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Resource-based determinants of performance in the Tanzanian commercial banking subsector

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The purpose of this paper is to examine the resource-based performance determinants for commercial banks in Tanzania. The focus of the paper is on how financial performance of the commercial banks in the country is attributable to bank-specific resources. The paper compared the influence of different tangible and intangible bank-specific resources on bank profitability using a survey of 17 top commercial bank executives and annual data from 15 commercial banks. The results confirmed that organisational capabilities are key determinants of commercial bank performance in Tanzania. On the other hand, the results found no support of the effectiveness of intangible assets in creating economic benefit to the banks. The poor contribution of intangible assets to commercial bank performance implies that Tanzanian commercial banks have not been able to harness and deploy intangible assets effectively, making them vulnerable to competitor imitations. These findings call for more attention to be put on harnessing and deploying intangible assets for sustainable success of commercial banks in Tanzania. This paper is original in developing a framework of evaluating resources' relative importance on bank performance.

Key words: Tanzania, banking, bank performance, resource-based view.

INTRODUCTION

Since Wernefelt (1984)'s "A Resource-based View of the Firm" was awarded the *Strategic Management Journal* best paper in 1994, the Resource-based view (RBV) has emerged to be a dominant framework in the study of determinants of inter-firm performance differences (Finney et al., 2005; Liu, 2010). RBV argues that, firms' sustainable competitive advantage and subsequent superior performance stem from possession and effective deployment of intangible resources (Sirmon et al., 2008; Hill and Deeds, 1996). In concert with this view, a number of studies that focus mostly on the influence of intangible factors have been carried out.

The resources studied by RBV scholars include intangible elements such as culture (Barney, 1986), reputation (Roberts and Dowling, 2002), organisational network (Fang, 2008) and so on. Results from recent studies involving tangible and intangible resources simultaneously also confirm the strategic superiority of intangible resources over tangible ones (Galbreath and Galvin, 2008). However, researches that test the RBV propositions using a homogenous sample drawn from the banking industry are scarce. Literature search found only two banking studies (Clulow et al., 2003; Mehra, 1996) to be rooted in RBV. Thus, the motivation of this paper is to contribute to validating the RBV prescription in an African developing country context, a case that is relatively unexplored. The study does so by examining the resource-based determinants of performance in the Tanzanian banking industry.

Resources and bank performance

RBV refers a firm as collection of productive tangible and intangible resources (Penrose, 1959). In RBV, resources are defined as anything firms use to conceive or execute market strategies to improve performance (Wernefelt,

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1984; Kraaijenbrink et al., 2010). These resources are classified based on either tangibility or what the firm owns/does (Galbreath, 2005). Based on tangibility, resources are classified into tangible and intangible resources. Based on what the firm owns/does, resources are classified into assets and capabilities. Those resources that can be owned are assets (Sanchez, 2002); on the other hand capabilities refer to a firm's superior way of deploying its assets, tangible or intangible, to perform some task or activity to improve performance (Schreyögg and Kliesch-Eberl, 2007; Amit and Schoemaker, 1993; Grant, 1991; Teece et al., 1997). The sum of tangible assets, intangible assets, and capabilities constitute a firm's corporate being. RBV also specifies that, firms with superior resources are able to produce more efficiently than others (Tang and Liou, 2010; Peteraf, 1993).

Drawing from Galbreath (2005), a bank's tangible assets mainly consist of capital employed as represented on the balance sheet. Intangible assets are often defined by the current endowment of intellectual property, contracts, reputation, culture, and networks (Clulow et al., 2003; Hall, 1993; Teece et al., 1997). Organisational capabilities include innovation and imitation capabilities (Olavarrieta and Friedmann, 2008), managerial efficiency (Williamson, 1991), service delivery capability (Anderson and Sullivan, 1993), organisational learning (Sinkula, 1994; Teece et al., 1997), risk management capability (Liu, 2000; Carey, 2001), and market sensing capability (Foley and Fahy, 2009; Webster, 1988, Dwairi et al., 2007).

In the past, several studies that investigate the influence of bank-specific resources on bank performance have been conducted (Clulow et al., 2003; Dermirguc-Kunt and Huizingha, 1998; Peng, 2006, Mehra, 1996; Tainio, 1991; Duncan and Elliot, 2004; Mitki et al., 2007; Sensarma and Jayadev, 2009; Dwairi, 2007). However, our search found only two (Clulow et al. 2003 and Mehra, 1996) to be rooted in RBV. Clulow et al. (2003) used face-to-face interview to explore how a consistently high performing financial service firm identifies and exploits its key intangible assets and capabilities to sustain competitive advantage. Their study confirmed that, deployment of key intangible resources to a greater extent explains the financial firm's source of sustained superior performance. In another study, Mehra (1996) employed resource-based and market-based strategic grouping to study the determinants of performance in the U.S. banking industry. The findings of Mehra's study showed a strong positive association between banks' resource (both tangible and intangible) endowment and performance.

Our search did not find any study that attempted to compare the relative importance of tangible and intangible resources in order to determine which resources matter the most in banking. The scarcity of researches on this subject could be attributed to lack of a common framework for evaluating the relative importance of firm resources (Priem and Butler, 2001). To address these gaps, the present paper involves variety of tangible and intangible resources in order to verify if, as RBV prescribes; intangible resources are in fact key determinants of bank success in Tanzania.

METHODOLOGY

The sample of this study comprises commercial banks operating in Tanzania who agreed to participate in a survey conducted by one of the authors as part of his doctoral project. Requests were sent to all 24 commercial banks operating in Tanzania mainland, requesting the Chief Executive Officer (CEO) or another member of top management to participate in the survey. Out of these, 17 banks agreed to participate. Respondents (one from each bank) included 1 managing director, 1 assistant to managing director, 10 heads of finance, 1 head of banking services, 2 heads of human resource, 1 bank economist and 1 marketing executive. The survey was conducted between August 2009 and October 2009. Secondary data comprise unbalanced financial data-set of 15 commercial banks for the period of 2005 through 2008. The strengths of using longitudinal observations such as the one used in the current study rather than cross-section one is that longitudinal observations are less sensitive to temporary effects such as business cycles of the banking industry.

Since this research was concerned with the relative influence of tangible resources (which are often captured by the financial statements) and intangible resources (which are not captured by financial reports) the empirical analysis of the relationship between resources and bank performance involves several procedures. These procedures are aimed at capturing the complex relationship between bank resources and performance. First, the relative importance of various resources was determined using analytic hierarchy process (AHP) based on successive pairwise comparisons. In AHP analysis, the relative importance of capabilities criterion was proxied by human capital efficiency (HCE); the relative importance of intangible assets criterion was proxied by structural capital efficiency (SCE); and the relative importance of tangible assets criterion was proxied by physical capital efficiency (CEE). The three efficiency measures were computed using the Value Added Intellectual Coefficient (VAIC^{TM}) procedure.

VAIC^{TM} assumes that a firm's intellectual capital is divided into human capital, structural capital, and physical capital. Human capital refers to employee know-how, experience, and work-related competencies (Namasivayam and Denizci, 2006). Structural capital refers to whatever is left behind in the firm when employees go home, e.g. brand, network, corporate or product reputation and so on (Goh, 2005). Physical capital is often represented by the firm's book value of assets. The association of human capital to employee know-how and work related competencies allowed us to estimate the value of capabilities from human capital. Similarly, the association of structural capital and intangibles such as brand, network and reputation allowed us to estimate the value of intangible assets from structural capital. The value of tangible assets was estimated from banks' book value of assets. The relative importance of sub-criteria in each resource category was determined using the pairwise ratings of the 17 bank executives.

Furthermore, in order to obtain the pattern of association between various resources and bank performance, correlation analysis and regression analysis for the key constructs were preformed. The use of multiple methods such as the one used in this study has been judged to have several advantages. For example, Jick (1979) pointed out that, the use of multiple methods

Table 1. Descriptive statistics of HCE, SCE and CEE for commercial banks in Tanzania (2005-2008).

Variable	Mean	Median	Std. Dev.	Max.	Min.
HCE	2.73	2.65	1.45	5.64	-1.41
SCE	0.56	0.63	0.33	1.71	-0.48
CEE	0.05	0.05	0.02	0.11	-0.04
VAIC^{TM}	3.34	3.30	1.63	6.53	0.22
HCE2VAIC	0.75	0.81	1.01	3.07	-5.47
SCE2VAIC	0.23	0.17	1.03	6.63	-2.18
CEE2VAIC	0.02	0.02	0.03	0.12	-0.15
ROA (%)	2.44	2.78	2.51	6.59	-7.23

HCE = human capital efficiency, SCE = structural capital efficiency, CEE = capital employed efficiency, VAIC^{TM} = value added intellectual capital coefficient, HCE2VAIC = proportion of HCE to VAIC^{TM}, SCE2VAIC = proportion of SCE to VAIC^{TM}, CEE2VAIC proportion of CEE to VAIC^{TM}, N = 46.

enhances the confidence that the results are valid and not a methodical artifact.

For several reasons, this study employed ROA, defined as the banks' pretax profit over total assets, as optimal dependent variable. First, measuring the performance of a business firm is well defined by the view that economic rent is a major goal (Mahoney and Pandian, 1992). Moreover, according to RBV, a firm will deploy resources if it expects to earn profits (Galbreath, 2005). It is also argued in the literature that the RBV objective of the firm is to earn above normal returns (Conner, 1991), where financial returns are linked to a more efficient use of the firm's resources (Rivard et al., 2005). Furthermore, ROA is a performance measure that is commonly used in the banking industry and has been used in research in this industry (Barnett et al., 1994; Mehra, 1996; Wu et al., 2007). For these reasons, it can be argued that profitability is most related to theoretical prescription of RBV and an appropriate performance measure in the current study.

RESULTS

A comprehensive data-set from 15 banks, accounting for 73.3% of commercial bank assets in Tanzania in 2008, was used for VAIC^{TM} analysis. The results showed that banks in Tanzania have relatively high HCE compared to SCE and CEE. The mean (median) value of the proportion of HCE to VAIC^{TM} is 0.75 (0.81) and it had a standard deviation of 1.01; the mean (median) value of the proportion of SCE to VAIC^{TM} is 0.23 (0.17) and a standard deviation of 1.03; the mean (median) value of the proportion of CEE to VAIC^{TM} is 0.02 (0.02) with a standard deviation of 0.03. Mean (median) value of ROA for the entire sample was 2.44% (2.78%) and it had a standard deviation of 2.51% (Table 1).

The average proportions of HCE to VAIC^{TM}, SCE to VAIC^{TM} and CEE to VAIC^{TM} were used to approximate the relative importance of capabilities, intangible assets and tangible assets respectively. These were multiplied by 16 in order to obtain a value along the 16-point AHP line (9,8,7,6,5,4,3,2,1,2,3,4,5,6,7,8,9). This yielded 12 points for capabilities, 3.73 points for intangible assets, and 0.27 points for tangible assets. Pairwise comparison rating between capabilities and intangible assets was obtained by dividing the capability points (12) by the sum

of capability points and intangible assets points (12+3.73). As follows:

$$\frac{12}{(12+3.73)}*16 = 12.20$$

Counting on the sixteen point line from intangible assets towards capabilities, the score fell on point 5 of the 16-point AHP line (Figure 1).

Thus, a value of 5 in favour of capabilities criterion was input in the comparison matrix. Computing the same way, capabilities criterion was compared with tangible assets criterion yielding a score of 9 in favour of capabilities, and intangible assets criterion was compared with tangible assets criterion yielding 8 points in favour of intangible assets. The results of the pairwise comparison matrix for the criteria are arranged in the upper triangle of the square matrix in Table 2. Following Saaty (2000)'s prescription, a_{ij} represents how much factor i is preferred over factor j. Thus, $a_{12} = 5$ means that organisational capabilities are strongly preferred over intangible assets, $a_{13} = 9$ means that organisational capabilities are extremely preferred over tangible assets, and $a_{23} = 8$ means that intangible assets are very strongly to extremely strongly prefer over tangible assets.

From the results, it is concluded that organisational capabilities are the most important resources in determining commercial banks profitability in Tanzania. The second in ranking are intangible assets. Tangible assets criterion was ranked the least important.

Evaluation of the sub-criteria was obtained by analysing the pairwise ratings of 17 bank executives (one from each bank). These 17 banks accounted for 74.23% of commercial bank assets in Tanzania in 2008. The criteria weights were synthesized with the sub-criteria evaluation to obtain global weights for each sub-criterion. The global weights represent the sub-criteria's overall importance with respect to bank performance after taking
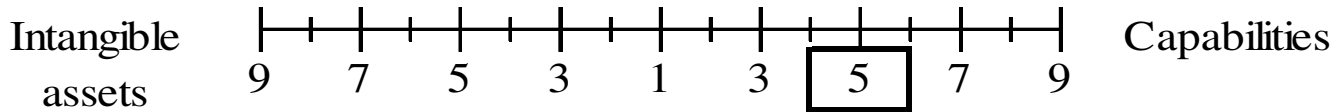
Figure 1. Pairwise comparison between intangible assets and capabilities.

Table 2. Comparing major criteria with respect to commercial bank performance.

Commercial bank performance	Intangible asset	Tangible asset
Organizational capabilities	5	9
Intangible assets		8

Inconsistency: 0.24.

into account the criteria's level of priority. In other words, global weights of each sub-criterion reflect its relevance to a bank's competitiveness or the degree to which the sub-criterion can improve competitiveness and profitability of the bank as shown in Figure 2.

The results show that risk management capability, managerial efficiency, service delivery capability, innovation capability and market-sensing capability represent five most important bank resources to develop for achievement of bank success in Tanzania. This implies that, investment in developing these capabilities has a potential to improve a bank's sustainable competitiveness and profitability. Moreover, subsequent analysis revealed high internal consistencies for each of the constructs. It is important to stress that the overall inconsistency is below the maximum value of 0.1.

The AHP analyses were conducted with the help of Expert Choice V. 11 software package. One can argue for causal ambiguity in using banks managers to rate the importance of resources with respect to bank performance. Thus, quantitative analyses are integrated to support the findings of the study. Quantitative analysis involves correlation and regression analyses in order to determine the pattern and extent of association of bank resources and performance.

Correlations analysis was conducted with the help of SPSS® V.15. The finding (Table 3) shows a significant positive association between HCE and ROA with a correlation coefficient of 0.86 and p-value of 0.00 (two tailed). The analysis of the relationships between SCE and ROA yielded an insignificant positive association with correlation coefficient of 0.29 and p-value of 0.05 (two tailed). The analysis of the relationship between CEE and ROA yielded a significant positive association with correlation coefficient of 0.85 and p-value of 0.00 (two tailed). These findings imply that, capabilities and tangible assets do determine commercial banks performance in Tanzania while intangible assets do not determine commercial bank performance. Moreover, the significant inter-correlations between HCE and the other

factors (SCE and CEE) suggest that capability enhances the effectiveness of the combination of tangible and intangible inputs in Hicks-neutral manner such that

$$Y_{it} = OC_{it} F(K_{it}, IA_{it})$$

Where Y_{it} is ith bank's profitability in time t, OC_{it} stands for time- and bank-specific capability factors, K_{it} stands for tangible assets, and IA_{it} stands for intangible assets.

Further, regression analysis was performed in order to estimate the extent of influence of each of the independent variables on bank performance. Also, given that bank size may influence bank resources' effectiveness (Flamini et al., 2009); we modelled bank size as a control variable, proxied by natural logarithm of total assets (TA). The regression analysis was conducted with the help of EViews V. 6 software package. Results of the regression estimate show the model constant to be negative 0.08, associated with p-value of 0.00. The regression coefficient value of HCE is positive 0.01. This value represents the change in the ROA associated with a unit change in the bank capabilities as proxied by HCE. Therefore, if HCE increases by one unit our regression predicts that there will be an increase of 0.01 in ROA. The regression coefficient value for SCE is negative 0.002. This value represents a negative change in ROA associated with a unit change in SCE. The regression coefficient value for CEE is 0.50. Regression coefficient for the total asset control variable is 0.003. The estimates indicate that physical capital efficiency has a very strong positive effect on ROA while changes in human capital efficiency have small positive effect. Contrary to RBV prescription, changes in structural capital efficiency have negative, albeit insignificant, influence on ROA (Table 4).

With exception of structural capital efficiency coefficient, the linear regression model coefficients for all other variables are highly significant. Also, the p-value of the F-statistic, that is the marginal significance of the F-test, is
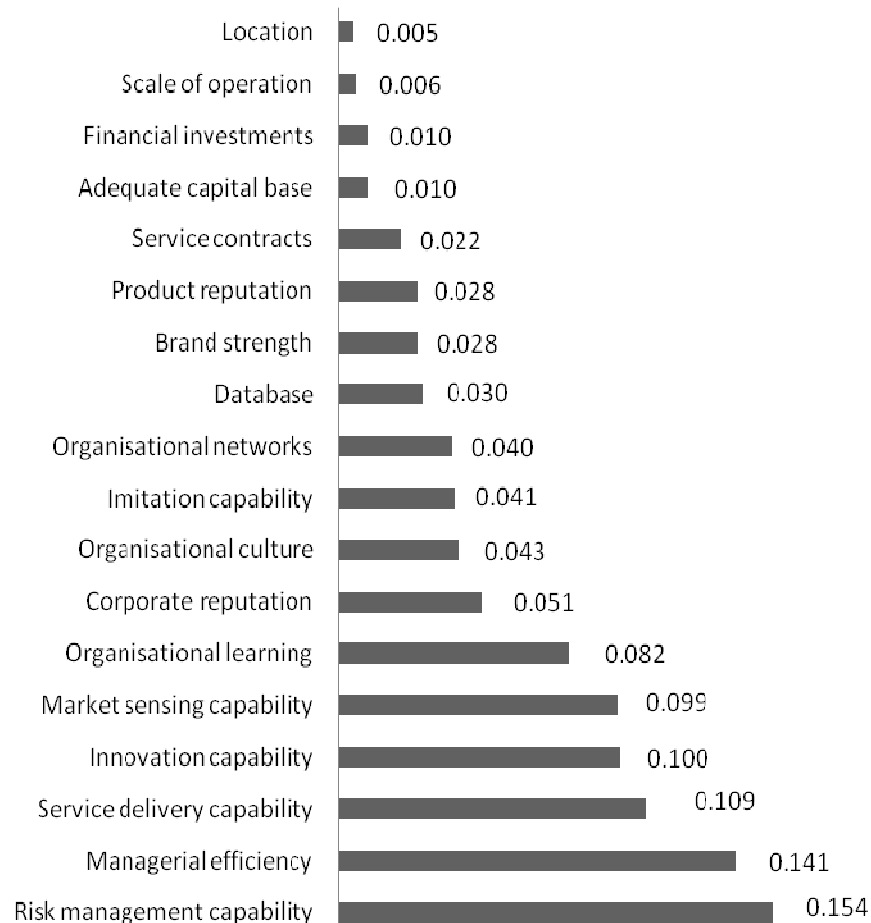
Figure 2. Synthesis of bank resources prioritisation with respect to bank performance. Overall inconsistency: 0.07

Table 3. Pearson table for the HCE, SCE, CEE, and ROA correlations.

Variable	Correlation significance	SCE	CEE	ROA
HCE	Pearson correlation	0.41(**)	0.67(**)	0.86(**)
	Sig. (2-tailed)	0.01	0.00	0.00
SCE	Pearson correlation		0.14	0.29
	Sig. (2-tailed)		0.35	0.05
CEE	Pearson correlation			0.85(**)
	Sig. (2-tailed)			0.00

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed), HCE = human capital efficiency (proxy for capability), SCE = structural capital efficiency (proxy for intangible assets), CEE = capital employed efficiency (proxy for tangible assets), ROA = return on assets (proxy for bank performance), N = 46.

less than 1%; we thus reject the null hypothesis that all of the regression coefficients are equal to zero. Furthermore, our results show a Durbin-Watson statistic value of less than 2 (it is 1.29), indicating the existence of some positive serial correlation. Indeed, correlation analysis in Table 3 indicates positive correlations between the independent variables.

DISCUSSION AND IMPLICATIONS

From the AHP analysis it emerged that risk management

Table 4. Regression estimates of the major criteria.

Dependent Variable: ROA
Method: Panel Least Squares
Sample: 2005 - 2008
Periods included: 4
Cross-sections included: 15
Total panel (unbalanced) observations: 46
ROA=C(1)+C(2)*HCE+C(3)*SCE+C(4)*CEE+C(5)*TA

	Coefficient	Std. error	t-statistic	Probability
C(1)	-0.08	0.02	-4.72	0.00
C(2)	0.01	0.00	6.77	0.00
C(3)	-0.00	0.00	-0.39	0.70
C(4)	0.50	0.07	7.26	0.00
C(5)	0.00	0.00	3.16	0.00

R^2=0.90; Adjusted R^2=0.89; S.E. of regression=0.01; Sum squared resid=0.00; Log likelihood=158.67; F-statistic=96.84; Prob (F-statistic)=0.00. Mean dependent var=0.02; S.D. dependent var=0.03; Durbin-Watson stat=1.29. ROA = return on assets, HCE = human capital efficiency, SCE = structural capital efficiency, CEE = capital employed efficiency, TA = total assets (natural logarithm).

capability, managerial efficiency, service delivery capability, innovation capability and market-sensing capability are the five most important resources influencing commercial banks performance in Tanzania. Moreover, quantitative analysis indicates that both human capital efficiency and physical capital efficiency have greater importance in determining bank profit while structural capitals do not have significant contribution on bank profit.

On a broader theoretical level, the results leads us to begin to question the importance of embracing the notion that superior advantages in capabilities and intangible assets can be sure determinants of firm success in all types of economies. Using analytic hierarchy process and quantitative analyses, this research has shown that combinations of capabilities and tangible assets have strong influence on bank profitability while intangible assets are found to have insignificant to negative contribution. These claims that in some markets tangible assets can have greater influence than intangible assets on firm success represent the core contribution of this research. The results partially confirm the RBV in terms of strategic importance of capabilities. On the other hand, the results find no support of the effectiveness of intangible assets in creating value to the banks. While partially contrary to RBV, these findings have important implication for managers, policy makers and researchers.

Both bank managers and policy makers can benefit from these results in two ways. First, the process of arranging resources according to priorities clarifies which attributes are necessary for assessing bank competitiveness. The attribute with the highest weight reflects the most important areas for organisational performance. Conversely, lower priorities of indicators imply lesser significance. Thus, banks should focus on examining and upgrading the high priority areas. They may also use the weights to analyse the competitive positions in a holistic way by constructing a composite index based on these performance indicators. A self evaluation process is possible by monitoring how this index compares to the industry index and vice versa.

Second, the local weight of the sub-criteria reflect the degree to which they have an impact on each criteria dimension, practitioners can use this information to devise competitive improvement strategies. For example if a bank need to improve its operation performance and results reveal that the weight of intangible resources criterion is greater than that of tangible resources criterion with respect to achieving banks success, the bank should focus on upgrading its intangible resources which involve the drivers at the lowest level. These priority weights also allow policy makers to devise and direct governmental efforts to effectively improve industry competitiveness. Therefore, the priority weights of the criteria and sub-criteria may guide both the private and public sectors to rationally allocate resources in order to improve the competitiveness of the industry.

The results of the quantitative analyses help provide the understanding of how different resources influence bank performance. The poor contribution of intangible assets to bank performance implies that banks have not been able to harness and deploy these resources effectively. As one bank manager put it, "Tanzanian banks still have inferiority complex and weak brands making it difficult for them to succeed in international marketplace". This indicates that the relatively higher importance assigned by managers to intangible assets in the AHP comparison may be an indication of mere wishes. These findings call for more attention to be put on harnessing and deploying intangible assets for

sustainable success of commercial banks in Tanzania.

Conclusion

The main theoretical prescription of the RBV is that, given the firm's overall resource stock, only intangible resources (that is organisational capabilities and intangible assets) can offer sustainable economic benefit to the firm (Galbreath, 2005). Grant (2006) for example, argue that organisational capabilities, which is knowledge that resides among organisational members, is the firm's valuable and difficult-to-imitate resource and a source of sustainable success. Similarly, intangible assets such as a valuable corporate reputation or organisational culture are often difficult-to-imitate by competitors, conferring sustainable competitive advantage for firms that own them. It is however argued in the literature that physical resources, due to ease to which they can be imitated, cannot give a firm sustainable success (Heel and Deeds, 1996). This implies that, intangible resources (namely human capital or capabilities and structural capitals or intangible assets) are the key to success in banking.

The current study found efficiency of human capital (capabilities) as well as efficiency of tangible assets impact bank profitability significantly. Empirical findings fail to find any strong association between efficiency of structural capitals (intangible assets) and profitability. For managers, the findings suggest that banks in Tanzania are not performing at ideal level. The nonsignificant impact of structural capital efficiency on bank profitability implies that Tanzanian banks have not recognized and effectively deployed their intangible assets such as reputation, organisational culture and so on for banks' economic benefit. Indeed, the significant impact of tangible assets efficiency on banks' profitability indicate that Tanzanian banks have not attained a maturity level required to link improved intangible assets to higher bank profits. Ineffective deployment of intangible assets makes the banks vulnerable to competitor imitations. The current results partially support the RBV in terms of strategic importance of capabilities and, to a greater extent, echo Firer and Williams (2003) whose study of firms in South African finds physical capital to have a greater influence on firms' performance than human and structural capitals.

RECOMMENDATIONS FOR FURTHER RESEARCH

At this juncture, it is important to acknowledge the limitations of this research. In some ways the current study is not comprehensive. First, this research did not assess resources in terms of whether or not they possess necessary characteristics that limit competitor imitation, instead the study sought to evaluate the relative contribution of each identified bank resource to bank profitability regardless of whether such resources are easily imitated or difficult to imitate, future research may

attempt to explore these characteristics in the Tanzanian setting. Second, this study failed to acquire detailed financial data for all commercial banks, future studies should therefore further improve on the aspect of coverage of detailed financial data. Third, the data employed in the current study was only for fours years and was unbalanced, further research may consider using balanced data for a much longer period. Fourth, the study is limited by the theoretical framework used. While RBV is respected, there is no universally accepted research framework for RBV-based study. This study sought to combine methods to overcome criticisms of the findings resulting form a single method. The present study may be replicated across countries industries and larger sample sizes. Fifth, this research involved several factors in studying the relative influence of different resources on bank performance, further researches may attempt to study the influence of factors identified in this study separately, especially for the factors identified as the top five capabilities that drive bank performance. Further study may also consider using case study approach to demonstrate how each of the identified variables influences performance in a specific banking firm context.

Even with the above limitations, this study provides important insights that may motivate future academic research on the importance of nurturing superior resources for bank competitiveness and sustainable performance.

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