EFFECTS OF MARKET RISK ON PERFORMANCE OF TRANSPORT FIRMS IN KENYA

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ABSTRACT

This study assessed market risk effects on performance of transport firms in Mombasa County. The study employed triangulation (Mixed of quantitative and qualitative) research design. The target population of this study was 2013 transport firms and the sample size was 172 firms arrived at through stratified and purposive sampling methods. The questionnaire was the primary data tool. The study found out that market risk has significant effects on financial performance of transport firms in Kenya. Also the study indicated that given the infrastructure development as part of the Vision 2030, Transport firms need to embrace change so that they are not wiped out of the market. Thus engage in competitive nature by also bringing in the market competitive services to offer to their clients and share the growing market.

Key words: Risk, Market Risk, Triangulation, Financial Performance, Firms, Vision 2030.

1.1 INTRODUCTION

Market risk is a risk where the value of a firm's financial instrument fluctuates due to volatility in its market price, with less consideration of whether these changes are caused by factors that relate to individual instruments or that of their issuer (counter-party), or by factors relating to all the instruments traded on the market (Milanova, 2010).

Market risk is a situation where a firm experiences losses due to factors affecting overall performance of the financial markets. Market risk cannot be eliminated through diversification it can only be controlled through hedging (Tucker, 2010).

Firm's performance may be defined by its profitability which is measured in terms of firm's return on assets (ROA), returns on Investment (ROI) or Net profit Margin which is net profit as a percentage of the revenue. Researchers have developed theories to explain the assumptions of Firm size and Firm's performance. These include; Agency Theory, Strategic Theories and Finance Theory (Bjarni, 2007).

Transport is a major factor in economic development of a country. Whereas Logistics is a process of planning, implementing, and controlling the efficient flow of products, information, and funds to conform to the client's requirements. Transport is a core component of logistics, moving goods between different points in the supply chain. Logistics encompasses the storage of raw materials, work-in-process parts, and finished products, as well as a variety of value-added services (ADB, 2012).

1.2 Market risk and Performance

Market risk includes changes in firms' equity, interest rates, commodity and foreign exchange. Credit has two types, counter-party default risk and migration risk, i.e., the risk that a firm value will be reduced to lower rating. Whereas Operational risk emanates from systematic risks (non diversifiable risks) i.e., risk emanating from systematic risks which include breakdowns within organization, internal procedures, employees and systems. These risks are associated with active decisions relating to function and prioritization organization's functions and procedures (Prokopenko & Bondarenko, 2012).

Different researchers view transport performance in various perspectives. Many commonly used public transport indicators such as load factor and cost per vehicle kilometer measure operating efficiency. Travel speed and reliability, affordability, integration and satisfaction also serve as performance indicators in transport industry (Dhingra, 2011).

Performance in Transport is used widely to measure transport and transportation statistics. Performance is also used as a for support public service planning. It allows transport firms to determine efficiency and effectiveness in utilization of resources to identify potential problems and verify whether a particular improvement strategy achieves its predicted targets (Meja, 2016).

This study measured Returns on Assets and Returns on Investments as Performance Indicator for Transport firms in Kenya.

1.3 Statement of the Problem

Finance theory's goal is that management should maximize the market value of the firm's shareholders' returns through investments in an environment where outcomes are uncertain. In order to ensure that financial risk strategy add value for shareholders, therefore, a sound relationship between risk management and shareholder value has to exist (Flesch, 2009).

Volatility in Interest rates, fluctuation in foreign exchange credit risk and changes in commodity (fuel) prices have led to unpredictable financial performance of firms. As a consequence of the risk exposure from the above challenges, risk management has received increasing attention in both corporate practice and literature due to the fluctuation in foreign currency denominated transactions (Jamal & Ali, 2014).

Globally, financial crisis of 2008 brought about negative impact on financial institutions which was followed by a period of financial hiccups for domestic households, firms and the global economy. The crisis brought about the importance of social conventions, such as risk management models, formulated to cope with uncertainty related to systemic crisis. Domestically, uncontrollable events including consumer preferences, weather, government policy, the price of other commodities and foreign exchange volatility all have a dramatic impact on the financial performance of transport firms (Ayuma, 2015).

The Kenyan economy is becoming more and more open market in orientation, international trade constantly increasing and as a result Kenyan firms are becoming more exposed to foreign exchange rate fluctuations, scramble for scarce and expensive funding (loans) with both locals and MNCs, liquidity and credit risks, exchange rate exposures leading to changes in the relative prices of the firm's inputs and outputs and in general, affecting firms' performance. In the study carried out by Ali, et.al (2016) indicated that there was a positive correlation between firm managerial risk aversion and corporate hedging of listed firms in NSE, same risks do affect transport firms.

Based on the fact that most transport firms in Kenya are owned and managed as family business (Omar, N., Namusonge, G. S., & Sakwa, M. M., 2017), ranging from one truck to a fleet of 500 or more. In order to attain Vision 2030 which among development indicators include SGR and LAPSSET. There is scanty literature on factors financial performance of transport firms in Kenya, specifically Mombasa County.

2.1 REVIEW OF LITERATURE

Market risk includes risks due to foreign exchange rate, interest rates, cost of investments in trade portfolio, price of commodities like metals and oil and other market variables related to the business activity. Thus, Market risk is defined as a risk due to market movements of prices, interest rates and foreign exchange rates (Milanova, 2010). This study assessed market risk in their operations, since transport firms engage in transactions in a competitive environment, affected by interest rates, foreign exchange rate risks commodity prices like metal and oil prices among other variables.

Financial risk encompasses those risks that are a threat to financial performance a business which include the cost of capital, the ability to meet cash flow needs, the ability to maintain and grow equity and the ability to absorb short-term financial problems.

Market risks are environmental in nature and encompass risks that arise from financial losses due to changes in market interest rates (interest risk), or due to inadequate protection from fluctuations in currencies, or due to long term asset and liability management (investment portfolio risk). Market risk also arises from other forms of financial risk such as credit and market liquidity risks. For example, a domestic firm engages in smooth flow of business but still face interest rate risk, commodity risk due to globalization. Major sale of a relatively illiquid security by another holder of the same security could depress the price of the security. Depending on the instruments traded by an institution, exposure to other factors may also arise. The institution's consideration of market risk should capture all risk factors that it is exposed to, and it must manage these risks soundly (Alexander, 2008).

Market risk is a possibility for an investor to experience losses due to factors that affect the overall performance of the financial markets. Market risk cannot be eliminated through diversification it can only be controlled through hedging. Market risk may be caused by natural disaster, which will cause a decline in the market. The natural disaster affects greatly the infrastructure which has direct impact on transport firms. Other sources of market risk include recessions, political turmoil, changes in interest rates and terrorist attacks. Systemic risk, while it may be triggered by other risks such as credit risk or liquidity risk or other risks different from such risks (Tucker, 2010).

The firm should also take into account the general market and macroeconomic conditions in which it operates in during its assessment and management of risks and its loss absorbing capacity.

Labour market institutions play a crucial role in hiring and firing strategies of firms. Employers face a number of challenges to fill a vacancy. First, frictions on the labour market make hiring more difficult. Second, in case of imperfect screening technology, the extent of supervision of candidates' abilities exposes firms to the risk of a mismatch (Autor, Kerr, & Kugler, 2007). A firm should ensure that its risk processes and capital levels are adequate for countering the impact of potential stress developments, including significant deterioration of market liquidity conditions, which emanate from its operating environment.

Whether or not an event proves to be systemic depends on the overall market circumstances in which it arises. Dealing with systemic risk requires a response that is multifaceted and sophisticated. It requires a strong framework that builds resilience throughout the financial system in order to avoid creating areas of strength alongside areas of weakness (Tucker, 2010).

3. 1 RESEARCH METHODOLOGY

This study used triangulation research method, which is a combination of quantitative and qualitative research in a single study. Namusonge (2015) argued that cross sectional studies data are usually collected at once perhaps over a period of days, weeks or months in order to answer research questions. This research design was preferred due to its ability to combine quantitative and qualitative methods. This approach was adopted by Ali.*et.al* (2016), Njeru. Njeru, Memba, & Tirimba, (2015) and Njeru (2013). According Creswell, (2014), each of the methods (qualitative and quantitative) has advantages and limitations, a mix design would produce more reliable data.

The target population was 2013 transport firms in Kenya. Stratified sampling method was used to classify Transport firms in four categories as follows; truck cargo/heavy equipment carrier; Truck Fuel Tank carriers; Truck Logistics/Container carriers; and buses. Purposive sampling meant for qualitative and Probability sampling used to identify 172 transport firms as sample size. The researcher distributed 197 questionnaires to each firm earmarked for study. Validity and reliability were tested using Cronbach alpha and KMO and Bartlett test respectfully .Data was analyzed both quantitatively and qualitatively. Descriptive statistics were generated. Regression analysis, and ANOVA were generated. Presentation Data collected was by using tables for ease of interpretation and analysis.

4.0 DATA ANALYSIS AND INTERPRETATION

4.1 Response Rate

Most researchers contend a response rate of 60% to be favorable for data analysis to be relied upon. While Mugenda and Mugenda (2003) as cited by (Omar, Namusonge, & Sakwa, 2017), (Theuri, Mugambi, & Namusonge, 2015) contend that a 50% response rate is adequate, 60% good and above, while 70% rated very well. Based on this assertion, the response rate of 91.3% in this case is therefore deemed very good and could be relied upon as satisfactory to make conclusions for the study. Studies by Omar, *et.al* (2014), Theuri *et al.* (2015) and Ali, Namusonge, & Sakwa, (2016) obtained similar response rates hence adequate.

| Response | Frequency | Percentage |
|--------------|-----------|------------|
| Responded | 180 | 91.3 |
| Non-response | 17 | 8.7 |
| Total | 197 | 100 |

Out of the 197 questionnaires distributed, 180 were completed and received back hence the response rate was 91.3%. This response rate was sufficient for the study as indicated in Table 4.1.

4.2 Reliability and Validity Analysis

Cronbach alpha was used to test the reliability of the proposed constructs (Ali *et al.*, 2016). The findings indicated that market risk had a coefficient of .800. Market Risk



measures depicted Cronbach alpha of above the suggested value of 0.7 hence the study was reliable.

Table 4.2 Reliability Analysis

| | Reliability Statistics | | | |
|---------------------------|-------------------------------|------------|--|--|
| Cronbach's Alpha Based on | | | | |
| Cronbach's Alpha | Standardized Items | N of Items | | |
| .800 | .813 | 7 | | |

This study indicated a coefficient of reliability for Market Risk 0.800. The result as shown in Table 4.2 is above the widely accepted 0.7 coefficient thus construct in this study were accepted.

4.3 Sample Adequacy Results on Market Risk

The KMO and Bartlett's tests were used to test the correlation between market risk variables. The KMO measure of sample adequacy results is 0.796 as shown in Table 4.3

| Kaiser-Meyer-Olkin Measure of | .796 | |
|-------------------------------|--------------------|---------|
| Bartlett's Test of Sphericity | Approx. Chi-Square | 781.044 |
| | df | 21 |
| | Sig. | .000 |

Table 4.3 Sample Adequacy Results on Market Risk - KMO and Bartlett's Test

KMO ranges between 0 to 1, Ali *et.al.*, (2016). A value of 0.5 and above is considered suitable for factor analysis. The Bartlett's Test of Sphericity should be significant at p<.05 for factor analysis to be suitable. The Bartlett's Test of Sphericity result a p value of less than is 0.001 which shows high significance.

4.4 Factor Analysis Results Market Risk

Factor analysis was done on Market risk variables where constructs were subjected to a variance tests through the principal component analysis test. The principle component analysis was thus used for data interpretation as indicated in Table 4.4. All the measures of market risk were subjected to factor analysis and the results showed that two factors were extracted which explains the market risk variable. They had a contribution of 68.00% of the total variance with Eigen value greater than 1.

| | | | | | Extraction Sums of Squared | | | Rota | atio | n Sums o | f S | quared | | |
|-----------|-------|----------------------|--------|--------|----------------------------|---|----------------------|--------|-------|----------|-----|---------|---|-----------|
| | 1 | nitial Eigen | values | | | | Loading | ;S | | Loadings | | | | |
| | | % of | Cumu | lative | | | % of | Cumula | tive | | | % of | С | umulative |
| Component | Total | Variance | % | 6 | Total | V | ariance | % | | Total | Va | ariance | | % |
| 1 | 3.723 | <mark>53.</mark> 193 | 4 | 53.193 | 3.723 | | 5 <mark>3.193</mark> | 53 | 3.193 | 3.704 | | 52.911 | | 52.911 |
| 2 | 1.037 | 14.808 | (| 68.000 | 1.037 | | 14.808 | 68 | 3.000 | 1.056 | | 15.089 | | 68.000 |
| 3 | .822 | 11.736 | , | 79.737 | | | | | | | | | | |
| 4 | .797 | 11.390 | (| 91.127 | | | | | | | | | | |
| 5 | .377 | 5.381 | 9 | 96.508 | | | | | | | | | | |
| 6 | .173 | 2.470 | (| 98.979 | | | | | | | | | | |
| 7 | .071 | 1.021 | 10 | 00.000 | | | | | | | | | | |

 Table 4.4 Factor Analysis Results Market Risk Total Variance Explained

Extraction Method: Principal Component Analysis.

Factor one which was the highest had 52.911% while factor two had 14.808%. These two factors had their Eigen values greater than 1 and were considered to have the greatest influence on market risk as they explain about 68.00% of the total variance as shown in Table 4.4.

4.5 Market Risks Rotation Component Matrix Results

Table 4.5 depicts the rotated component factor loadings for determinants of market risk measures. Component 1 had four constructs and Component 2 had one construct. The

rotated component factors loadings for market risk sub variables have a factor loading of higher than 0.4. Therefore, the component values indicate that they are interrelated with each other.

| Table 4.5 Market | Risks Rotation | Component Matrix | Results |
|------------------|-----------------------|-------------------------|---------|
|------------------|-----------------------|-------------------------|---------|

| _ | Compone | nt |
|---|--------------------|---|
| | 1 | 2 |
| Development of standard Gauge Railway (SGR) | .943 | |
| is a threat to your firm's performance | | |
| Your firm's financial performance is affected by | .926 | |
| metar and petroleum prices | | |
| LAPPSET will widen your market scope | .883 | |
| Competition within the industry affects your | | |
| firms' returns on assets and return on | .825 | |
| investments | | |
| Government control of interest rate has effect on | , i | |
| your firm's financial performance | .520* | |
| Market risk affects your firms' financial | .478* | |
| performance? | | |
| Your firm is not affected by shareholders' | | 945 |
| withdrawal (Equity Risk) | | .,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |
| Extraction Method: Principal Component Analysis. | | |
| Rotation Method: Varimax with Kaiser Normalizat | tion. ^a | |

a. Rotation converged in 3 iterations.

4.6 Descriptive Results of Market Risk on financial performance

Market risk was assessed by one measure namely commodity risk. It was assessed by two measures namely development of SGR and LAPSSET and competition among transport firms. Descriptive data shown on Table 4.6 presents the relevant results on a scale of 1 to 5 (where 5 =Strongly Agree and 1 =Strongly Disagree).

Table 4.6 Descriptive Results of Market Risk on financial performance

| Variable | Mean | Std. Deviation | Cronbach's Alpha |
|--------------------|------|----------------|------------------|
| Commodity Risk | 4.31 | .712 | .813 |
| Valid N (listwise) | | | |

It was established that the respondents agreed that competition within the industry affects firms' return on assets; development of standard gauge railway is a threat to firm's performance; the prices for metal and petroleum has effect on financial performance of your firm. Thus, market risk influences financial performance of transport firms as indicated by mean score of 4.6

4.7 Market Risk Data Normality Test Results

Normality is one of the assumptions of a linear regression model. The data was subjected to normality test before fitting the model. The assumption is that the variables are normally distributed. , Ali, *et.al*, (2016), adopted the Skewness and Kurtosis test to test for normality. The respondents agreed that competition, development of SGR and LAPSSET and price of metals and petroleum affect financial performance of transport firms as indicated by mean score of 4.36.

The respondents strongly agreed that market risk has great effect on the performance of transport firms. Under market risk sub variables, Interest rate Risk, Equity Price Risk and

Commodity Risk affected performance individually or in combination as indicated by mean score of 4.7.

a) Skewness and Kurtosis Test Results

Measures of skewness is based on mean and median while kurtosis measures the peaked-ness of the curve of the frequency distribution (Kothari & Garg, 2014). The results presented in Table 4.7 show that a skewness coefficient of -0.297 and kurtosis coefficient of -0.423. Based on these results, it was concluded that data was normally distributed since their statistic values were between -1 and +1.

| Table 4.7 Skewness and | Kurtosis | Test Results | Descripti | ive Statistics |
|-------------------------------|----------|---------------------|-----------|----------------|
|-------------------------------|----------|---------------------|-----------|----------------|

| | N | Skew | rness | Kur | tosis |
|--------------------|-----------|-----------|------------|-----------|------------|
| | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| Commodity risks | 180 | 297 | .082 | 0.523 | .282 |
| Valid N (listwise) | 180 | | | | |

b) Durbin-Watson Test Results - Autocorrelation

Durbin and Watson's test statistic is used to check for the presence of serial correlation. Presence of correlation among residuals most of the time gives inefficient results. Durbin-Watson value between 1.5 and 2.5 is always considered to be desirable (Makori & Jagongo, 2013) and Omar, (2017). As indicated in Table 4.8 in this study, Durbin-Watson value of 1.710 indicates that the model did not suffer from autocorrelation.

| Model | R | R Square | Adjusted R | Std. Error of the | Durbin-Watson | | |
|---|-------------------|----------|------------|-------------------|---------------|--|--|
| | | | Square | Estimate | | | |
| 1 | .255 ^a | .065 | .060 | .77001 | 1.710 | | |
| a. Predictors: (Constant), MARKET_RISKS | | | | | | | |

Table 4.8 Durbin-Watson Test Results - Autocorrelation

b. Dependent Variable: PERFORMANCE

4.8 Correlation between Market risk and financial Performance

Correlation analysis was used to ascertain the strength of the relationship between market risks linked to commodity risk and performance of transport firms. Table 4.9 shows correlation matrix showing the correlation analysis with varied degree of interrelationship between market risk and financial performance of transport firms. The Pearson correlation coefficient was generated at 0.01 significance level (2-tailed). The output indicates a strong positive relationship between market risk and financial performance of transport firms, r (304), p =0.000. The p-value <0.01, significant at 0.01 level as the correlation matrix indicates. There is a strong relationship between market risk and financial performance (market risk, r = 0.549 performance, r = 0.652).

| Table 4.9 Correlation between M | Market risk and financial Performance |
|---------------------------------|---------------------------------------|
| | Correlations |

| | | MARKET_RISKS | PERFORMANCE |
|--------------|---------------------|--------------|-------------|
| | Pearson Correlation | 1 | .255*** |
| MARKET_RISKS | Sig. (2-tailed) | | .001 |
| | Ν | 180 | 180 |
| | Pearson Correlation | .255*** | 1 |
| PERFORMANCE | Sig. (2-tailed) | .001 | |
| | Ν | 180 | 180 |

**. Correlation is significant at the 0.01 level (2-tailed).

There is some weak significant positive association between Return on Investment and commodity risk ($\rho = 0.255$). Therefore, the commodity risk is a very important factor in determining performance.

4.9 Market Risk ANOVA Results

Table 4.10 presents the analysis of variance of the study on Market risk and financial performance of transport firms. The results reveal that a significant relationship exists between commodity risk and financial performance of transport firms (F = 12.238, p =0.01) as indicated in Model 1.

Table 4.10 Market Risk ANOVA Results

| AIOVA | | | | | | | | | | | |
|-------|------------------|---------------|------|------------|--------|-------------------|--|--|--|--|--|
| Mod | el | Sum of | df M | ean Square | F | Sig. | | | | | |
| | | Squares | | | | | | | | | |
| | Regression | 7.256 | 1 | 7.256 | 12.238 | .001 ^b | | | | | |
| 1 | Residual | 104.353 | 179 | .593 | | | | | | | |
| _ | Total | 111.609 | 180 | | | | | | | | |
| a. De | ependent Variabl | le: PERFORMAN | | | | | | | | | |
| h Dr | adiators (Const | ant) MADVET D | | | | | | | | | |

b. Predictors: (Constant), MARKEI_RISKS

4.10 Market Risk goodness-of-fit Model Results

The results on Table 4.37 showed that Market risk measure i.e. commodity risk, had explanatory power on the financial performance of transport firms as it accounted for 6.5% of its variability (R Square = 0.065) on Model 1. This implies a moderate positive relationship between market risk and financial performance of the transport firms.

4.11 Regression Results of Market Risk and Financial Performance of transport firms

To establish the influence of market risk measures i.e. commodity risk, on the financial performance of the transport firms, the following hypotheses were stated:

4.11.1 Hypothesis Testing

 H_{01} : There is no statistically significant influence of Market Risk on the financial performance of Transport Firms.

 $H_{0A:}$ There is statistically significant influence of Market Risk on the financial performance of Transport Firms.

Regression analysis was conducted to determine Market risk measures i.e. commodity risk, had significant influence on the financial performance of transport firms.

 Table 4.11 Regression Results of Market Risk and Financial Performance of transport

 firms

| Coefficients ^a | | | | | | | | | | |
|---------------------------|-------------|---------|---|------|-----------------------|-------|------|----------------------------|-------|--|
| Model | | Unsta | Unstandardized Standard Coefficients Coefficient | | dardized fficients | Т | Sig. | Collinearity Statistics | | |
| | | В | Std. Erro | or l | Beta | | | Tolerance | VIF | |
| 1 | (Constant) | 2.368 | 3.4 | 44 | | 5.336 | .000 | | | |
| 1 | MARKET_RISH | KS .366 | i .1 | .05 | .255 | 3.498 | .001 | 1.000 | 1.000 | |

a. Dependent Variable: PERFORMANCE

Table 4.11 displays the regression coefficients results of the Market risk measure i.e. commodity risk. Commodity risk (supported by β =0.366, p-value = 0.01) is statistically significant in explaining financial performance of transport firms. This implies that the null hypothesis is rejected and the alternative hypothesis accepted i.e. H_{0A} is accepted since $\beta \neq 0$ and p-value<0.05. The regression model is summarized as indicated:

$$Y = 2.368 + 0.366X_1 \tag{4.1}$$

Where, X_1 – Market risk.

It can be concluded that there is statistically significant influence of market risk on financial performance of transport firms.

5.1 CONCLUSIONS AND RECOMMENDATIONS

5.2 Conclusions

The relationship between market risk and performance of transport firm was found to be statistically significant, thus, the study rejected the null hypothesis and failed to reject the alternative hypothesis. The indicators of market risk were Interest rate Risk, Equity Price Risk and Commodity Risk. Descriptive statistical methods used indicate that Commodity risk (risk of metal and petroleum) had the most influence than other sub-variables of market risk on financial performance as established by the study, many transport firms ownership was subsistence, from family business developments, managing as few as one Truck or bus.

5.3 Recommendations

In order to counter market risk, Transport firms should address the unexpected loss at certain confidential level for this includes competition, interest rate risk and ensure solvency and stability of transport firms just like Financial Institutions in cases of market shocks.

Managers should institute measures by which significant changes in the size or scope firms' activities would trigger an analysis of the adequacy of capital, unnecessary competition and proactive rather reactive response to market risk which have great effect on firm' financial performance.

Managers should be encouraged to have an internal capital allocation that would link identification, monitoring and evaluation of market risks to financial performance.

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