



**Understanding the Effect of Human Capital and Firm Performance in
Kenya: A Panel Data Analysis****Peter Nderitu GITHAIGA***Moi University, Po BOX 3900-30100 Eldoret, Kenya
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The global economy has shifted from being production-based to information-knowledge based. Thus, knowledge resources, and in particular human capital, are considered key drivers of competitive advantage and superior performance. It is from this background this study sought to examine the effect of human capital on firm performance. Data was drawn from 31 commercial banks in Kenya for the period 2008-2017 and was analyzed through descriptive and inferential statistics. The study found that human capital had a positive and significant effect on firm performance ($\beta = 0.447$, ρ -value $0.000 < 0.05$). The findings have implications for practitioners and the regulator.

Keywords: Human capital, competitive advantage, performance, intellectual capital

INTRODUCTION

Over the past few decades, the global economy moved from being production-based to knowledge-based due to technological revolutions and changing customer expectations (Clarke & Gholamshahi, 2018; Mahdi et al., 2019). To cope with the needs of knowledge-based economies, organizations are investing heavily on intangible assets such as human capital for sustained competitive advantage and long-term profitability. As early as in the 1960s, Becker (1964) mentioned that physical factors of production explained a relatively small part of the growth in income and wealth of nations. Later in the 1990s, Drucker (1993) stated that traditional factors of production were easily accessible to competitors and of little strategic importance which emphasize the importance of intangible resources. Collectively, intangible resources are referred to as intellectual capital (Edvinsson & Malone, 1997; Abualoush et al., 2018). The sub-constructs of intellectual capital are human capital, process capital, innovation capital and customer (relational) capital (Edvinsson & Malone, 1997; Lu & Hsu, 2018). Moreover, studies claim these sub-constructs are interrelated and complementary (Sardo et al., 2018; Abhayawansa et al., 2018; Wang & Chang, 2005).

Human capital is viewed as the most important sub-construct of intellectual capital. High-quality human capital is a source of organizational renewal, innovation and creativity subsequently competitive advantage (McDowell et al., 2018; Crook et al., 2011; Benevene et al., 2019). Perhaps, this explains why nations allocate massive budgetary resources on human capital development aimed at wealth creation (Gennaioli et al., 2011; Pelinescu, 2015; Eggoh et al., 2015). A study by Becker (2009) found that human capital accounted for approximately three-quarters of the developed countries' wealth. In the same view, it's believed that human capital influences the development and application of other organizational knowledge resources (Wang & Chang, 2005; Shivdas & Ray, 2017). Expenditures on human capital should be viewed as investments rather than costs since expenses on employees training and education accumulate human, rather than financial or physical capital that improves employee efficiency and effectiveness and ultimately firm productivity (Bontis et al., 2015; Scafarto et al., 2016).

The influence of knowledge resources on firm performance is widely cited in the literature. However, the impact differs across industries due to heterogeneity in business processes and resources profile (Seleim et al., 2007; Megna & Mueller, 1991). In particular, human capital is vital to service industries like banks where competitive advantage hinges on innovation and service quality (Young et al., 2009). Furthermore, banks maintain minimal physical assets thus more reliant on human capital for competitive advantage. Accordingly, banks must allocate enormous resources to human capital development for long-term sustainability (Noe et al., 2017; Chicu et al., 2019; Gabriel, 2016; Chen & Huang, 2009).

Despite the importance of human capital to service organizations, just a few studies have examined its effect on the performance of such firms, and in particular, the Kenyan banking sector which is considered as the most vibrant and innovative in Africa owing to its pioneering role in mobile banking. Most of the mentioned studies focused on manufacturing firms in developed and emerging economies that is, the U.S., Europe, Canada, and Asia (Crook et al., 2011). In addition, most of the previous studies measured human capital using qualitative measures (Khalique et al., 2015; Bapna et al., 2014; Ali et al., 2016). Therefore, the main focus of the study is to examine the effect of human capital on the performance of Kenyan commercial banks.

LITERATURE REVIEW

Resource-based view theory conjectures that firm resources are a source of competitive advantage and superior performance (Hatch & Dyer, 2004). Strategic resources are characterized as valuable, rare, imperfectly imitable and non-substitutable (Barney, 1986; Penrose, 1959; Peteraf, 1993; Wernerfelt, 1984; Maditinos et al., 2011). In an era of knowledge, intangible resources are considered more important than tangible resources (Clarke & Gholamshahi, 2018; Mahdi et al., 2019). This view is corroborated by Itami (1987) who stated that “intangible

assets, such as a particular technology, accumulated consumer information, brand name, reputation, and corporate culture are invaluable to the firm's competitive power. In fact, these invisible assets are often the only real source of competitive edge that can be sustained over time". A collective term for intangible resources is intellectual capital (Attar et al., 2019). According to Stewart (1997), intellectual capital denotes intellectual material, information, knowledge, intellectual property, experience, and relationships, all of which are used in making a company successful. Intellectual capital comprises of human capital, structural capital and customer (relational) capital (Edvinsson & Malone, 1997; Roos et al., 1997). Among the said sub-constructs of intellectual capital, there is a universal consensus among researchers that human capital has the most pronounced influence on performance (Hall, 1992).

In the spheres of management, human capital has received considerable research attention (Sahari et al., 2019; Ulrich & Kryscynski et al., 2019). Srivastava (2001) claims that "the power and product of the human mind, is the supreme source of competitive advantage in an era of knowledge economies". In addition, some studies claim that human capital supports the development and application of all forms of organizational knowledge (Wang & Chang, 2005; Benhabib & Spiegel, 2005). Likewise, Bontis et al., (2018) and Bratianu (2018) postulate human capital nurtures other forms of organizational knowledge while Han et al., (2014) claim that human capital drives innovativeness and complement other elements of intellectual capital. The superiority of human capital is attributable to its flexibility, adaptability, and self-regeneration. Extant literature shows diverse definitions of human capital. Halim (2010) views human capital as "what a single employee brings into value-adding processes, consisting of professional competence, social competence, employee motivation, and leadership ability". Sveiby (1997), contends that human capital is the capacity of employees to act in varied situations in a manner that create both tangible and intangible assets. Additionally, Schultz (1961) avers that human capital consists of knowledge, skills, and abilities of an organization's workforce. Thomas et al., (2013) define human capital as people, their abilities and performance in an organization. Reichenberg and Andreassen (2018) view human capital as "the qualities of the individuals, their qualifications and competencies". Davenport and Prusak (1998) contend that human capital embodies intangible resources of abilities, effort, and time that workers bring and invest in their work. In general terms, human capital symbolizes an organization's collection of employees' skills, abilities, attitudes, and experiences that create and deliver value.

Generally, it is believed that human beings possess certain abilities, knowledge, skills, and expertise which organizations and nations can leverage for competitive advantage and ultimately optimize goals (Bapna, 2013). Some of these goals include regional balance and economic growth (Fleisher et al., 2010), firm growth (Colombo & Grilli, 2005), regional productivity (Gennaioli et al., 2011), foreign direct investment flow (Noorbakhsh et al., 2001), financial performance (crook et al., 2011), innovation (Dakhli & De Clercq, 2004), technology diffusion

(Benhabib & Spiegel, 2005; Link & Siegel, 2007), entrepreneurial success (Martin et al., 2013) and employees earnings (Harris & Helfat, 1997)

Despite the importance attached to human capital, its influence on firm performance is largely controversial. A strand of studies claims positive causality (Crook et al., 2011; Seleim et al., 2007; Shrader & Siegel, 2007) while another suggests a negative association (Smriti & Das, 2017; Kor & Mahoney, 2005; Firer & Williams, 2003). Still, Khalique et al., (2015) assert that human capital had no effect on firm performance while Wang and Chang (2005) found an indirect effect through process capital, innovation capital and customer capital. Evidently, the relationship between human capital and firm performance requires further inquiry.

Performance of the banking sector

The banking sector is of enormous importance to regulators, scholars, and practitioners due to its influence on economic development. Research shows that banks have an influence on economic growth (Tongurai & Vithessonthi, 2018; Balcilar et al., 2018), job creation (Toms et al., 2019; Cai et al., 2018; Khan & Anuar, 2018), resource allocation (Beck et al., 2007; Dywer, 2018), poverty alleviation (Abdin, 2016; Sikod & Baye, 2015), education (Sun & Yannelis, 2016; Goksu & Goksu, 2015) and agriculture (Anetor et al., 2016). Consequently, an underperforming banking sector derails economic growth through reduced investments in the production of goods and services (Sufian & Chong, 2008; Dietrich & Wanzenried, 2014). Despite the importance attached to the banking sector, studies show that the sector continues to grapple with numerous challenges ranging from swelling non-performing loans, stringent regulations and technological revolution which have adversely affected performance (Gololo, 2018, Psillaki & Mamatzakis, 2017). Amid the aforesaid challenges, the Kenyan banking sector is regarded as one of the most innovative, vibrant and resilient in Africa which demonstrates the importance of intellectual capital as postulated by the resource-based view (Kasekende & Nikolaidou, 2018; Muthinja & Chipeta, 2018; Carletti et al., 2018). Meanwhile, the current debate among researchers is unraveling elements of intellectual capital with a significant influence on firm performance (Link & Siegel, 2007; Wang & Chang, 2005; Reinartz et al., 2004). Previous studies have singled out human capital as the main sub construct of intellectual capital due to its effect on other sub-constructs and its simultaneous effect on various organization outcomes (Crook et al., 2011; McDowell et al., 2018; Benevene et al., 2019). In view of the aforesaid, this study postulates that human capital has an impact on firm performance and the hypotheses are formulated as follows;

Ho: Human capital has no significant effect on firm performance

Ha: Human capital has a significant effect on firm performance

RESEARCH METHODOLOGY

Sample and Data

This study was grounded on the positivist paradigm which postulates that experimentation observation and reason based on experience are the basis for understanding human behaviour. The population consisted of the 42 commercial banks licensed by the Central Bank of Kenya, however, only 31 banks qualified for the study since some banks either were not in operation over the entire period or were under statutory management. The study used panel data which was extracted from the individual bank's annual reports and the Central Bank of Kenya's annual bank supervisory reports from 2008 -2017. In total, the study used 310 yearly observations.

Measurement of Variables.

Research variables ought to be measurable to enable hypotheses testing and making inferences. Measurement entails the operationalization of the variables. The study had five variables that were measured as follows;

- (i) Firm performance (dependent variable). Firm performance was measured as ROA, which is the ratio of net earnings to the total assets (Chiorazzo *et al.*, 2008; Shrader & Siegel, 2007; Wang & Chang, 2005).
- (ii) Human capital (independent variable). The proxy of human capital was the ratio of total employee costs to the total number of employees (Scafarto *et al.*, 2016; Chu *et al.*, 2008). Employee cost consists of salaries, wages, training costs, pension, and other employee benefits. Expenditures on employees are aimed at improving the quality of a firm's employees through increased motivation and creativity (Pulic 2000; Stähle *et al.*, 2011). Staff cost per employee is justifiable on three grounds. First, from a strategic view employee costs are not expenses but investments since human capital play a critical role in value creation (Young *et al.*, 2009; Edvinsson & Malone, 1997; Pulic, 2000; Pucar, 2012; Al-Musali & Ku Ismail, 2016). Second, staff costs per employee indicate the quality of a firm's human resources (Hahn, 2009). Third, firms rarely disclose employees' level of education and annual investment on human capital development in their annual financial reports implying that such information is the domain of primary data which is not as objective as secondary data.
- (iii) To control for sample heterogeneity, the study controlled for the firm and industry factors by incorporating firm size, firm size, and market share. Firm age was measured as the number of years since the commencement of operations (Ilaboya & Ohiokha, 2016). Firm size was measured as the logarithm of total assets (Wan & Zhang, 2018; Chiorazzo *et al.*, 2008). Data on market share was extracted from the Central Bank of Kenya's annual supervisory reports. Market

shared is as a composite index of net assets, deposits, total shareholders' funds, number of loan accounts and number of deposit account. The study's empirical model is illustrated as follows;

$$FP_{it} = \beta_0 + \beta_1 HC_{it} + \beta_2 FA_{it} + \beta_3 FS_{it} + \beta_4 MS_{it} + \varepsilon_{it}$$

Where;

FP= Firm Performance; HC= Human capital; FA= Firm Age; FS = Firm Size; MS= Market Share; ε_{it} = Error term

Data Analysis

A variety of panel data diagnostic tests were conducted to determine the appropriateness of the data for regression analysis. Explicitly, the tests included normality tests, stationarity tests, multicollinearity tests, heteroskedasticity tests, and autocorrelation tests. The entire tests established that the data was suitable for further statistical analysis. Data was analyzed through descriptive and inferential statistics. Specifically, the data was summarized through mean, standard deviation, minimum values, and maximum values statistics while pairwise correlation analysis was used to ascertain the nature and strength of the relationship between the research variables. The research hypothesis was tested through multiple regression analysis. The results of the Hausman test ($Pr > \chi^2 = 0.000$) supported fixed effect regression. All the same, the output of the random effect regression analysis is shown in Table III.

RESULTS AND DISCUSSION

The descriptive statistics are presented in Table I, the results of correlation analysis in Table II and the results of fixed-effect regression analysis in Table III.

Table I: Descriptive statistics of the research variables.

Variable	Obs	Mean	Min	Max	Std. Dev
Firm Performance	310	0.03	0.00	0.10	0.018354
Human Capital	310	2079.328	845.8718	3930.5	687.6502
Firm Size	310	76.6	22.89	556	96.2
Firm Age	310	34.82	1.00	121.00	29.22061
Market Share	310	3.09	0	20.62	4.603822

Source: Authors 2019

Table II: Results of pairwise correlation analysis

	FP	HC	FA	FS	MS
Firm Performance (FP)	1				
Huma Capital (HC)	.598**	1			
Firm Age (FA)	.294 **	.350**	1		
Firm Size (FS)	.372**	.231**	.542**	1	
Market Share (MS)	.713**	.406**	.503**	.808**	1

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

* Correlation is significant at the 0.05 level (2-tailed)

Source: Authors 2019

Table III: Results of Regression Analysis

Variable	Fixed Effect	Random Effect
Firm Performance		
Human Capital	.446(9.42)*	.460(10.64)*
Firm Age	-.087(-0.74)	-.075(-1.42)
Firm Size	-.141(-2.03)*	-.253 (-5.95)*
Market Share	.494(13.01)*	.436 (16.04)*
__cons	-1.818(-4.14)*	-1.040(-3.05)*
sigma u	0.171	0.092
sigma e	0.175	0.175
R squared	0.660	0.615
No of Observations	310	310

Source: Authors 2019

Table I shows that the average bank performance for the period 2008-2017 was 3%. In addition, the average bank age was 35 years while the mean bank size stood at Ksh 76.6 billion. Further, the table indicates that the mean human capital was 2079.328 while the average bank market share was 3.09%.

Table II shows that all the variables were positively correlated as shown by; human capital and performance ($r=0.598$, $\rho<0.01$), firm age and performance ($r=0.294$, $\rho<0.01$), firm size and performance ($r=0.372$, $\rho<0.01$), market share and firm performance ($r=0.713$, $\rho<0.01$), firm size

and firm age ($r=0.542$, $\rho<0.01$), firm size and human capital ($r=0.306$, $\rho<0.01$), human capital and firm age ($r=0.447$, $\rho<0.01$), market share and human capital ($r=0.406$, $\rho<0.01$), market share and firm size ($r=0.808$, $\rho<0.01$), and market share and firm age ($r=0.503$, $\rho<0.01$).

Table III shows the results of the fixed effect regression and random effect regression. However, based on the Hausman test, the findings are interpreted based on the beta coefficients and p-values of fixed-effect regression. Accordingly, the study found that human capital has a positive and significant effect on performance ($\beta = 0.447$, $\rho < 0.05$) therefore the null hypothesis that, human capital has no significant effect on performance, was rejected and the study concluded that human capital had a positive and significant effect on bank performance. A one percent change in human capital leads to a 44.7 % change in firm performance. The study controlled for firm age, firm size and market share. Firm age ($\beta = -0.087$, $\rho > 0.05$) and firm size ($\beta = -0.141$, $\rho < 0.05$) had a negative effect on firm performance while the impact of market share was positive and significant ($\beta = 0.494$, $\rho < 0.05$). Generally, the empirical model explains 66.1% of firm performance. As firms grow in size they suffer bureaucracies that lead to inefficiencies and resistance to change ultimately weakening performance. This phenomenon is christened as structural inertia (Hannan & Freeman, 1984).

These findings are supported by the resource-based view theory proposition that competitive advantage and superior performance emanate from intangible resources. Moreover, the results are corroborated by Crook et al., (2011), Felício et al., (2014) and Bae and Lawler (2000). However, they contradict those of Wright et al., (1999) who content human capital has no effect on performance and those of Firer and Williams (2003), Hitt et al., (2001) and Kor and Mahoney (2005) who reported a negative association. The variation in findings can be attributed to contextual issues and industry factors. The mentioned studies focused on manufacturing firms in industrialized and developing economies where structural capital is more important than human capital. Conversely, this study centered on the service industry, and a developing country.

CONCLUSION

The study sought to investigate the relationship between human capital and firm performance in the banking sector. Empirically, the study found that human capital had a positive and significant effect on firm performance thus validating the propositions of resource-based view theory. Banks operate in a highly competitive environment coupled with unprecedented growth in financial innovation and regulatory surveillance. Thus, banking institutions must invest heavily in their human capital for innovativeness and customer satisfaction to create sustained competitive advantage for survival and enhanced performance. This entails leveraging human capital and other knowledge assets to solve customers' problems for competitive advantage. Furthermore, an investment in recruitment, training, and retention of employees contributes to the creation of long-term value. For managerial implication, bank managers should consider innovative ways of developing and utilizing their human capital to optimize firm performance. Despite the novelty

of the findings, there are some limitations. First, the study was longitudinal hence the data was secondary and quantitative. Besides, all variables were measured using proxies derived from income statements and balance sheets. Future studies can consider a qualitative approach. Finally, the study focused on the Kenyan banking sector thus future studies can consider other sectors of the economy.

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