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Does the 'Process' of Process Capital Matter to Performance? Evidence from Kenyan Commercial Banks

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ABSTRACT

Globalization, changing customer expectation and shrinking product life-cycle depict process capital as a source of competitive advantage in modern economies. Consequently, organizations are gradually becoming more process oriented to cope with a dynamic environment. However, the process capital and performance causality is scanty in extant literature. Besides, previous studies overlooked the process aspect of process capital. Thus, the objective of this study was to determine whether the "process" of process capital matters to firm performance. The hypothesis was tested using panel data for the years 2008-2017 extracted from 31 commercial banks in Kenya. The findings showed that process capital had a positive and significant effect on performance ($\beta = 0.275$, ρ-value $0.000<0.05$). Consistent with the resource based view theory; the study concluded that the process of process capital influences firm performance.

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1. Introduction

With emergence of knowledge and information driven economies, knowledge resources are considered the main source of competitive advantage as postulated by resource based view theory (Bontis, 1998; Guthrie, 2001; Zhou & Fink, 2003; Chase, 1997). RBV conjectures that firm resources, both tangible and intangible, drive firm competitiveness and superior performance (Wernerfelt, 1984; Prahalad & Hamel, 1990; Barney, 1991). Researchers claim that intangible resources are gradually replacing tangible factors of production as agents of superior performance (Drucker, 1993; Grant, 1996). Intangible resources are particularly more important to service organizations such as banks that hold minimal tangible assets for liquidity purposes (Iswatia, & Anshoria, 2007; Mondal & Ghosh, 2012; Joshi et al., 2010; Owusu-Antwi et al., 2015). In management, intangible resources are collectively referred to as intellectual capital which is a composite of human capital, process capital, innovation capital and customer capital (Itami 1987; Sveiby, 1997; Edvinsson & Malone, 1997). Amid unparalleled technological advancements, changing customer expectations and shortened product lifecycle organizations are more focused on process capital for competitiveness and survival (Quesada & Gazo, 2007). Despite the increased importance of process capital, its effect on firm performance is scanty in extant literature and largely contentious.

Thus, the main objective of this study was to determine the effect of process capital on firm performance in the Kenyan banking sector.

2. Literature Review

2.1 Definition of Process Capital

Process capital was coined by Edvinsson and Malone (1997) who developed the conservative taxonomy of intellectual capital. Studies on intellectual capital conjecture that process capital and innovation capital constitute organizational capital (Pulic, 2004). Moreover, some researchers claim that process capital symbolizes the structural aspects of organizational capital (Bontis, 1996; Stewart, 1997; Sveiby, 1997). Previous studies conceptualized process capital through different lenses. An early definition of process capital was proposed by Luthy (1999) who claimed that process capital embodies technical knowledge of operations, procedures and employees programs aimed at expanding and improving efficiency in production and delivery of goods and services for competitively. According to Fun and Lee (2012), process capital denotes a firm's ability to transform tangible and intangible resources to assets generating cash flows and competitive advantage. Besides, Bchini (2015) states that process capital "is the operating process that improves the efficiency of production of a good or a service. It is the practical knowledge put at the service of the continuous value creation". Similarly, Sue et al., (2011) asserts that process capital is "the knowledge resources concerning a business operation and the improvement of efficiency and quality". Moreover, Castillo (2016) states that process capital infers to procedures, practices, and activities that promote the delivery of value creation. Additionally, Ordonez de Pablos (2002) claims that process capital is an aggregate of value and non-value creating processes. Likewise, Lu and Wang (2014) opine that process capital as workflows, production processes, technical knowledge, organizational core values and culture. Despite the diverse semantics, there seems to be a general consensus that process capital symbolizes vital organizational processes that create and deliver customer value besides earning the firm competitive advantage. The facets of process capital can be grouped into decisional, operational and support processes thus a realm of business process management (Armistead & Machin, 1998).

2.2 Process capital and firm performance

Resource based view theory claims that firms competitive advantage and superior performance emanates from resources endowment (Barney, 1996; Wernerfelt, 1984). Intangible resources are broadly classified into human capital, innovation capital, process capital and customer (relation) capital. Studies contend that the impact of knowledge resources vary across industries (Amadieu & Viviani, 2010). In particular, process capital is more important to service organizations which are more reliant on service quality and customer relationship management for competitive advantage.

Some of the elements of process capital discussed in extant literature include business process engineering (Hammer, 1990), total quality management (Daven Port 1993; Oakland, 1993), statistical quality control (Deming, 1986), bench marking and continuous improvement (Zairi, 1997). These elements have a significant influence on organizational outcomes. Zairi (1997) mentioned that flexible, effective and efficient processes lead to competitive advantage. Vantrappen (1992) observed that rationalization of critical processes; production, communication, marketing and distribution, creates customer value ultimately improved performance. Moreover, Moustaghfir (2009) noted that process capital is an enabler of operational and strategic goals. Wang and Chang (2005) contend that an investment on process capital creates a unique organizational architecture that supports value generation capability of the other elements of intellectual capital.

To tap the value entrenched in process capital firms must consistently invest on information technology, quality improvement, process designs and business integration systems to attain process excellence. Equally, organizations must focus on critical processes that anticipate and deliver customer expectations for value (Kohlbacher, 2010). Clearly, process capital is at the heart of core business processes that convert resources (inputs) into goods and services (outputs) for competitive advantage.

3. Framework and Hypotheses Development

Firm knowledge resources are considered as vital determinants of organizational outcomes as extensively discussed in literature and supported by theory (Barney, 1991, Khan et al., 2019; Martinez-Martinez et al., 2019, Kohlbacher 2010; Mahdi et al., 2019). In modern economies characterized by technological revolution, shifting customer expectation and shortened product lifecycle the focus is on process capital as a source of competitive advantage and superior performance particularly to service organizations. Organizations are no-longer viewed as an amalgamation

of functional units but an integrated system of processes (McCormack, 2004). In the context of a service industry process capital is associated with service quality, service efficiency, speedy delivery of services and customer satisfaction which have a positive influence on firm performance (Fellmann & Leyer, 2018; Brenner et al., 2015)

Unfortunately, literature on process capital and firm performance is scanty despite the importance of financial intermediation to macro-economic factors such as economic growth (Ayadi et al., 2015; Caporale & Helmi, 2018), entrepreneurship (Ferdousi, 2015; Banerjee et al., 2017), inflation (Korkmaz, 2015), education (Melguizo et al., 2016) and health care (Hussain et al., 2016). This study is justified on the following grounds. First, none of the previous studies conceptualized process capital from a process perspective. Infact, a significant number of studies measured process capital as either process inputs or process outputs hence disregarding the value of the processes element which is the province of process capital (Chen et al., 2004; Bontis et al., 2000; Wang & Shang, 20005).

Second, none of these studies examined the independent effect of process capital on firm performance. All the components of intellectual capital were pooled into a single regression model. Statistically, in cases where the components are highly correlated, the variables tend to cancel out their individual effect on performance. Infact, studies claim that components of intellectual capital are interrelated and complementary (Izvercian et al., 2013; Kamukama et al., 2011; Ramírez, 2010; Chang & Hsieh, 2011; Wang & Chang, 2005). Third, previous studies focused on manufacturing firms in developed and emerging countries (Huang & Kung, 2011; Martín-de Castro & Verd, 2012; Sharabati et al., 2010; St-Pierre & Audet, 2011; Maji, & Goswami, 2016). Thus, there is need to determine the process capital and performance causality in service industries and developing economies.

Accordingly, the objective of this study was to determine whether the process of process capital impacts performance in the banking sector. In particular, the Kenyan banking sector that is considered the most vibrant and innovative in Sub-Saharan Africa for having excelled in mobile money technologies (Wachira & Ondigo, 2016; Blechman, 2016; Murinde et al., 2016. Based on knowledge theories, particularly resource based view; the study offered the following hypotheses;

Ho: Process capital has no significant effect on firm performance
Ha: Process capital has a significant effect on firm performance

3. Methodology

3.1 Sample and Data Collection

The study population consisted of all the 42 commercial banks in Kenya. However, due to incompleteness and inconsistency of data a sample 31 banks was selected that yielded 310 annual observations. The study used panel data was for the period 2008-2017 which was extracted from banks annual financial reports and Central Bank of Kenya supervisory reports.

3.2 Measurement of Variables

The study had four variables namely the dependent variable (firm performance), the independent variable (process capital) and two control variables (firm size and firm age). Financial performance was measured as ROA which is the ratio of firm's net earnings to total assets. A high ROA means that the firm is utilizing its assets efficiently and for value (Tabash, 2019; Shet et al., 2019; Ongere & Kusa, 2013). Measures of process capital are at a nascent stage as evidenced by the glaring overlaps and misconceptions in previous studies. Process capital symbolizes key technologies, core processes and systems that create and deliver value to customers. Similarly, process capital is conceptualized as critical internal processes such as quality management, managerial capabilities, strategy execution, response and process improvement that improve organizational efficiency (Shang & Wu, 2013; Wang & Chang, 2005; Hung, 2006; Bukh et al., 2001).

Interestingly, previous studies show some inconsistencies in measurement of process capital. For instance, Yildirim and Allen (2017) and Namvar (2012) operationalized process capital as managerial capability Liebowitz and Suen (2000) measured process capital as administrative expenses/employees, administrative expenses/total revenue and IT expenses/administrative expenses. Logically, some of the measures of process capital overlap or conflict with proxies of other components of intellectual capital. For example, Wang&Chang (2005) productivity per employee, managerial capabilities and value added per employee have been used elsewhere as proxies of human capital (Bontis & Fitz-Enz, 2002; Liebowitz & Suen, 2000). Wang&Chang (2005) IT expenses was used by Huang and

Liu (2005) as a proxy of innovation capital. Chen et al., (2008) and Chang & Wang (2005) measured process capital as plant assets turnover measured as net sales/average plant assets.

Perhaps the endless debate on the process capital and performance puzzle is premised on how researchers measured process capital. A study Shang and Wu (2013) show that a large number of previous studies measured process capital as an investment on information technology. Measuring process capital as an investment on IT not only weakens the thin line between process capital and innovation capital, but also conceals the actual value of process capital. Logically, IT or R&D expenses and assets are the conventional measures of innovation capital (Jen Huang & Liu, 2005; Koroglu & Eceral, 2015; Romijn & Albaladejo, 2002; Gamal et al., 2011). A further misperception is apparent in Wang and Chang (2005) study where process capital was measured as productivity per employee and value added per employee. In practice and theory the two proxies are measures of human capital (Liebowitz & Suen, 2000; Firer & William, 2003). Besides, a significant number of the proxies are basically investments on process capital with no specific reference to outcomes (Chen et al., 2004; Bontis et al., 2000; Wang & Chang, 2005; Van den berg, 2002). For that reason, these studies ignored the process aspect through which process capital generates value. That is, "how organizational resources (inputs) are converted into valuable goods and services (outputs) which is the heart of process capital". Zari (1997) defines a process as "way in which resources of an organization are used in a reliable, repeatable and consistent way to achieve its goals". To that extent, Bulletpoint (1996) suggested that the features of a process include defined inputs, logical sequence of activities, defined task and pre-determined outcomes. In the same perspective, Van den berg (2002) contends that the value of process capital is manifested by efficiency, effectiveness, utilization of key success factors and distribution efficiency. The importance of business processes to performance was also mentioned by Frei et al., (1999) and Rochmadhona et al., (2018) who claim that process capital denotes the 'combined value of a company's value creation process'.

Unlike previous studies, this study argues that efficiency in production of goods or provision of services is the ideal measure of the intrinsic value of process capital. For clarity, the chosen measure of efficiency should be based on core processes and allow for the uniqueness of production models among different forms of organizations.

Van den Berg (2002) contends that the focus of process capital is efficiency, effectiveness, optimal utilization strategic resources and distribution. In the context of a banking institution, the most significant business process is liquidity creation through intermediation. This process encompasses mobilizing savings from household and firms as deposits, repackaging them and then advancing them as loans and other forms of advance to investors. Thus, efficiency in liquidity creation is a key measure of process capital for a lending institution.

In this study process capital was be measured as efficiency is liquidity creation denoted by loan- deposit ratio. The study controlled for firm age and firm size. Firm age was measured as the number of years since incorporation of the firm (Vu et al., 2019; Chakravarty& Hegde, 2019; Ilaboya & Ohiokha, 2016). Firm size measured as natural logarithm of total bank assets (Mitra, 2019; Ayuba et al., 2019; Zhou et al., 2019). The model specification for the study is illustrated below

$$FPit= \beta 0 +\beta 1PCit +\beta 2FAit+ \beta 3FSit + \varepsilon it$$

Where

FP= Financial Performance
PC= Process Capital
FA= Firm Age
FS= Firm Size
Eit= error term

3.3 Analysis

The data was analyzed through descriptive and inferential statistics using STATA (version 13). Data was summarized in summary descriptive statistics comprising of mean, maximum and minimum values and standard deviation. Pairwise correlation was used to establish the magnitude and direction of relationship between the research variables. Several diagnostic tests were conducted to check the suitability of the data for regression analysis as the basis of testing the hypothesis. Breusch-Godfrey/Wooldridge tested autocorrelation and reported a ρ-value=0.3478 that failed to reject the null hypothesis. Unit root was tested using ADF test and reported $p<0.05$ for

all the variables. No multicollinearity was detected as indicated since the variable had VIF less than 10. Random effect regression was chosen considering the results of Hausman test (Prob>chi2= 0.064>0.05).

4. Results and Discussion

Table I: Summary Statistics for the variables

Variable	Obs	Mean	Min		Max	Std. Dev	
Firm Performance	310	0.03	0.00		0.10	0.018354	
Process Capital	310	0.82	0.02		8.72	0.5003136	
Firm Size	310	76600000000	2289000000		556000000000	96200000000	
Firm Age	310	34.82	1.00		121.00	29.22061	

Source: Authors, 2019

Table II: Results for Correlation Analysis

Variable	Firm Performance	Process Capital	Firm Age	Firm Size
Firm Performance	1			
Process Capital	.472**	1		
Firm Age	.294**	0.093	1	
Firm Size	.372**	0.05	.542**	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 for Regression Analysis

Firm Performance	Coef.	Std. Err.	Z	ρ>z	[95% Conf.	[Interval]
Process Capital	0.275	0.029	9.58	0 000	0. 219	0.331
Firm Age	-0.004	0. 078	-0.05	0.098	-0.157	0.149
Firm Size	0.133	0.055	2.41	0.055	0.025	0.241
_cons	-2.547	0.365	-6.97	0.000	- 3.263	- 1.831
R2	0.5816					
No observations	310					
Wald chi2(3)	101.76					
Prob > chi2	0.0000					

Source: Authors, 2019

4.1 Results

Table I illustrate summary statistics for the data collected. Table II shows pairwise correlation analysis while Table III shows the results of the random regression effect. Table I illustrate the summary descriptive statistics of the research variables. The table shows that the average industry return on asset for the period 2008-2017 was 3%. In addition the table shows that average bank age is 34 years while the mean bank size is Ksh 76.6 billion. The table further shows that the mean process capital was 0.82 signifying a substantially high level of efficiency in liquidity creation.

The results of the pairwise correlation are shown in Table II. The table indicates that the relationship between process capital and performance is positive and significant ($r=0.472$, $\rho<0.01$). The correlation between firm age and financial performance and significant ($r=0.294$, $\rho<0.01$); same case to firm size and financial performance ($r=0.372$, $\rho<0.01$) as well as firm size and firm age ($r=0.542$ $\rho<0.01$). However the correlation of the two control variables, firm size and firm age, with process capital was positive though nonsignificant at 1% and 5%.

The output of the random effect regression is tabulated in Table III. The results confirms that process capital has a positive and significant effect on performance (R2 = 0.5816, β = 0.275, ρ-value 0.000<0.05). Therefore our null hypothesis, process capital has no significant effect on firm performance, is rejected (Ho) and the alternative hypothesis (Ha.) accepted. The empirical model predicts that one percent change in process capital leads to 27.5% change in firm performance. The study further found that firm size had a positive though insignificant effect on performance (β = 0.133, ρ-value 0.016<0.05). However our results show that firm age had a negative and insignificant effect of performance (β = - 0.004, ρ-value 0.962 >0.05).

4.2 Discussion

These findings confirm that process capital has a significant impact on bank performance thus a source of competitive advantage. These findings are consistent with previous studies (Loay, 2015; Shang & Wu, 2013; Wang & Chang, 2005). Conversely, our results contradict those reported by Ting and Lean (2008), Yeng and Chan (1998) and Balakrishnan et al., (1996) which found no relationship and; Cheng et al., (2008) who reported a negative relationship. Some probable explanations for the divergent results include variations in measurement of process capital, nature of data and contextual issues. As earlier discussed, this study conceptualized process capital as process efficiency and the focus was the banking industry in a developing country whereas most of the previous studies centered on manufacturing firms in developed and emerging economies. Unlike, earlier studies that used primary data, this study used panel data making it fairly objective. Accordingly, our results are reasonably convincing, reliable and superior. In summary, the findings are consistent with resource based view proposition that competitive advantage and superior performance emanates from a firms resource profile. Manager should therefore focus on building and managing internal processes that create and deliver value to customers to outdo competitors and survive environmental dynamics.

5. Conclusion and Implication

As the world gradually transits from production to knowledge based economies the importance of process capital to organizational performance, particularly service organizations, has attracted unparalleled attention from consultants, scholars, business managers and regulator. This has further been intensified by unprecedented technology innovations, cross border competition and more enlightened customers which have forced firms to focus more on internal processes for competitive advantage. Unfortunately no relevant study has examined the effect of process capital on firm performance from a process approach, excluding the other components of intellectual capital and focusing on a service organization in a developing country. This study therefore sought to fill that gap. Using data drawn from commercial banks in Kenya, the study empirically examined the relationship between process capital and performance. The study conceptualized process capital as the efficiency of core business processes. The results demonstrate that process capital has a significant effect on firm performance.

Through our study, we have provided further evidence that intangible assets have an influence on firm performance as claimed by resource based view. Our study contributes to the existing body of knowledge by arguing that the value of process capital is embedded on the efficiency of production processes; in the case of manufacturing concern- efficiency in production of goods (converting raw materials into finished good), while for service organizations- the efficiency in delivery of services and for value. The study further argues that business processes are heterogeneous across firms and industries thus measures of process capital should be customized to reflect an organization's unique production model. This study focused on the banking industry therefore future researchers can consider other sectors of the economy such as education and manufacturing. We conclude that the process of process capital matters to performance.

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