Relationship between Resources and Value Creation in the Kenyan-owed Mining Enterprises in Kenya

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Abstract

Studies show that countries such as United States of America, Canada, Australia, Chile, Ghana and South Africa use the right machinery and equipment to extract minerals which when sold contribute significantly to the country's GDP. Kenyan mining industry contributed Ksh.15023 million only to the GDP in the second quarter of 2020. Therefore, it was important to establish whether Kenyan owned mining enterprises have adequate resources. The objective of this study was to establish whether resources have a relationship with value creation. This study was a cross sectional survey. A questionnaire was used to collect data from Kenyan owned mining enterprises, where both semi-structured and open-ended questions were used. A quantitative approach was employed in data analysis. Results of the research demonstrated that there was correlation between resources and value creation. ANOVA results show that resources and value creation association were statistically significant. However, Kenyan owned enterprises do not have adequate resources. This study found out that most of the Kenyan owned mining enterprises do not have adequate resources to facilitate value creation processes. These resources are crucial in mining industry because finances are used to acquire all other resources, such as machines and equipment resources that are used to extract minerals throughout the value chain process in the mining industry. Future studies can be undertaken to establish whether other specific types of mining-related enterprises have resources to facilitate mining process.

Key Words: *Value Creation, Resource-Based View, Enterprise Resources, Mining Industry Kenya*

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1.0 Introduction

Financial, machinery and other equipment resources are very important in the mining industry. Generally, financial resources are used to purchase all the other resources used to extract minerals. This study sought to establish the association between enterprise resources and value creation in the mining industry in Kenya. These two resources are important for value creation process in the mining industry. Picincu (2020) posits that small businesses can leverage their internal resources to create value and gain a competitive advantage. The revenue of an enterprise is improved through customer retention because of repeat purchase and word of mouth advertising from their customers. Machines and equipment are used throughout the value chain process in the mining industry.

This study therefore sought to establish whether there is an association between financial resources, machines and equipment in Kenyan owned enterprises in mining industry. Resources based view of the firm assumptions is that competitive advantage is derived from internal resources of a firm (Jenkins, Ambrosini and Collier, 2016). Findings for various studies show that Kenya has innumerable deposit of minerals.No study has been undertaken to establish whether Kenyan owned enterprises have resources to extract the minerals established by various studies. This study therefore tries to find out whether Kenyan mining enterprises have resources to enable them extract minerals.Studies show that countries such as United States of America, Canada, Australia, Chile, Ghana and South Africa uses the right machines and equipment to extract minerals.

Kenyan mining industry contributed Ksh.15023 million to Kenya GDP in the second quarter of 2020 (Kenya National Bureau of Statistics [KNBS], 2020). Nieponice et al. (2019) says that profitable growth matters in mining industry because it drives long-term value creation. Therefore, it was important to establish whether Kenyan owned mining enterprises have these resources. Mining industry is very important because it supplies to all other industries. In East Africa, Tanzania use technology for mineral extraction. This has improved their economy over the years.

"Availability of financial resource expands an enterprise capacity to support its value creation. Finances pay enterprises recurrent expenses and enable them to acquire all the other resources"

However, Kenyan owned enterprises are lagging behind in the application of appropriate machines and equipment. It is important to note that multinationals that are mining in Kenya are using the required machines and equipment to facilitate mining.

This is not the case with Kenyan owned enterprises. The findings of this study show that there is a relationship between resources and value creation. Therefore, it is important for all miners to have all the required resources to extract minerals, since resources facilitate value creation process.

Objective

This study's objective is to ascertain whether resources have an association with value creation in Kenyan owned enterprises in mining industry in Kenya.

Hypothesis

H_0 There is no relationship among resources and value creation in Kenyan owned enterprises in the mining industry in Kenya

Theoretical Framework

This study is guided by Resource-Based View (RBV) of the firm. This theory was initiated through the work of Penrose in 1959. Wernerfelt (1984) and Barney (1991) seminal article popularised RBV on theoretical and empirical efforts. Resource-Based view of the firm is a significant theory used to elucidate performance of an enterprise in strategic management (Xiao, Arikan and Barney, 2016). It is used by enterprise managers to examine how enterprise resources are applied and combined to produce value for the stakeholders. Guided by RBV enterprise managers organise resources to capture the productive value and decrease the cost of production to enhance profitability of the enterprise. Resource Based view of a firm considers an enterprise as a bundle of resources that helps it to convert raw materials into final products.

Resources include enterprise machines and equipment, finances, and collective skills, which develop capabilities that an enterprise can organise to create value. Resource Based view theory enables enterprise managers to look inside the enterprise for resources that cause superior performance and employ them to create value for stakeholders. Enterprises are expected to engage in various value creating activities to create more value than competitors (Kunchala, 2016). They build value through carrying out a selection of undertakings that Porter defined as the Value Chain (Raok & Team, 2019). The inward looking to the enterprise has proved to be both influential and useful in the value creation process.

It assumes that the efficiency in utility of all useful enterprise resources creates value and determines competitive advantage of an enterprise. This theory is popularly used to illuminate enterprise performance by examining internal resources and capabilities (Crook et al., 2008; Newbert, 2008). Resource Based view of a firm show that sustainable competitive advantage is easily achievable through exploitation of internal resources, (Rothaermel, 2012). Based on Barney's suggestion of 1991, the view conceptualises the firm as an entity that exists due to utilization of its resources effectively. The approach is used to view a firm through resources. According to McEvily & Marcus

(2005), organisation resources include intangible items such as contracts, leases, licenses, trade secrets, trademarks, brand names, and intellectual property, labour, administrative, financial, legal, technical and managerial expertise. Wernerfelt (1997) looked at the resources characteristics and attributes postulated by Barney and emphasised on the resource attributes. Strategic resources enable mining enterprises to produce high quality minerals that create value for their stakeholders.

A review of empirical studies

Resource-Based View of the firm (RBV) is a widely used theory in strategic management. A firm is termed as a bundle of resources and capabilities that create value as illustrated in a study by Mehdi and Sarma (2020) on SMEs in India. The research findings show that variables of value addition among SMEs in India include financial factors, production factors, marketing factors, operation factors and human resources factors. According to this study, these factors facilitate value creation. A case study on JP Morgan Chase Bank by Donellan and Rutledge (2019) established that the use of RBV by JP Morgan Chase enabled the firm to function effectively, efficiently and less costly than their competitors. JP Morgan Chase Bank ensures they have resources and capabilities to enable them achieve high profits. A study by Sutanto and Sudarsono (2018) investigated the role of internal resources that leads to bank competitiveness in Indonesia. The study was based on 10 Indonesian commercial banks key players in the banking market. The study was undertaken from 2013 to 2015. The results indicated that capital adequacy, brand name, and branch network enable banks to create value.

Strategic resources are owned by enterprises. They enable them to create value for their stakeholders. These include physical resources, financial resources, technological resources, mining location, human resources, brands, patent and many others. These assets enable an enterprise to create value for their stakeholders. Resources are classified as factors of production by economists. Enterprises identify suitable resources, acquire them, and bundle them into capabilities they leverage on to facilitate value creation process. HKT Consultant (2020) suggests that enterprise strategic resources provide a foundation to develop firm capabilities. Enterprise managers bundle, manage and exploit resources to create value for the stakeholders.

O'Malley (2018) posits that most successful enterprises understand that the purpose of them being in business is to create value for customers, employees, and investors. They however, need to be combined well to produce desired results. Variables of this study include financial, machines and equipment. Financial resources are used to pay for recurrent expenses and to acquire all other resources. Firms will find it difficult to create value for their stakeholders without this resource. Funding a business can be a challenge, however, options that are available to fund a mining venture include own

savings, bank loan or attracting an investor. This study sought to establish whether mining enterprises are adequately funded and the sources of funds to create value. Machines and equipment resources are key in the process of value creation in mining industry.

Heavy machinery and equipment are used in mining industry to explore and develop sites for extraction of minerals. They are used throughout the mining stages even during the closing of a mine. This study established whether mining firms possess machines and equipment to facility mining process and create value. Studies show that accessibility of financial resource does increase an enterprise's ability to support value creation process. Mining industry is highly capitalized and requires well trained human resource who are expensive to hire. Nyamubarwa, Mupani and Chiduuro (2013), explains that resource-based view of the firm's key concept is that a firm's performance is determined by the resources and capabilities they possess to facilitate production of goods and or services. This study seek to establish whether Kenyan owned enterprises in mining industry have adequate financial and machines and equipment resources to create value.

2.0 Materials and Methods

The research was conducted in Taita/Taveta County and incorporated the following resources: financial, machines and equipment. The study's respondents provided primary data while secondary data was obtained from books, government records, publications, journals and libraries. The target population was the Kenyan owned mining enterprises in mining industry in Kenya. Thirty (30) managers of Kenyan owned enterprises were selected to participate in the study.

A simple random sampling technique was used to select participants from the target population. The study adopted a descriptive cross-sectional survey design It utilized quantitative approach in the methods which are associated with positivism philosophy. The methodology used involved selecting samples to enable the researcher analyse and discover various traits and occurrences that were useful in testing the relevant hypotheses. A survey research design enabled the researcher to describe and explain events as they were in the field. A self-administered questionnaire was used to collect data where both semi-structured and open-ended questions were used. Variables in this study were financial machines and equipment; and value creation in mining enterprises in Kenya.

The collected data was analysed descriptively where mean and standard deviation were computed to help establish whether Kenyan owned enterprises possess resources to enable them extract minerals, and add value to satisfy their customers. The researcher used SPSS version 22 to aid data analysis. Hypotheses testing using regression analysis offered an enhanced understanding of the relationships existing amongst the various study variables. The same was confirmed

using Pearson correlation analysis. The findings of this study guided the researcher to come up with informed conclusions and recommendations.

3.0 Results and Discussion

The findings were established, discussed and conclusion derived from the output of this study as presented in the subsequent sections.

Response rate

The response rate was 100%. This was possible because the questionnaires were delivered by the researcher, where some were filled immediately and others were collected thereafter.

Reliability results

To conduct a credible analysis, a reliability test was conducted. Reliability test is concerned with rating stability and consistency. Reliability is important because it tests whether the study fulfils its predicted objectives and hypothesis. This study focused on the internal consistency method using Cronbachs' alpha test as tabulated in the Table 1.

Table 1

Cronbachs' Alpha Reliability Test

Variable	Cronbach's Alpha
Financial Resources	0.888
Machines and Equipment Resources	0.946
Value Creation	0.874

For this study, the result of analysis of Cronbach's Alpha in Table 1 for financial resources is 0.888. Cronbach's alpha for "machines and equipment" resources is 0.946 and for value creation is 0.874. The results imply that the item measures from the two constructs: resources and value creation; were internally consistent and would therefore reliably measure the variables.

Descriptive results

The descriptive analysis was undertaken to abridge the research data in a meaningful way.

Table 2

Mean and Standard Deviation

Variable	Mean	SD
Financial resources	2.32	.80
Machines and Equipment	2.02	.94
Value Creation	3.48	.39

The analysis in Table 2 with N= 30 items established internal consistency of the study data by running a composite score which indicate the mean and the standard deviation for each value. It shows how data is distributed around the mean for various variables. These include independent variables, namely; financial resources, machines and equipment resources. The dependent variable is value creation.

The rating is a 3-point scale that shows the individual composite output have a mean of financial resources 2.32, and a standard deviation of 0.80. The machines and equipment resources mean is 2.02 with a standard deviation of 0.94, while the value creation mean is 3.48, the standard deviation is 0.39. Small standard deviation illustrate that most of the data are clustered close to the mean, therefore, this is an indication that the study data is reliable. Various studies have been undertaken on value creation guided by resource based view of the firm. A study carried out by Donnellan and Rutledge (2019) on JP Morgan Chase Bank established that the bank ensures they have resources and capabilities to achieve high profits. They utilize resources and capabilities to create high value for their stakeholders. Sutanto and Sudarsono (2018) undertook a study on 10 Indonesian commercial banks to investigate the role of internal resources that leads to bank competitiveness in Indonesia. The study's result of the analysis show that capital adequacy, brand name, and branch network enable banks to create value.

The composite measures on financial, machines and equipment resources are used to analyse the constructs that guided this study. Likert scale of 1-5 was used, where: 1-Strongly Disagree, 2-disagree, 3-Neither agree nor disagree, 4-agree, and 5-Strongly Agree. Table 3 shows the rating of financial constructs in association with value creation.

Table 3

Financial factors supporting value creation

Financial Factors	Strongly disagree 1	Disagree 2	Neither agree nor disagree 3	Agree 4	Strongly agree 5	Mean	STD. Dev
Entrepreneur/Shareholder contribution	5(16.7%)	10(33.3%)	11(36.7)	3(10.0%)	1(3.3%)	2.5	1.009
Ability to borrow from the Bank	12(40%)	7(23.3%)	8(26.7%)	2(6.7%)	1(3.3%)	2.1	1.125
Net profits from operations	7(23.3%)	10(33.3%)	10(33.3)	3(10%)		2.3	0.952
Sales growth rate	6(20%)	9(30%)	12(40%)	1(3.3%)	2(6.6%)	5.6	17.667
Machine and equipment acquisition	11(36.7)	8(26.7%)	8(26.7%)	3(10%)		5.27	17.73

Employee wage bill paid on time	7(23.3%)	4(13.3%)	15(50%)	1(3.3%)	3(10%)	8.9	24.521

The results of the analysis in Table 3 show that most of the Kenyan owned enterprises do not have adequate financial resources to enable them acquire other resources. Acquisition of machines and equipment construct shows that 36.7% of the respondents strongly disagree that they have financial ability to acquire machines, 26.7% of the respondents disagree that they have financial ability to acquire machines. 26.7% neither agree nor disagree that they have the ability to acquire machines and equipment. 16.7% of the respondents strongly disagree that the enterprises are able to finance their business through their own contribution. 40% of the respondents show that they are unable to borrow from banks.

Table 4

Machines and equipment supporting value creation

Machines and equipment	Strongly disagree 1	Disagree 2	Neither agree nor disagree 3	Agree 4	Strongly agree 5	Mean	STD. Dev
Speed of machines in extraction of minerals	8(26.7%)	8(26.7%)		13(43.3%)	1(3.3%)	2.97	1.299
Support safety of employees	4(13.3%)	3(10%)	6(20%)	15(50%)	2(6.7%)	3.27	1.172
Reliability of machines	7(23.3%)	1(33.3%)	10(33.3%)	11(36.7%)	1(3.3%)	2.93	1.23
Fuel Consumptions	12(40%)		5(16.7%)	13(43.3%)		3.57	5.544
Machine Serviceability	10(33.3%)	2(6.7%)	5(16.7%)	10(33.3%)	3(10%)	5.9	17.452
Adequate machines and equipment	10(33.3%)	6(20%)	3(10%)	10(33.3%)	1(3.3%)	5.63	17.429

The findings show that respondents do not have adequate machines and equipment. When asked whether they have adequate machines and equipment, 33.3% of the respondents strongly disagreed that they have adequate machines and equipment. 20% of the respondents disagreed that they have adequate machines and equipment; 10%

neither agreed nor disagreed ; 33.3% agreed , while 3.3% strongly agreed that they have adequate machines and equipment.The results of analysis of this study show that financial resources and machines and equipment resources have a relationship with value creation, yet some of the Kenyan owned mining enterprises do not have adequate financial and machines and equipment resources. These results are presented in Table 3 and Table 4.

Table 5

Pearson correlation: Financial resources and machines and equipment

		Machines and equipment's resource	Financial resource capabilities
Machines and equipment resource	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	30	
Financial resource capabilities	Pearson Correlation	.619**	1
	Sig. (2-tailed)	.000	
	N	30	30

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

Pearson correlation test was run on Table 5. The result show that a two tailed Pearson correlation is positively significant. The coefficient correlation is 0.619 and it reads positive. This is an indication that the two variables have a positive relationship.

Analytical model diagnostic tests

Prior to the selection of the model to use for estimation of the influence of resources on value creation, the assumptions of the classical linear regression were tested. The results on normality test are shown in Table 6

Table 6

Shapiro-wilk normality test

Kolmogorov-Amirnov			Shapiro-Wilk		
Statistics	df	Sig	Statistics	df	Sig
.106	30	.200*	0979	30	.788

The sample contains 30 data cases with a questionnaire rating of 5- point scale. Table 6 shows the results for normality of distribution test using Shapro-Wilk. The test for normality shows that significance value of Shapiro-Wilk Test is = 0.788>0.05; which is an indication that the analysed data is normally distributed, and it is not significantly different from a normal distribution.

Regression Analysis on resources and value creation

Two categories of resources financial, machines and equipment were tested on value creation using regression analysis. The assumption is that independent variables are not highly correlated as demonstrated in Table 7.

Table 7

Model Summary on Resources and Value Creation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.369[a]	.136	.126	.36637

Predictors: (Constant), Machines and Equipment, Financial Resources
Dependent variable: Value Creation

Table 7 output show the association of financial resources and machines and equipment resources and value creation. The output shows R, which represents the quality of measure of prediction in this case as 0.369. Results further shows that financial, machines and equipment explain 13.6% variability of value creation. The R square is not very impressive, but statisticians indicate that it is acceptable. R Square is an assessment of the forte of the association among financial, machines and equipment resources and value creation. The Standard Error of the Estimate, which measures variation of observation, is 0.37;. It was used to establish the accuracy of predictions made with the regression line. The model validity was also ascertained and results are shown in Table 8.

Table 8
ANOVA test financial resources and machines and equipment on value creation

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.618	20	.231	4.331	.014
Within Groups	.480	9	.053		
Total	5.097	29			

ANOVA analysis output for the test mean score between financial and machine and equipment resources and value creation revealed that there is an association effect F3.331 df 20,9, sig 0.014< 0.05. Based on the results of the analysis, the researcher rejected the null hypothesis and accepted the alternate hypothesis that there is a relationship between resources and value creation.

4.0 Conclusion

Results of the research demonstrated that there is an association among resources (financial, machines and equipment) and value creation. The researcher rejected the Null hypothesis that states that there is no relationship between resources (financial, machines and equipment) and value creation. The study showed that most of the Kenyan owned mining enterprises do not have adequate resources to facilitate value creation process. Minerals are extracted by human being using machines and equipment. The machines and equipment used are usually acquired with financial resources. Before venturing into any business, an entrepreneur is therefore expected to secure sufficient finances. Availability of financial resource expands an enterprise capacity to support its value creation. Finances pay enterprises recurrent expenses and enable them to acquire all the other resources.

5.0 Recommendation

The findings of this study show that Kenyan mining enterprises do not have enough financial resources. These enterprises also do not have enough machines and equipment. However, the findings show that there is a relationship between resources and value creation. Minerals cannot be extracted without the financial resources. Financial resources are used to pay for recurrent bills and to acquire machines and equipment and other resources that aid mineral extraction. There is need for Kenyan owned mining enterprises to find ways of raising finances to ensure that they are able to acquire appropriate resources. Mining industry is a very important industry. The government of Kenya should develop strategies that will guide them to support Kenyan owned enterprises in financing their mining projects. This study was carried out in Taita-Taveta County.

More studies can be replicated in other mining counties in Kenya in the future. The research combined all enterprises owned by Kenyans. Future studies can be undertaken to establish whether specific type of enterprises have resources to facilitate mining process and create value. Such enterprises could be community based enterprises, sole proprietorship, partnerships, self-help groups, limited companies, women led enterprises and many others.

Value contributions and implications of the findings

The findings of this study indicate to the government of Kenya that one of the reasons mining industry have failed to grow is the delay of extracting minerals by Kenyan owned enterprises. One key cause of delay is attributable to Kenyan owned enterprises' inadequate financial resources to support mining projects. Further, the study adds to literature on application of resource based view on the mining industry in Kenya.

References

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99-120. https://journals.sagepub.com/doi/10.1177/014920639101700108

Crook, T. R., Ketchen, D. J., Combs, J. G., & Todd, S.Y. (2008). Strategic resources and performance. *A meta-analysis strategic management journal*, *27*(6), 1142-1154. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1030.4835&rep=rep1&type=pdf

Donnellan, J., & Rutledge, W. L. (2019). *A case for resource-based view and competitive advantage in banking managerial and decision economics, 40*(1), 1-2. Wiley online library.

HKT Consultant, (2020). *Resource based theory*. Science theory. https://sciencetheory.net/resource-based-theory/

Jenkins, M., Ambrosini, V., & Collier, N. (2016). *Basic principles of the resource based view of the firm.* Binus university business school

Kenya National Bureau of Statistics, (2021). *Trading Economics.* https://tradingeconomics.com/kenya/population

McEvily, B., & Marcus, A., (2005) Embedded Ties and the Acquisition of Competiti Capabilities. Strategic Management Journal 26(11),1033-105. https://doi.org/10.1002/smj.484

Mehdi, M. M., & Sarma, T. R., (2020) The labour, machine , and materials as sources of value-addition for SMEs: an Empirial evidence from India. *Strategic management journal, 8*(2) 123-126.

Newbert, S. L. (2008). Empirical research on the resource-Based view of the firm: An assessment and suggestions for future research. *Strategic management journal, 28*(2), 121-146. DOI: 10.1002/smj.573

Nieponice, G., Vogt, T., & Koch, A. (2019). *Value creation in mining: Return to strategy*. Boston consulting group publications.

Nyamubarwa, W., Mupani, H., & Chiduuro, C. (2013). *Analysis of the human resource practicesin the mining industry in Zimbabwe's Midland's Province. A relook at the resource based view of managing human resources* [Masters Thesis, Great Zimbabwe University]. Zimbabwe. http://www.ijbs.unimas.my/images/repository/pdf/Vol19-no3-paper3.pdfhttps://www.academia.edu/30418849/An_analysis_of_the_Human_Resource_practices_in_the_mining_industry_in_Zimbabwes_Midlands_Province_A_relook_at_the_Resource_Based_View_of_managing_Human_Resources

O'Malley, P. (2018). *Value creation and business success*. System Thinker.

Penrose, E. G. (1959). The Theory of the growth of the firm: Perspective for strategic management research. *Academy of management Review*, *26*(1), 22-40. https://journals.aom.org/doi/10.5465/amr.2008.34425026

Picincu, A. (2020). *The Resource-based view: Definition, advantages and disadvantages*. Leaf Group Media.

Raok, K. S., & Taam, (2009). *Resources & capabilities; cost & differentiation; Value creation*. Business minds today.

Rothaemel, F.T. (2012). *Strategic Management*: *Concepts and cases*. McGraw-Hill

Sutanto, E. M., & Sudarsono, D. (2018). Empirical analysis of firm resources in the banking industry in Indonesia: Resource-based view of a firm. *International Journal of Business Society*, *19*(3), 587-595. https://myjurnal.mohe.gov.my/public/article-view.php?id=129358

Wernerfelt, B. (1984). A Resource- Based view of the firm. *Strategic management journal*, *5*(2), 171-180. https://www.jstor.org/stable/2486175?seq=1#metadata_info_tab_contents

Wernerfelt, B. (1997). On the Nature and Scope of the Firm. An Adjustment-Cost Theory. *Journal of Business*, *70*(4), 489-514. https://www.jstor.org/stable/10.1086/209729?seq=1#metadata_info_tab_contents

Xiao, T., Arikan, A. M., & Barney, J. B. (2016). *Resource-based view.* The palgrave encyclopedia of strategic management. https://link.springer.com/referenceworkentry/10.1057%2F978-1-349-94848-2_512-1