms need to manage asset over liabilities in order to enhance their performance.

Loan repayment distress had a mean of 3.74. Majority 64(56.1%) strongly agreed and 18(15.8%) agreed that loan repayment distress affected business performance. Loan repayment implies less cash flow; thus, reducing the level of cash that would in turn be

re-invested. These results concurred with those of Destriwanti et al. (2022) who found that loan distress largely influences firms' performance. The results revealed that liquidity risk influences real estate firm performance to a very high extent. This implies that firms must diligently manage liquidity risk since it influences the real estate firm performance.

### Model summary for Liquidity risk hedging

A model summary was conducted to examine the influence of liquidity risk hedging on firm performance as shown in the Table 2.

**Table 2**

*Model summary of Liquidity risk hedging*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | .783a | .639 | .628 | 2.61439 | 1.32 |

a. Predictors: (Constant), Liquidity risk hedging

b. Dependent Variable: Firm Performance

The results on Table 2 show that liquidity risk hedging had R value of 0.78 and R square of 0.628. This implies that 62.8% variations in the real estate firm performance can be attributed to liquidity risk hedging. The Durbin wart son value of 1.32 shows a positive correction between the two variables. These results agreed with those of Amoo et al. (2023) who posted similar findings on performance of real estate construction projects in Busia County, Kenya.

### ANOVA for Liquidity risk hedging

ANOVA was conducted to verify the hypothesis that stated that Liquidity risk hedging had no significant influence on a firm's performance. Table 3 presents the results.

**Table 3**

*ANOVA for Liquidity risk hedging*

**ANOVAa**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 164.414 | 8 | 20.552 | 15.590 | .000b |
| | Residual | 204.336 | 106 | 1.318 | | |
| | Total | 368.750 | 114 | | | |

a. Dependent Variable: Firm Performance

b. Predictors: (Constant), Liquidity risk hedging

Table 3 indicates the F statistic value of 15.59 and P value of 0.00, which is less than 0.005. This implies that liquidity risk hedging had a significant influence on the firm performance. The hypothesis was therefore rejected.

### Descriptive Statistics on Real Estate Firm Performance

The performance of the real estate firms for the past three years was examined. Participants were asked to indicate how they rated performance of their firm as indicated by ROA, ROE, NOI and revenue generation; in a five point Likert scale; where1= Very Low; 2= Low; 3= Neutral; 4= High; 5= Very High. The results are indicated on Table 4

**Table 4**

*Firm Performance*

| Performance measure | Year | Very low F (%) | Low F (%) | Average F (%) | High F (%) | Very High F (%) |
|---|---|---|---|---|---|---|
| ROA | 2018 | 9(37.5) | 2(8.3) | 2(8.3) | 4(16.7) | 7(29.2) |
| | 2019 | 0(0) | 1(4.2) | 1(4.2) | 4(16.7) | 18(75) |
| | 2020 | 0(0) | 3(12.5) | 3(12.5) | 2(8.3) | 16(66.7) |
| ROE | 2018 | 7(29.2) | 3(12.5) | 2(8.3) | 5(20.8) | 7(29.2) |
| | 2019 | 0(0) | 1(4.2) | 1(4.2) | 5(20.8) | 17(70.8) |
| | 2020 | 0(0) | 1(4.2) | 2(8.3) | 10(41.7) | 11(45.8) |
| NOI | 2018 | 8(33.3) | 1(4.2) | 0(0) | 3(12.5) | 12(50) |
| | 2019 | 0(0) | 2(8.3) | 3(12.5) | 4(16.7) | 15(62.5) |
| | 2020 | 0(0) | 4(16.7) | 5(20.8) | 5(20.8) | 10(41.7) |
| Revenue Growth | 2018 | 8(33.3) | 5(20.8) | 2(8.3) | 5(20.8) | 4(16.7) |
| | 2019 | 0(0) | 0(0) | 4(16.7) | 8(33.3) | 12(50) |
| | 2020 | 3(12.5) | 6(25) | 2(8.3) | 5(20.8) | 8(33.3) |

(N=24 Obs)

Table 4 indicates that return on asset recorded high performance 18 (75%) in 2019, and 16(66.7%) in 2020. Majority of the respondents 17(70.8%) noted that return on equity was high in 2019. The performance according to the net operating income was very high in 2019 at 15(62.5%), followed by 2020 at 10(41.7%).

The year 2019 recorded the highest Revenue growth compared to 2018 and 2019. The

results imply that the overall performance of real estate firms kept on fluctuating in the three years, which could be explained by changes in the market and economy. These results agreed with those of Endri et al. (2021) who found that property and real estate prices keeps on changing; and thus companies need to understand macroeconomic variables and how to manage such changes and enhance the company's performance.

## 4.0 Conclusions

The study noted that managing cash flows is a very essential element since it ensures that real estate firms remain afloat. As such, It concludes that liquidity risk is an inherent risk in real estate, and therefore firms need to maintain high quality products through regular value addition to increase sales and ensure enough cash-flow to cover short-term obligations when they fall due.

## 5.0 Recommendations

This study recommends the real estate firms to select viable marketable locations whenever they are making buying decision to ease turnover and sales, as well as to attract higher prices during sales in order to make large profit margins. Real estate investors and managers need to continuously increase quality of their properties through value addition and frequent maintenance.

The officers need to implement cash flow management techniques in order to ensure that the firm remains afloat and possess the ability to meet the short-term obligations when they fall due. This is because good liquidity risk hedging has a significant influence on Net Operating Income (NOI) and Return on Equity (ROE). The realtors are advised to increase the uptake of financial innovations such as liquid options in order to hedge liquidity risk.

## References

Adebayo, A. A., Greenhalgh, P., & Muldoon-Smith, K. (2019). Investigating retail property market dynamics through spatial accessibility measures. *Journal of European Real Estate Research*, *12*(2), 155–172. https://doi.org/10.1108/JERER-01-2018-0009

Ahmad, F. W. (2018). *Factors Determinants and Relationship between Liquidity Risk and Company's Performance in Real Estate Industry in Singapore*. https://doi.org/10.2139/ssrn.3302230

Amoo, M. E., Rambo, C. M., & Mbugua, J. M. (2023b). *Liquidity Risk Management Practices and Performance of Real Estate Construction Projects in Busia County, Kenya* [University of Nairobi]. http://erepository.uonbi.ac.ke/handle/11295/163603

Benedettini, O., & Neely, A. (2019). Service providers and firm performance: Investigating the non-linear effect of dependence. *Journal of Service Management*, *30*(6), 716–738. https://doi.org/10.1108/JOSM-11-2018-0361

Boscoianu, G. P., &Gabriela P., (2020). Risk Analysis of a Hedge Fund Oriented on Sustainable and Responsible Investments for Emerging Markets. *Amfiteatru Economic*, *22*(55), 653–667.https://ideas.repec.org//a/aes/amfeco/v22y2020i55p653.html

Chu, X., Lu, C., & Tsang, D. (2021). Geographic Scope and Real Estate Firm Performance during the COVID-19 Pandemic. *Journal of Risk and Financial Management*, *14*(7), 1-16 https://doi.org/10.3390/jrfm14070309

Deng, X., & Ong, S. E. (2020). Real Earnings Management, Liquidity Risk and REITs SEO Dynamics. *The Journal of Real Estate Finance and Economics*, *56*(3), 410–442. https://doi.org/10.1007/s11146-017-9649-5

Deng, Y., Zeng, Y., & Li, Z. (2019). Real estate prices and systemic banking crises. *Economic Modelling*, *80*, 111–120. https://doi.org/10.1016/j.econmod.2018.09.032

Destriwanti, O., Sintha, L., Bertuah, E., & Munandar, A. (2022). Analyzing the impact of Good Corporate Governance and Financial Performance on predicting Financial Distress using the modified Altman Z Score model. *American International Journal of Business Management (AIJBM)*, *5*(2), 27-36.https://www.aijbm.com

Dunn, B., Kargar, M., & Zheng, G. (2021). *Funding Liquidity and the Valuation of Mortgage-Backed Securities*. https://doi.org/10.2139/ssrn.3813212

Endri, E., Amrullah, D. F., Suparmun, H., Mary, H., Sova, M., & Indrasari, A. (2021). Determinants of stock return of property and real estate companies in the developing market. *Corporate Governance and Organizational Behavior Review*, *5*(2, special issue), 184–193. https://doi.org/10.22495/cgobrv5i2sip6

Glandolini, G. M. (2016). *3 reasons why 'Housing for All' can happen by 2030*. https://blogs.worldbank.org/voices/3-reasons-why-housing-all-can-happen-2030

Hass Consult (2022). *Hass index.*

HassConsult. https://www.hassconsult.com/hassindex

Hoang, L. D., Viet, N. Q., & Anh, N. H. (2021). *Trade-Off Theory and Pecking Order Theory: Evidence from Real Estate Companies in Vietnam*. https://papers.ssrn.com/abstract=3842395

Janabi, A., & Mazin, M. A. (2021). *The Importance of Measuring Liquidity Risk with Smart Financial Applications*. Social Science Research Network. https://doi.org/10.2139/ssrn.3841253

Kaklauskas, A., Zavadskas, E. K., Lepkova, N., Raslanas, S., Dauksys, K., Vetloviene, I., & Ubarte, I. (2021). Sustainable Construction Investment, Real Estate Development, and COVID-19: A Review of Literature in the Field. *Sustainability,* 13(13), 7420. http://dx.doi.org/10.3390/su13137420

Kenton, W. (2020). *Current Ratio*. Investopedia. https://www.investopedia.com/terms/c/currentratio.asp

Katiti, A. J., Omanwa, D. C. N., Mwaniki, D. G., & James, D. N. (2020). Capital as a factor of production and growth of commercial real estates in Machakos County, Kenya. *African Journal of Emerging Issues*, *2*(7), 37-60. https://ajoeijournals.org/sys/index.php/ajoei/article/view/117

Mian, A., & Santos, J. A. C. (2018). Liquidity risk and maturity management over the credit cycle. *Journal of Financial Economics*, *127*(2), 264–284. https://doi.org/10.1016/j.jfineco.2017.12.006

Mugetha, I. A. (2019). Effect of liquidity on

financial performance of listed firms in the Nairobi securities exchange. *African Journal of Emerging Issues*, *1*(5), 74-93. https://ajoeijournals.org/sys/index.php/ajoei/article/view/35

Murunga, P. M. (2017). *Financial risk management as a tool for improving financial performance in real estate investment in Nairobi County* [Masters Thesis, KCA University-Kenya]. https://doi.org/10/xmlui/handle/123456789/105

Ngoc, N. M., Tien, N. H., Chau, P. B., & Khuyen, T. L. (2021). The impact of capital structure on business performance of real estate enterprises listed at Ho Chi Minh City stock exchange. *PalArch's Journal of Archaeology of Egypt / Egyptology*, *18*(8), 92-119. https://archives.palarch.nl/index.php/jae/article/view/8050

Okuta, F. O., Kivaa, T., Kieti, R., & Okaka, J. O. (2022). Modeling the dynamic effects of macroeconomic factors on housing performance in Kenya. *International Journal of Housing Markets and Analysis*, *ahead-of-print* (ahead-of-print). https://doi.org/10.1108/IJHMA-06-2022-0093

Phan, T. K., Nguyen, T. H. T., Dang, T. H., Tran, V. T., & Le, K. N. (2021). Non-financial factors affecting the operational performance of hospitality companies: Evidence from Vietnam. *Problems and Perspectives in Management*, *19*(4), 48–62. https://doi.org/10.21511/ppm.19(4).2021.05

Pitelli Britto, D., Monetti, E., & da Rocha Lima Jr, J. (2021). Intellectual capital in tangible intensive firms: The case of Brazilian real estate companies. *Journal of Intellectual Capital*, *15*(2), 333–348. https://doi.org/10.1108/JIC-10-2013-0108

Taber, K. S. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Research in Science Education*, *48*(6), 1273–1296. https://doi.org/10.1007/s11165-016-9602-2