Supply Chain Management Success Factors in Nigerian Commercial Banks

Okeke Augustine
Department of Banking & Finance
Faculty of Management Sciences, University of Jos, Plateau State – Nigeria

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Abstract

Supply Chain Management (SCM) is taking deep roots in banking owing to the increasing deployment of banking logistics and equipment. In view of this, the need for effective supply chain management in commercial banks is quite critical. This study, therefore, seeks to identify the supply chain management success factors in the Nigerian banking sector. To achieve this, a quantitative research approach was used. The population for this study is the 433 administrative employees in the supply chain departments of the head offices of the top ten banks in Nigeria according to the "Financial Times" group of London's 2016/2017 rankings. Based on this population, the sample size was determined using Krejcie & Morgan (1970) formula to be 204. A randomly self-administered questionnaire was used to collect data. This questionnaire was built on a five-point Likert scale. A total of 105 completed questionnaires were deemed appropriate for data analysis. This represented a response rate of 51.4%. the data was analyzed using SPSS version 21. The exploratory factor analysis was used to reduce the dimension of the success factors and dependent variable while multi-linear regression was used to model the relationship between SCM success and the six factors identified. Results indicated that planning, motivation, management commitment, competency of SCM staff, communication and benchmarking positively influence supply chain management success in Nigerian banks. Based on this finding, it was recommended that commercial banks should enhance their priority to supply chain success factors identified in this study and take necessary steps to fine-tune their supply chain management procedures towards maximized growth.

Keywords*: Supply chain management, Critical success factors, Commercial banks, Supply chain process, Nigeria*

Corresponding Author: Okeke Augustine

Background of the Study
Supply Chain Management (SCM) is taking deep roots in banking (Wagner et al. 2012). This is owing to the increasing deployment of banking logistics and equipment (e.g ATMs, money counting machines, etc) and the need to integrate banks with customers and stakeholders through banking services and products. In this respect, Kristofik et al. (2012) made the submission that there is an emerging need for banks to engage in supply chain management as an avenue for disbursing financial resources among banks. In view of this, the need for effective supply chain management in commercial banks is quite critical.

Supply chain management forms a major part of business management and it is believed to contribute largely to organizational growth. Supply chain processes have been a major part of organizational activities for a long time (Thakka et al. 2008). Moreover, supply chain constitutes one of the main management functions of organizational growth especially among firms which depend largely on logistics, material or equipment (Mensah et al. 2014). Thus, supply chain management is of priority to many organizations since it forms the basis for the efficient and effective flow of products, services, and logistics. This is even more so in the banking sector since commercial banks make financial returns from products and/or service. Supply chain, therefore, comes with a medium in which services and products flow efficiently to create the needed link between banks and its customers or stakeholders.

An effective supply chain is the one based on the observance of the success factors in supply chain management. Unfortunately, an insignificant number of studies hold this evidence from the perspective of commercial banking. It is even worse that no identifiable study points to this evidence in a Nigerian context. Meanwhile, the growing commercial banking sector of Nigeria ought to leverage these new developments in financial and banking supply chain to maximize growth. This study, therefore, seeks to identify the supply chain management success factors in the Nigerian banking sector.

Statement of the Problem
Several qualitative and quantitative studies have provided evidence on what the success factors of supply chain management are. These are planning, employee commitment, top management commitment, training and education, communication and benchmarking.

Planning in the context of the supply chain is the process of drawing a scheme and road map of work to define all the processes and activities of the chain and their timelines. But since planning is done by people, there is a school of thought that believes it cannot impact supply chain management success if employees and stakeholders of the company are not committed. Similarly, employee commitment significantly drives dedication of employees to their responsibilities defined in planning. Failure to ensure that employees are well motivated would hinder the realization of maximum organizational performance. Often, employee dedication in the organization depends on the commitment of its management to supply chain. Without management commitment, the organization may be unwilling to deploy financial resources for the implementation of the supply chain plan.

Furthermore, training and education are needed to equip employees with the necessary skills and knowledge to be able to play their roles as defined in the supply chain planning. Lack of competent employees may derail the success of the supply chain as it is the basis for effective communication. Without effective communication among supply chain employees and stakeholders, the network is broken and its activities come with no success. This is because the relationship among distributors, suppliers, and retailers are glued by communication. In the same vein, success in supply chain management cannot be measured without bench marking. Yet, benchmarking is treated as a factor that is not important in the supply chain management practices of Nigerian commercial banks.

It is worth mentioning that the above factors have been identified in various studies. Yet, it is obvious that all the studies have been conducted outside Nigeria and Africa, with most of them conducted in Asia. This means that academic debate on the subject from a Nigerian and African point of view is abysmally weak. In terms of banking, only one related study (Kristofik et al., 2012) is identifiable. This means that the volume of the current literature is skewed in favour of manufacturing firms. This is a problem because banks are major drivers of economic development in many economies. So, the fact that banks are less featured in the subject's literature is a major gap that this study will seek to fill.

Research Question
The research question for this study is as follow:
 (i) Does planning, employee commitment, motivation, management commitment, competency of SCM staff, communication and bench marking positively influence supply chain management success in Nigerian commercial banks?

Objective of The Study
The aim of this study is to identify supply chain management success factors in Nigerian commercial banks. More specifically, this study seeks to achieve the following objective:
 (i) To determine whether or not planning, employee commitment, management commitment, competency of SCM staff, communication and benchmarking positively influences supply chain management success in Nigerian commercial banks.

Statement of Hypothesis
The hypothesis for this study is as follow:
 Ho: Planning, employee commitment, management commitment, competency of SCM staff, communication and benchmarking does not positively influence supply chain management success in Nigerian commercial banks.

Literature Review
Conceptual Framework
Supply chain management in service organizations or financial institutions are based on almost a common procedure. It has been proved by research that supply chain management success is dependent on the thoroughness and appropriateness of the planning associated with

it. According to Ngai et al. (2004), the plan involves who does what, at what time and how? It defines the roles and actions of each stakeholder in the network and establishes policies and strategies for evaluating and controlling success (Kurieen & Qureshi, 2011). Another factor that drives success in supply chain management is therefore employee or stakeholder commitment (Attaran, 2012). In some studies, it is referred to as "employee motivation." Motivation significantly drives success in the supply chain because it determines the dedication of employees to their responsibilities defined in planning (Attaran, 2012).

A third factor of supply chain success is management commitment. According to Quesada et al. (2012), a lack of commitment from management of an organization would mean that issues of supply chain would not be taken seriously. However, when management of an organization focuses on the short and long term benefits of supply chain, they would be able to commit to its tasks and requirement. Furthermore, training and education are the fourth success factor in supply chain management to be considered in this study. This, if properly done could provide the competency needed by employees and all stakeholders to play their role in the supply chain process (Rozar, et al. 2014). Communication is a major success factor in supply chain management considered in this study. Every member of the supply chain network needs to understand effective communication and how to relish it in the supply network. Effective communication also underlies effective benchmarking (Thoo et al., 2011), which is another major success factor in supply chain management.
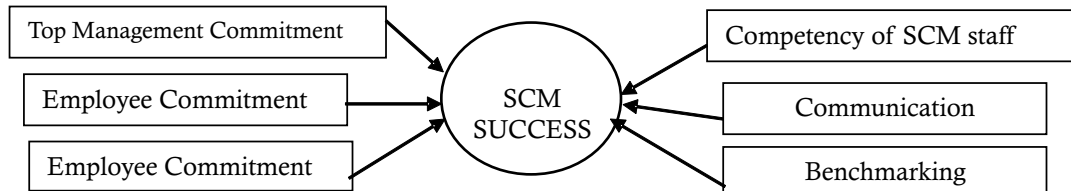
Figure 1: Conceptualization of Critical Success Factor in SCM.

There are other success factors of supply chain, yet these factors are treated as a composite factor in the banking sector. These factors are termed socio-economic factors which cannot be controlled by the banks. These factors are suitable economic indicators such as inflation, exchange rate, and government support in the form of infrastructure (Kristofik et al; 2012). Studies by (Kuei & Madu, 2011) have shown that these factors largely influence supply chain success, though they are not within the control of the banks. For some reasons, however, this study does not capture these socio-economic factors.

Empirical Framework
Agyei et al. (2013) defined supply chain as the "network of organizations which are involved through upstream and downstream lineages in different processes and activities that create value in the form of product and services for final consumers." Based on the above definition, supply chain is not a business process limited to a particular sector such as the manufacturing sector. Thus, supply chain is basic to the growth of both service and product focused

organizations. Research has shown that supply chain contributes to the growth of business regardless of their sectors. Quesdda et al. (2012) and Mensah et al. (2014) provided empirical evidences that points to the contribution of supply chain to the growth of manufacturing firms while Wagner et al. (2012) and Kristofik et al. (2012) provided this evidence in the context of financial services delivery. Ngai et al. (2004) went further to indicate that web based supply chain contributes to the growth of businesses. In essence, supply chain is much versatile, providing value to organizations of all sectors and operations. Even so, it is believed that the contribution of supply chain to business growth depends on how much it is employed in the organization.

Theoretical Framework
This study is theoretically anchored on the critical success factors theory. The idea that there are a few factors which are decisive for the success of a company and that these factors can be ascertained was first introduced by Daniel (1961) and popularized by Rockart (1979).

This theory suggests that there are a few key areas of activity in which favourable results are absolutely necessary for a particular organization to reach its goals. The idea is very simple, in any organization, certain factors will be critical to the success of that organization, in the sense that, if objectives associated with the factors are not achieved, the organization will fail, perhaps catastrophically so. In the context of this study, critical success factors mean the factor which determines the success of SCM in Nigerian commercial banks.

Methodology
The quantitative research approach was used in this study. This research approach was adopted in view of the need to model the relationship between supply chain success and its determinants (i.e success factors) as well as test the hypothesis stated in this study. This is because studies involving hypothesis testing are generally considered appropriate when given a quantitative dimension (Cresswell, 2003).

The population of this study is the administrative employees in the supply chain departments of the head offices of Zenith Bank, ECOBANK, First Bank, Guarantee Trust Bank, Access Bank, Diamond Bank, United Bank for Africa, Fidelity Bank, First City Monument Bank and Skye Bank. These banks were used because they are the top ten banks in Nigeria according 2016/2017 ranking of the "Financial Times" Group of London. The target populations of employees in these banks were 433. Based on its population, the sample size was determined using Krejcie& Morgan (1970) procedure as follows:

$$S = \frac{X^2 NP(1-P)}{d^2(N-1) + X^2 P(1-P)}$$

Where:
X^2 = Table value of chi-square at df =1 for 0.05 confidence level.
P = Population proportion assumed to be 0.05
d = Degree of accuracy expressed as a proportion (0.50)
N = Population of the study

Thus, $X^2 = 3.84$
        $N = 433$
        $P = 0.50$
        $d = 0.05$

Therefore: $S = \dfrac{3.84 \, X \, 433 \, X \, 0.5 \, X \, (1 - 0.5)}{(0.05)2 \, (433\text{-}1) + 3.84 \, X \, 0.5 X \, (1 - 0.5)}$

$\qquad\qquad = \dfrac{3.84 \, X \, 433 \, X \, 0.5 \, X \, 0.5}{0.0025 \, X \, 432 + 3.84 \, X \, 0.05}$

$\qquad\qquad = \dfrac{415.68}{1.08 + 0.96}$

$\qquad\qquad = \dfrac{415.68}{2.04}$

$\qquad\qquad = 203.76$
$\qquad\qquad \approx \textbf{204}$

Thus, the sample size for this study is 204 employees.

The dependent variable for this study is supply chain management success designated as "SCM success". This variable is a construct that has several manifest variables. In the context of banking supply chain, SCM success is a measure of a supply chain process that yield results that support the performance of every department and the entire organization. SCM success was measured in this study by identifying from employees the extent to which each aspect of supply management (e.g planning, communication, employee commitment etc) has been accomplished. In line with the measurement approach of Kristofik et al. (2012), respondents were asked to score (from 1 to 5) the extent to which the role of each stage of SCM has been fulfilled. The independent variables of this study are the six success factors enumerated in the literature review. Each of these variables was measured using the same approach used for the dependent variable.

A self-administered questionnaire was used to collect data. This was used to ensure that respondents were given two options of responding; either by email delivery or hand delivering. This questionnaire was built on a five-point likert scale using items borrowed from the studies of Kristofik et al. (2012).

A number of measures were taken to ensure that the data collected was valid and reliable. One of these measures was to use items that conform to previous research studies. Similarly, the instrument was given to research professionals to review and suggest corrective measures. A pilot study was conducted using a sample of employees from first bank Nigeria limited Jos main branch to eliminate error and misstatement, ensuring that it was sufficiently valid and

reliable. For one or two reasons, not all respondents could return questionnaires. Some returned questionnaires also had issues. Hence, a total of 105 completed questionnaires were deemed appropriate for incorporation in data analysis. The response rate of this study was thus 51.47%.

Data was analyzed using SPSS version 21. This statistical software was used as a result of its robustness for rational statistical data analysis. The Exploratory Factor Analysis (EFA) was used to reduce the dimension of the success factors and dependent variable. Multiple linear regression was used to model the relationship between SCM success and the six factors. This statistical tool was used because data employed are continuous and come from a normally distributed population and was thus deemed appropriate for understanding the detailed relationship among the variables.

Results

For result of this study to be valid, its data must come from a normally distributed population based on the decision to use regression analysis in analyzing the data.

Table 1: Normality of Data

	Shapiro-wiki		
	Statistics	**Df**	**Sig.**
Planning	.193	105	.531
Competency of SCM staff	.260	105	.207
Motivation	.170	105	.652
Management commitment	.280	105	.176
Communication	.284	105	.132
Benchmarking	.224	105	.231
SCM success	.107	105	.845

Source: Field Data, 2017.

Table 1 shows the test for normality of data. The p-value of each variable must be greater than the 5% level of significance if the data associated with it is normally distributed. From table 1, the p-value of each variable is greater than 5% (p>0.05). This means that data on each variable is normally distributed, thus, a basis for reaching valid conclusion is therefore established.

Table 2 shows the result of the Exploratory Factor Analysis (EFA). From the table, six factors of supply chain management are identified. Out of these factors, employee motivation contributes the highest amount of variation (43.2%). The second highest amount of variation (22.5%) is contributed by competency of SCM staff. This six factors account for a total of 96.7% of variation and this indicates that the factors strongly relate to SCM success.

Table 2: Exploratory Factor Analysis Statistics

Number	Factor	Manifest variable	Initial	Extraction	Variation
1	Planning	- SCM activity deformation	1	0.948	12.6
		- SCM activity Planning	1	0.948	
		- SCM activity scheduling	1	0.777	
2	Competency of SCM staff	- Employee recruitment for SCM	1	0.967	22.8
		- Selecting partners/stakeholders for SCM	1	0.967	
		- Employee training for SCM	1	0.705	
		- Farming of partners/stakeholders for SCM	1	0.948	
		- Education for SCM Employees	1	0.924	
3	Motivation	- Salaries for SCM employees	1	0.812	43.2
		- Allowance and fridge benefits for SCM employees	1	0.932	
		- Work condition for SCM employees	1	0.815	
		- Nature of work environment to SCM employees	1	0.948	
			1		
4	Management commitment	- Availability of financial resources to SCM	1	0.922	7.3
		- Management attention to SCM	1	0.922	
		- Management's responsiveness to SCM activities and problems	1	0.916	
		- Monitoring and evaluation of SCM activities	1	0.896	
5	Communication effectiveness	- Effective communication among SCM employees	1	0.886	5.7
		- Effective communication among SCM partners	1	0.942	
		- Effective communication at all stages of SCM	1	0.876	
6	Benchmarking	- Setting appropriate standards for meeting goals of SCM	1	0.920	
		- Setting appropriate performance targets for meeting goals of SCM	1	0.950	
		- Meeting SCM goals based on standards and targets	1	0.958	

Source: Researcher's SPSS Computation.

In the table, no manifest variable is extracted from the factors, a situation translated in the high variation contributed by the six factors. This is because none of the manifest variables has a communality value less than 0.05. Based on the variations contributed, motivation may be considered the most important success factor, followed by competency, planning, management commitment, communication and benchmarking. Yet, the relative importance of each factor can be better seen in a regression model.

Table 3: Correlation Matrix

		½	F1	F2	F3	F4	F5	F6
Pearson correlation	SCM Success (A)	1.000	.859	.716	.920	.892	.582	.766
	Planning (F1)	.859	1.000	.777	.905	.847	.138	.420
	Competency of SCM staff (F2)	.716	.777	1.000	.574	.665	.195	.258
	Motivation (F3)	.920	.905	.574	1.000	.832	.389	.665
	Management commitment (F4)	.892	.847	.665	.832	1.000	.249	.475
	Communication (F5)	.582	.138	.195	.389	.249	1.000	.900
	Bench marking (F6)	.766	.420	.258	.665	.475	.900	1.000

Source: Researcher's SPSS computation

Table 3 shows the correlation matrix of SCM success and the six factors retrieved in the EFA. From the tale, each factor is highly positively correlated to SCM success. This means that SCM success improve as each of the factors is improved. Motivation makes the highest correlation with SCM success (r = .920, P<0.05), followed by management commitment (r = .892, p<0.05), while communication makes the least effect on SCM success (r = .582, p<0.05). The strength of the correlation expresses the extent to which a factor influences SCM success. This means that motivation has the highest influence on SCM success.

Table 4: Model Summary[b]

Model	R	R Square	Adjusted R square	Std. Error of the estimate	Durbin – Watson
1	.932[a]	.921	.916	.00241	2.023
a. Predictors: (constant), Benchmarking, competency of SCM staff, management commitment, motivation, communication, planning					
b. Dependent variable: SCM success					

Source: Researcher's SPSS computation.

Table 4 shows the model summary of the prediction of SCM success by the six factors. In the table, 92.1% of the variation is accounted for by the six factors. This means that the six factors have a strong relationship with SCM success. The small value of the standard error indicates the precision of the estimated variation. Moreover, the Durban-Watson value is very close to 2; hence the independence of errors assumption is satisfied.

Table 5: Anova[a]

Model	Sum of squares	DF	Mean square	F	Sig.
Regression	30.255	6	5.925	91880.388	.0006
Residual	.001	98	0.00		
Total	30.255	104			
a. Dependent variable: SCM success					
b. Predictors: (constant), Bench marking, competency f0 SCM staff, management commitment, motivation, communication, planning.					

Source: Researcher's SPSS computation

Table 5 shows an Anova test which verifies whether the use of the regression analysis improves the researcher's ability to examine the relationship between SCM success and the factors. This test is conducted at 5% significance level. From the table, the test is significant, $F_{(6,98)}$ = 91 880.388, P= .0006. This implies that the relationship expressed by the regression model is better relative to what is seen in the correlation matrix.

Table 6: Coefficients[a]

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.	95% confidence interval for B		Collinearity statistics	
	B	Std. error	Beta			Lower bound	Upper bound	Tolerance	VIF
Constant	-.007	.004		-1.998	.049	-0.14	.000		
Planning	.129	.002	.154	58.938	.000	.124	.133	.328	6.130
Competency of SCM staff	.230	.002	.158	126.725	.000	.262	.243	.117	8.527
Motivation	.198	.002	.196	99.592	.000	.186	.193	.347	1.106
Management commitment	.82	.000	.363	422.689	.000	.182	.183	.249	4.019
Communication	.153	.001	.221	117.921	.000	.133	.138	.252	3.114
Benchmarking	.173	.002	.159	81.443	.000	.133	.140	.348	5.790
a. Dependent variable: SCM success									

Source: Researcher's SPSS computation

Table 6 shows the coefficients of the prediction of SCM success by the six factors. In the table, each factor significantly predicts SCM success at 5% significant level. The fact that the variance inflation factor (VIF) values of each predictor is below 10 implies that there is no collinearity among the predictors. Since each factor contributes a positive effect on SCM success, Thus, we conclude that planning, motivation, management commitment, competency of SCM staff, communication and benchmarking positively influence supply chain management success in Nigerian commercial banks.

Discussion of Findings
By using the Exploratory Factor Analysis (EFA), six (6) success factors of supply chain management were retrieved. The hypothesis test revealed that these six success factors positively influence supply chain management success with competency of SCM staff and motivation as the best drivers of these success. This study is largely supported by the work of

Kristofit et al. (2012). However, the evidence provided in this study is more robust relative to the study of Kristofiketal. (2012) because their study did not employ robust statistical tools (such as EFA) in screening for these variables.

Conclusion and Recommendation

Exploratory factor analysis retained six (6) success factors of supply chain management. Out of the six factors, motivation contributes the highest amount of variation of 43.2%. the second highest amount of variation (22.8%) was contributed by competency of supply chain management staff. Planning accounts for the third highest variation of 12.6% with management commitment accounting for 7.3% of the total variation. Communication effectiveness and bench marking respectively account for 5.7% and 5.1% of the total variation. The six factors account for a total variation of 96.7% of the variation. The total variation accounted implies that the six factors strongly influence supply chain management success in commercial banks in Nigeria.

Based on the research findings, the need for effective supply chain in Nigerian commercial banks is quite critical. It is therefore recommended that commercial banks enhance their priority to supply chain success factors identified in this study and take necessary steps to fine tune their supply chain management procedures towards maximized growth. Similarly, for the purpose of future research, it is recommended that a study of similar nature to this should be conducted in other sectors such as health and public-sector firms. This is because empirical evidences on the subject in these sectors are scarce from a Nigerian perspective.

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