

Supply chain practices and firm performance: Evidence from some selected commercial banks in Ghana

Ebenezer Adaku

Graduate School of Business
Ghana Institute of Management and Public Administration
Accra, Ghana
eadaku@gimpa.edu.gh

Samuel Famiyeh

Graduate School of Business
Ghana Institute of Management and Public Administration
Accra, Ghana

Constance Anderson

Graduate School of Business
Ghana Institute of Management and Public Administration
Accra, Ghana

Kwasi Amoako-Gyampah

Department of Information Systems and Supply Chain Management
Bryan School of Business and Economics
University of North Carolina at Greensboro
Greensboro, NC, 27402

Abstract

Service supply chain management has not received much attention in the literature, especially within developing country environments where fluctuating currencies, lack of technology, and regulatory policies present daunting challenges. This study examines the impact of supply chain practices on firm performance within the banking sector in Ghana in the light of those challenges.

Keywords: Supply Chain, Firm Performance, Ghana

INTRODUCTION

The increased demand for value by customers in their consumption of goods and services is heightening on the market nowadays. This somewhat underpins the pressure on suppliers not to consider only their individual firms, but also other firms that are involved in handling the common product to the consumer, in their quest to provide utmost value to the

consumer. This notion, over some decades now, has been the thrust of supply chain management in industries. Supply chain management appears to be popular and developed in the manufacturing sector as opposed to the service sector. Although service supply chain management has been receiving some attention in the literature, the focus has mostly been within the healthcare sector. Other sectors such as the financial services have received very little attention. This is especially true within developing country environments.

Incidentally, Defee and Stank (2005) argue that the performance of a business does not depend only on a specific business function (marketing, finance and operations) but an effective interplay of all of them. However, in Ghana, banks have overly emphasised the marketing and finance functions (PwC 2014) with little attention to the operations and supply chain function. This generally has resulted in widespread dissatisfaction among the customer base for banking services. Unfortunately, the level of service is almost the same among banks in the industry. Hence, customers do not have incentives to change banks. Dewar et al. (2013) indicate that a subtle threat to the performance of banks is the neglect of supply chain practices. This is in agreement with some researchers (Mensah et al. 2014; Solakivi, 2014; Abbasi, 2012) who posit that supply chain management drives or influences firm performance. Much as supply chain practices are key to firm performance – especially firms in developing countries’ environments where fluctuating currencies, lack of technology and regulatory policies present daunting challenges – Fabbe-Costes and Jahre (2008) opine that that supply chain management is not so common in banks and other financial institutions.

Hence, this study seeks to examine the impact of supply chain practices on the performance of selected banks in Ghana in the face of the daunting challenges. The goal is to contribute to the debate on the link between supply chain practices and the performance of firms in the financial sector, especially from a developing country’s perspective.

SUPPLY CHAIN PRACTICES AND FIRM PERFORMANCE IN THE BANKING SECTOR

There are several definitions of supply chain management in the literature. However, fundamentally, the Council of Supply Chain Management Professionals (CSCMP) defines supply chain management as the planning and management of all activities required in sourcing and procurement, transformation and all logistics management activities including the coordination and collaboration with channel partners. The diverse definitions and perception of what supply chain management is have led to various scholars and practitioners having varying metrics or dimensions in measuring and understanding supply chain management and practices in firms. For instance, Li et al. (2005) tried to develop some metrics for supply chain management practices. Their measurement instrument included six dimensions such as strategic supplier partnership, customer relationship, information sharing, information quality, internal lean practices and postponement. Furthermore, Solakivi (2014) attempted to measure supply chain management and practice by three metrics namely; logistics outsourcing, supply chain collaboration (supply chain integration) and information technology (IT) capability. Again, Chen and Paulraj (2004) measure supply chain management and practices with the following dimensions: supplier base reduction, long-term relationship, communication, cross-functional teams and supplier involvement. For Ulusoy (2003), supply chain management and practices are measured by looking at four dimensions such as logistics, supplier relations, customer relations and production. Koh et al. (2007)

provided an understanding of the measures of supply chain practices by considering twelve variables which they classified into two major practices as strategic collaboration and lean practices (SCLP) and outsourcing and multiple-suppliers (OMS).

Generally, supply chain management has been less associated with the banking sector as opposed to the manufacturing sector. However, Dewar et al. (2013) argued that supply chain practices are as relevant in the banking sector as they are in the manufacturing sector. This is because the financial services provided by the banks also require the acquisition of resources which are taken through some processes before the provision of the final output in the form of a financial service is delivered to the bank customers. All of these activities of acquisition of resources, conversion processes and final delivery of financial services to the customers by the banks require proper planning, organization, monitoring and control. Hence in this study we look at supply chain practices in the banks from aspects such as acquisition of logistics, inventory management, outsourcing of certain functions, supply chain collaboration or integration, risk management, customer relations and supply chain planning and how they impact the operational, marketing, and financial performance of the firm.

Firm performance and measures of it have been looked at from different perspectives. Fabbe-Costes and Jahre (2008) and Akyuz and Erkan (2010) indicate that the perspectives and measures of firm performance are numerous and lack consensus in literature. However, generally, firm performance is viewed from the perspective of marketing performance (Kushwaha 2012, Karimi and Rafiee 2014), operational (Kushwaha 2012, Karimi and Rafiee 2014) and financial performance (Wagner 2005; Hendricks & Singhal, 2005; Henderson et al. 2012). Arguably, both the marketing and operational performances of the firm are expected to lead to financial performance.

HYPOTHESES DEVELOPMENT AND RESEARCH MODEL

Though the linkage between supply chain practices and firm performance is pervasive in literature, these linkages are looked at from different or limited perspectives. For instance, Miguel and Brito (2011) and Kushwaha (2012) sought to link supply chain practices to operational performance of firms. Kushwaha (2012) defines operational performance as the extent to which organisational goals are achieved from the perspective of how firm strategy, policies, resources and employees are managed. Hence, after Kushwaha (2012), in this study, operational performance in the banking sector focuses on aspects such as service quality and improvement, forecasting accuracy, staff productivity, operational cost and process speed. The extent to which banks invest in logistics practices, close collaboration with their suppliers to ensure that funds are available for loans, implement adequate risk management practices, among others, the higher the expected improvements in operational performance as defined above. Hence, we propose the following hypothesis:

H1: Supply chain practices have positive impact on operational performance in banks

There appears to be a linkage between supply chain practices and firm financial performance as indicated in studies by Wagner et al. (2012) and Rostami et al. (2013). Wagner et al. (2012) define firm financial performance as the measure of the net profitability relative to its total investment or cost of operation. Hence, after Wagner et al. (2012), we consider the financial performance of the banks from perspectives such as return on

investment (ROI), return on assets (ROA) and liquidity. We therefore argue that when banks embark on proper supply chain practices, it would engender the financial performance of the banks in respect of ROI, ROA and liquidity. Hence, we propose the following hypothesis:

H2: Supply chain practices have positive impact on financial performance of banks

Generally, it is the ultimate goal of every firm to achieve utmost financial performance by maximizing profit. However, the achievement of this financial goal is connected to or largely depends on other firm performances such operations and marketing. Ul Hassan et al. (2013) proposed that the financial performance of firms is realised through the performance of the operations and marketing functions. They, however, define marketing performance as the extent to which a firm obtains a competitive advantage and market opportunities relative to other firms in the industry. In this study, we consider the marketing performance of banks from perspectives such as market share, customer feedback and satisfaction and lastly banks' reputation. In the era of keen competition on the market, firms have resorted to their supply chains to gain competitive advantage or market opportunities. Therefore, we argue that supply chain practices provide support for firm competitiveness and market opportunities. Hence, we propose the following hypotheses:

H3: Supply chain practices have positive impact on the market performance of banks

H4: A bank's operational performance has a positive impact on financial performance

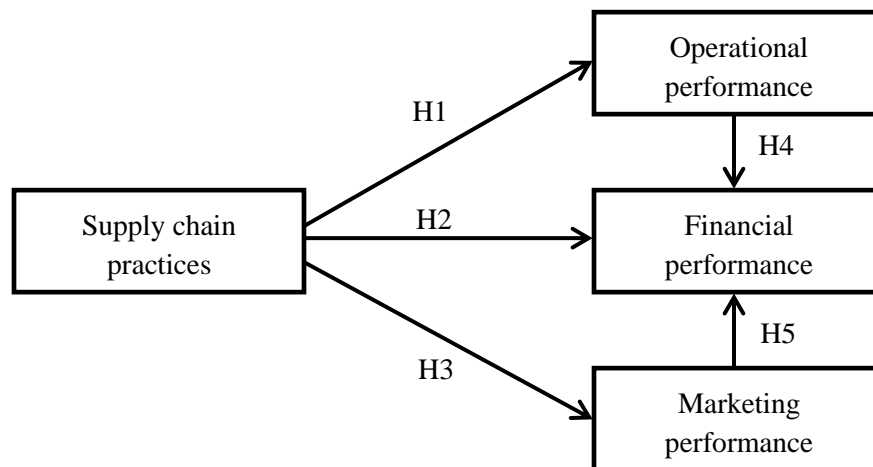


Figure 1 - Conceptual model

H5: A bank's marketing performance has a positive impact on financial performance

Generally, in literature, most studies provide evidence of the linkage between supply chain practices and one or two performance metrics. However, in this study, we seek to demonstrate the linkage between supply chain practices and three firm performance metrics, even for a non-traditional sector such as banking. A summary of the research model is presented in Figure 1.

METHODOLOGY

The study was conducted in Ghana using survey questionnaire consisting of previously used and validated items for the different constructs considered. The sample population consisted employees in the supply chain departments of selected commercial banks in the Greater Accra Metropolitan Area (GAMA) of Ghana. This area was chosen for the study because it contains the capital city of Ghana where most of the commercial activities in the country take place. The selection was based on the fact that they all belong to the tier one category of banks and constitute the major players in the financial industry in Ghana. Survey questionnaires were distributed to the respondents in these banks and were collected after approximately one month. A total of 190 questionnaires were distributed and 170 were completed and returned. However, the study is based on 159 usable responses.

Measures

This study basically considered four main constructs as indicated in Figure 1. Each construct was measured with multiple items. Likert- type scales with responses ranging from 1 (strongly disagree) to 5 (strongly agree) were used in the measurement. Due to restrictions on the length of this paper, the full questionnaire is omitted and could be obtained from the authors. The supply chain practices construct was measured with eight items that considered the acquisition of logistics by the banks, inventory management practices, outsourcing of non-core functions of the bank, supply chain collaboration or integration, risk management, customer relations and supply chain planning. The operational performance construct was also measured with six items which assessed the banks' service quality and improvement, forecasting accuracy, staff productivity, operational cost and process speed. The marketing performance construct was measured with four items which assessed the banks' market share, customer feedback and satisfaction and, improved products and finally the banks' reputation. The financial performance construct was measured with four items which considered the banks' return on investment (ROI), return on assets (ROA), return on equity (ROE) and liquidity.

Reliability and Validity Analyses

Data analysis was carried out using the Partial Least Squares (PLS, 2.0) structural equation modelling (SEM) technique. The PLS is a variance-based SEM approach which lends itself to exploratory research (Hair et al. 2014). In order to assess our measurement properties, we examined the reliabilities and validities of our constructs. The factor loadings of items in Table 1 and Figure 2 show an acceptable convergent validity as all items had significant loadings above 0.5 on their associated constructs (Fornell and Larcker, 1981). For discriminant validities of the constructs, Average Variance Extracted (AVE) values were determined. From Table 1 all AVEs displayed for all the constructs were larger than the recommended threshold value of 0.5 (Fornell and Larcker, 1981). Discriminant validity is the extent to which a construct is truly distinct from other constructs in the model by empirical standards. Thus, establishing discriminant validity implies that a construct is unique and captures phenomena not represented by other constructs in the model. Besides, the square

roots of all AVEs were greater than the correlations with other constructs (Chin, 1998; Fornell & Larcker, 1981) as shown in Table 2 exhibiting discriminant validity. Finally we ensured the constructs exhibit high internal consistency by calculating their Composite Reliabilities (CR) and Cronbach Alpha (CA) values. The composite reliability values were all above the recommended level of 0.7 (Nunnally and Bernstein 1994), as displayed in Table 1. In addition, all the Cronbach Alpha values were above 0.7 – 0.9 which can be considered as high and provide assurance of internal consistency.

Table 1 - AVE, Composite Reliability, and Cronbach Alpha

Constructs	AVE	Composite Reliability	Cronbach Alpha
FIN PERF	0.7277	0.9144	0.8750
MARK PERF	0.7686	0.9299	0.8994
OPS PERF	0.6	0.8994	0.8649
SC MGT PRAC	0.5442	0.9042	0.8782

Table 2 - Discriminant validity-Fornell-Larcker Criterion

	FIN PERF	MARK PERF	OPS PERF	SC MGT PERF
FIN PERF	0.853*			
MARK PERF	0.637	0.877		
OPS PERF	0.725	0.729	0.775	
SC MGT PRAC	0.659	0.681	0.704	0.738

* Numbers on the diagonal represent the square root of the AVE

RESULTS

The results of both the measurement model (outer model) and the structural (inner model) model are shown in Figure 2. The SmartPLS bootstrapping procedure based on resamples of 1000 was used to determine the significance of the path coefficients in our model. The bootstrap results are shown in Table 3.

We begin the analysis of the structural model by evaluating the Pearson's coefficients (R^2). This R^2 value indicates the portion of the variance of the endogenous variables, which is explained by the structural model which basically indicates the quality of the adjusted model. With reference to Cohen (1988), an $R^2 = 2\%$ is classified as having a small effect, $R^2 = 13\%$ is classified as having a medium effect, and $R^2 = 26\%$ can be classified as having a large effect. The results in Figure 2 indicate that the research model explained 57.8%, 46.4%, and 49.6% of the variance in financial performance, marketing performance and operational performance respectively.

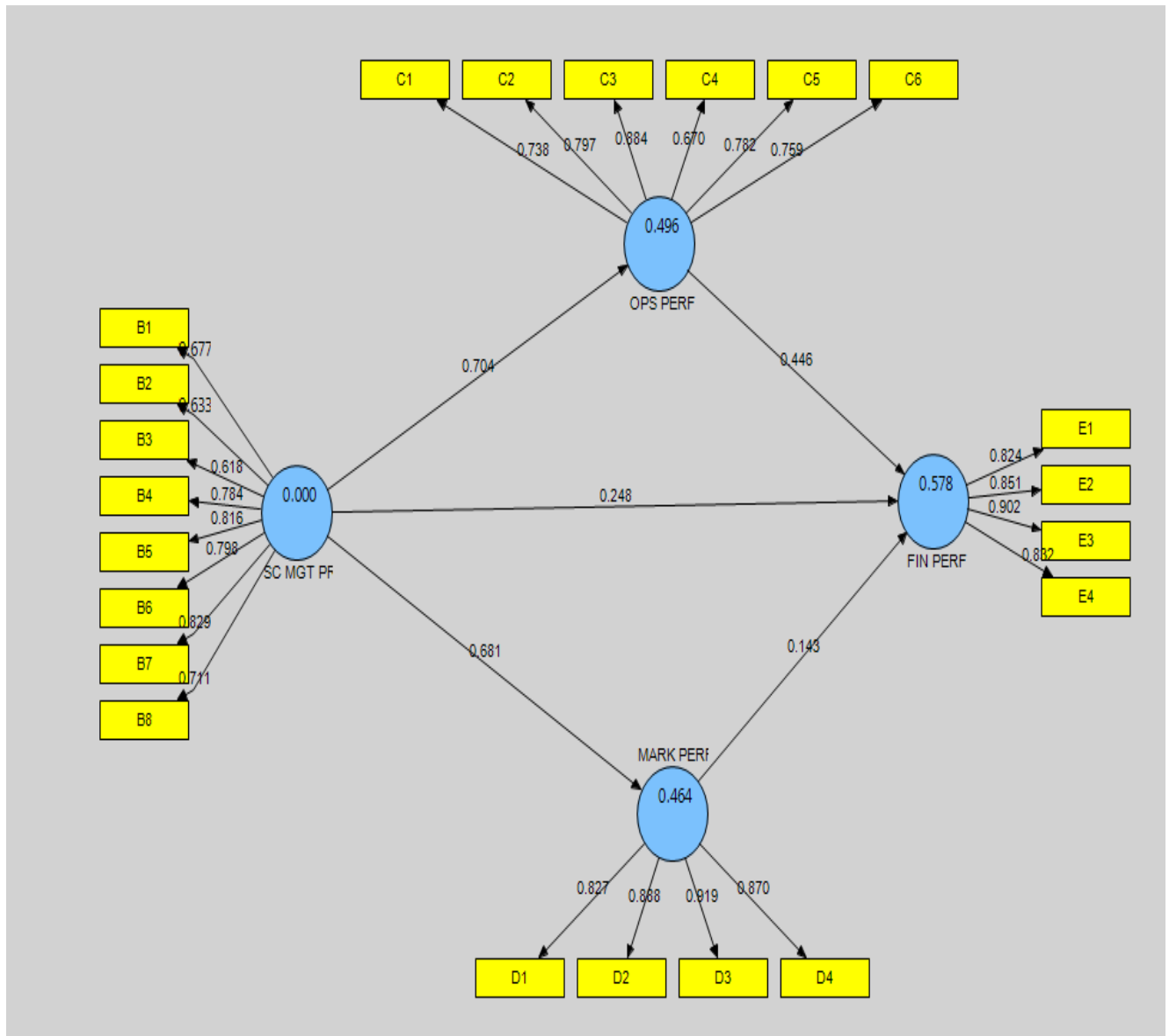


Figure 2 - Measurement and structural model

The results indicate the supply chain management practices of the selected banks, has a significant impact on operational performance, ($\beta = 0.7043$, $p < 0.001$), financial performance, ($\beta = 0.2477$, $p < 0.001$) and marketing performance ($\beta = 0.681$, $p < 0.001$), providing support for H1, H2 and H3. The results also indicate that both the operational performance ($\beta = 0.4462$, $p < 0.001$), and the marketing performance ($\beta = 0.1431$, $p < 0.05$) have significance effects on the financial performance of the firm, also providing support for H4 and H5 respectively. The results are summarized in Table 3.

Table 3 - Bootstrapping results for test of path significance

PATHS	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (O/STERR)	p - values
MARK PERF -> FIN PERF	0.1431	0.1483	0.0714	0.0714	2.0048	0.047
OPS PERF -> FIN PERF	0.4462	0.442	0.0781	0.0781	5.7151	0.000
SC MGT PR -> FIN PERF	0.2477	0.2436	0.0609	0.0609	4.0672	0.000
SC MGT PR -> MARK PERF	0.681	0.6798	0.0394	0.0394	17.304	0.000
SC MGT PR -> OPS PERF	0.7043	0.6968	0.0566	0.0566	12.4517	0.000

Table 4 - Summary of Hypotheses Testing Results

Hypothesis	Exogenous variable	Path	Endogenous variable	Path Estimate	P- value	Supported?
H1	SC MGT PRACTICES	→	OPS PERF	0.7043*	0.000	YES
H2	SC MGT PRACTICES	→	FIN PERF	0.2477*	0.000	YES
H3	SC MGT PRACTICES	→	MARK PERF	0.681*	0.000	YES
H4	OPS PERF	→	FIN PERF	0.4462*	0.000	YES
H5	MARK PERF	→	FIN PERF	0.1431**	0.047	YES

*p < 0.001; **p < 0.05

DISCUSSIONS AND CONCLUSIONS

We found a strong support for the hypothesis concerning supply chain management practices and operational performance of banks in Ghana. This strong relationship between supply chain management practices and operational performance is also consistent with that of Miguel and Brito (2011). Hence, banks in Ghana would benefit from improved operational performance by paying attention to proper supply chain practices, especially in an environment where there appears to be poor operational performances from banks leading to widespread customer dissatisfaction. Such improved operational performance due to ensuring proper supply chain practices potentially can provide a competitive advantage for banks in an environment like Ghana.

Our findings also indicated a strong positive relationship between supply chain management practices and a banks' marketing performance, supporting the finding from Ul Hassan et al. (2013). Generally, the marketing functions of the banks require certain inputs and processes. Hence, effective and efficient acquisition of these inputs to perform the required marketing functions through proper supply chain practices affects banks' marketing performance.

Furthermore, although this study shows that there is a direct positive and significant impact of banks' supply chain practices on financial performance, it also appears that banks' operational and marketing performances also have direct positive and significant impacts on the financial performance. Hence, banks in Ghana can target a combination of proper supply chain practices, better operational and marketing performances in gaining financial superiority.

Bibliography:

- Abbasi, M.N. 2012. Sustainable Practices in Pakistani Manufacturing Supply Chains: Motives, Sharing Mechanism and Performance Outcome, *Journal of Quality and Technology Management*, **8** (2): 51–74.
- Akyuz, G.A., Erkan, T.E. 2010. Supply chain performance measurement: a literature review, *International Journal of Production Research*, **48**(17): 5137–5155.
- Chen, I.J. and Paulraj, A. 2004. Towards a theory of supply chain management: the constructs and measurements, *Journal of Operations Management*, **22**(2): 119-50.
- Chin, W. W. 1998. Commentary: Issues and opinion on Structural Equation Modeling. *MIS Quarterly*, **22**(1): vii-xvi
- Cohen, J. 1988. *Statistical Power Analysis for the Behavioural Sciences*. 2nd ed, Psychology Press, New York.
- Defee, C.C., Stank, T.P. 2005. Applying the strategy-structure performance paradigm to the supply chain environment, *The International Journal of Logistics Management*, **16** (1): 28-50.
- Dewar, N.J., Sundar, D.K., Yadavalli, V.S. 2013. Social networks, the banking supply chain and financial inclusion in South Africa: A Framework, *Proceedings of the 41st International Conference on Computers & Industrial Engineering*, 933-935.
- Fabbe-Costes, N., Jahre, M. 2008. Supply chain integration and performance: a review of the evidence, *The International Journal of Logistics Management*, **19** (2): 130-154.
- Fornell, C., Larcker, D.F. 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*. **18**(1), 39-50.
- Hair, J. F., Hult, G.T.M., Ringle, C. M., Sarstedt, M. 2014. *A primer on partial least squares structural equation modeling*. Sage, Washington, DC.
- Henderson, A.D., Raynor, M.E., Ahmed, M. 2012. How long must a firm be great to rule out chance? Benchmarking sustained superior performance without being fooled by randomness, *Strategic Management Journal*, **33**(4): 387–406.

- Hendricks, K.B., Singhal, V.R. 2005. An empirical analysis of the effect of supply chain disruptions on long-run stock price performance and equity risk of the firm, *Production and Operations Management*, **14**(1): 35–52.
- Karimi, E. Rafiee, M. 2014. Analyzing the Impact of Supply Chain Management Practices on Organizational Performance through Competitive Priorities (Case Study: Iran Pumps Company), *International Journal of Academic Research in Accounting, Finance and Management Science*, **4** (1): 1–15.
- Koh, S.C.L., Demirbag, M., Bayraktar, E., Tatoglu, E., Zaim, S. 2007. The impact of supply chain management practices on performance of SMEs, *Industrial Management & Data Systems*, **107** (1): 103-124.
- Kushwaha, G.S. 2012. Operational Performance through Supply Chain Management Practices, *International Journal of Business and Social Science*, **3** (2): 222-232.
- Li, S., Ragu-Nathan, B., Ragu-Nathan, T.S., Rao, S.S. 2005. Development and validation of a measurement for studying supply chain management practices, *Journal of Operations Management*, **23**: 618-41.
- Mensah, C., Diyuoh, D., Oppong, D. 2014. Assessment of Supply Chain Management Practices and It Effects on the Performance of Kasapreko Company Limited, *European Journal of Logistics Purchasing and Supply Chain Management*, **2** (1): 1-16.
- Miguel, P.L.D., Brito, L.A.L. 2011. Supply Chain Management measurement and its influence on Operational Performance, *Journal of Operations and Supply Chain Management*, **4** (2): 56 – 70.
- Nunnally, J. C., & Bernstein, I. H. 1994. *Psychometric theory*, 3rd ed, McGraw-Hill, New York.
- PwC. 2014. 2014 Ghana Banking Survey: The Future of Banking in Ghana...What's next?, Available at <https://www.pwc.com/gh/en/assets/pdf/gh-banking-survey-2014.pdf> (accessed date November 20, 2015)
- Rostami, A., Rostami, A.A.A., jalali, S., Nazemi, A.R. 2013. Relation between supply chain efficiency And supply chain finance, *International Research Journal of Applied and Basic Sciences*, **4** (2): 416-423.
- Solakivi, T. 2014. *The Connection between Supply Chain Practices and Firm Performance – Evidence From Multiple Surveys and Financial Reporting Data*, Master's Thesis, University of Turku, pp. 1-76.
- Ul Hassan, M., Shaukat, S., Nawaz, M.S., Naz, S. 2013. Effects of Innovation Types on Firm Performance: an Empirical Study on Pakistan's Manufacturing Sector, *Pakistan Journal of Commerce and Social Sciences*, **7** (2): 243-262.
- Ulusoy, G. 2003. An assessment of supply chain and innovation management practices in the manufacturing industries in Turkey, *International Journal of Production Economics*, **86**: 251-70.
- Wagner, M. 2005. How to reconcile environmental and economic performance to improve corporate sustainability: corporate environmental strategies in the European paper industry, *Journal of Environmental Management*, **76**(2), 105-118.
- Wagner, S.M., Grosse-Ruyken, P.T., Erhun, F. 2012. The Link between Supply Chain Fit and Financial Performance of the Firm, *Journal of Operations Management*, **30**(4):340–353.