

Supply Chain Integration and Manufacturing Firm Performance in Emerging Economies: The Case of Ghana

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Abstract

Supply Chain Integration has increasingly become important among manufacturing firms especially in developing economies. The poor integration of processes and partners in the supply chain may lead to poor operational performance of manufacturing firms. The study assessed the effect of supply chain integration on the performance of manufacturing firms in Ghana with Business process outcome as a mediating variable. The study adopted the descriptive cross-sectional research design where data was collected from 200 supply chain and procurement managers in manufacturing firms in Accra and Kumasi. The data was analysed using multiple regression analysis using SPSS 25. The result of the study shows that a weak positive correlation exists between Supply Chain Integration and Organizational Performance which was statistically significant. The results of the regression model shows that there is a weak positive linear relationship between supply chain integration and business process outcome. The study further indicated that there is a partial mediation of business process outcome on the effect of Supply chain Integration on Performance. The findings of this study demonstrate the value of implementing integration of the supply chain in a manufacturing firm as integration of the supply chain can be a source of competitive advantage leading to superior success by enhancing operational efficiency of the firm. Managers of manufacturing firms in Ghana are expected to consider supply chain integration as a one corporate objective in order to excel in their operational performance through providing quality customer service, quality products, reduction of cost to meet market demand in a flexible manner.

Keywords: Supply Chain Integration, Performance, Manufacturing firms, Business Process Outsourcing

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1. Introduction

The integration of the supply chain has increasingly become important among firms (Hendijani and Saeidi Saei, 2020). The integration of the supply chain according to Flynn et al. (2010) refers to the strategic collaboration between manufacturing firms and partners in the supply chain in order to leverage internal and external resources and capabilities across the whole supply chain. Stevens and Johnson (2016) cited in Khanuja and Jain, (2021) defined the supply chain integration (SCI) as “alignment, linkages and coordination of processes, people, information, knowledge, strategies and communication across the supply chain amongst all points of contact and making the efficient and effective movement of materials, information, money and knowledge as needed by the customer” As globalization and emerging technologies have changed the structure of relationship between organizations, the supply chain has emerged as a competitive weapon that firms can leverage to better collaborate and integrate their activities with external partners (Jain, 2020; Stevens and Johnson, 2016).

Wiengarten et al. (2010) and Kim (2009) noted that the integration of the various aspects of the supply chain has helped to enhance the performance of manufacturing firms. Scholars (Huang, Yen and Lieu, 2014; Frohlich and Westbrook, 2001) indicated that there is the need for manufacturing firms to integrate their internal and external supply chain activities in order to remain competitive. Scholars (Sezen, 2008; Zailani and Rajagopal, 2005) postulated a positive impact of supply chain integration practices on firm performance. Weiland and Wallenburg (2013) also indicated that integration of the supply chain members help them to anticipate possible challenges in their processes. There are however a number of studies that postulated a negative impact of supply chain integration on firm performance. For instance, Norman and Jansson (2004) noted that integration may come at the expense of increased vulnerability to disruptions among firms. Multiple scholars (Hallikas et al., 2004; Wieland and Wallenburg, 2013; Kache and Seuring, 2014) noted that integration among firms in a supply

network will lead to an increased interdependence and may result in higher exposure to risk. Furthermore, studies by Fabbe-Costes and Jahre (2008) reported that a higher degree of integration does not necessarily improve the performance of manufacturing firms. The review indicates the inconclusiveness of the effect of supply chain integration on firm performance of manufacturing firms necessitating further studies.

Business process outsourcing helps reduce cost and enhance the competitiveness of manufacturing firms (Beverakis, Dick and Cecez-Kecmanovic, 2009). Business Process Outsourcing (BPO) represents a strategic option to obtain the overall improvement of performance (Ciasullo et al., 2018). BPO consists of externalizing whole sub-processes (production, logistics, Human Resources) of a value chain (Ciasullo et al., 2018). Fersht (2014) cited in Zhang et al. (2018) reported that approximately 50 percent of outsourcers believe that their outsourced business process does not generate additional value, provide special knowledge or reduce the expected cost for business operations management. It is imperative to assess the role of Business Process Outsourcing in enhancing the supply chain integration and performance of manufacturing firms in Ghana.

The manufacturing sub-sector in Ghana is reported to contribute about GHC 28 billion to the Gross Domestic Product of Ghana in 2017 and the sector grew from 7.9 percent to 9.5 percent in 2017 to 2019 (Ghana Statistical Service, 2019). However, the manufacturing sub-sector of Ghana is bedeviled with a lot of challenges. The Afro barometer report of the Association of Ghana Industries (AGI) (2019) noted that the sector is challenged with the high influx of imported goods, the high cost of raw materials and difficulty in accessing permits to operate. The report further noted that the current tax regime as well as the high cost of electricity is a major operating hurdle the sector faces. Addo (2017) further noted that the sub-manufacturing sector in Ghana is challenged with insufficient education and the absence of managerial skills which hinders the efficiency and competitiveness of manufacturing firms in Ghana. Hosseini, Aziz and Sheikhi (2012) noted that many firms have not fully embraced the concept of supply chain integration in their operations hence this is negatively affecting their operational performance.

This study therefore seeks to analyze the Supply Chain Integration processes and its effect on the performance of manufacturing firms in Ghana. The study attempts to answer the following questions:

1. What is the effect of supply chain integration on organizational performance of manufacturing firms in Ghana?
2. What is the effect of SCI on BPO of manufacturing firms in Ghana?
3. What is the effect of BPO on performance of manufacturing firms in Ghana?
4. What is the mediating role of BPO on the relationship between SCI and Performance?

It is assumed that the study findings may potentially be useful to policy-makers, particularly the Ministry of Trade and Industry. Furthermore, the findings would give the Ministry of Trade the opportunity to solve the key efficiency constraints in the country's manufacturing sector. The relevance of the study will furnish stakeholders the required information on supply chain determinants that will help articulate better policies such as on inventory control, transport, warehouse management customer relationships and SCI. The outcome of the research work will offer manufacturing firms the opportunity to explore the most appropriate supply chain factors that can promote the growth and performance of the organization.

The remainder of the paper is organized as follows: in section 2, the study provides an overview of the literature and the study hypothesis. The researchers described the applied methodology in section three. In the fourth section, we presented the research findings. In the final section, section 5, we discussed the findings, draw conclusions based on the findings and also made appropriate recommendations for managerial and policy makers.

2. Literature Review and Hypothesis Development

2.1 Supply chain integration and manufacturing firm performance

In a study by Thai and Jie (2018) on the impact of total quality management and supply chain integration on firm performance of container shipping companies in Singapore, they reported a positive relationship between supply chain integration and firm performance. Frohlich and Westbrook (2001) argued that the strongest association with improved performance is achieved by a high degree of supply chain integration. Flynn, Huo and Zhao (2010) in their study noted that when firms integrate internally, it helps to improve their performance. Chopra and Mendl (2013) noted that when supply chain partners integrate their processes it leads to an improved customer satisfaction and improvements in the profit margins as supply chain goals and supply chain drivers of

the supply chain partners are aligned. Supply chain integration according to Zhao, Feng and Wang (2015) can help to cut down cost by building close relationships with suppliers which contributes to firm performance. The study hypothesized that

H1: There is a significant positive relationship between supply chain integration and manufacturing firm performance.

2.2 Supply Chain Integration and Business Process Outsourcing

Cioni (2007) noted that firms are unable to realize significant benefits of business process outsourcing. Alster (2005) noted that about 60 percent of firms that have outsourced face customer defections and also incur hidden costs that end up nullifying their savings. Aron and Singh (2005) also postulated that most firms that outsourced did not make the needed profit from their decision to outsource their business process. A significant reason for most firms not making gains from their business process outsourcing could be due to the poor integration of processes thus leading to failure of the business process outsourcing (Mani, Barua and Whinston, 2012). Effective process integration both within the service provider and the with the client may lead to improved business process outsourcing hence the study hypothesized that

H2: Supply chain integration is significantly and positively correlated with business process outsourcing

2.3 Business process outsourcing and manufacturing firm performance

The majority of global companies are now outsourcing different operations of their businesses in order to save costs, save time, and make better use of their intellectual resources. This allows them to focus on their core capabilities, which are their key source of competitive advantage. (Awe, Kulangara, and Henderson, 2018). The key benefit that businesses have reaped from outsourcing their secondary operations is the ability to rededicate their attention and resources to the activities that are at the top of the value chain and to further develop their core business strategy (Jiang et al., 2006). Because no company now functions as a single entity, outsourcing has steadily gained popularity over the years and continues to do so. Companies outsource a variety of tasks, including manufacturing, information technology (IT), accounting, human resources, and research and development (R & D), both domestically and abroad. According to Gilley and Rasheed, (2000) there is no correlation between outsourcing and the success of a company. This correlation was shown to be influenced by both business strategy and the dynamic nature of the surrounding environment Kotabe and Mol (2009) made use of secondary data collected from companies in the Netherlands that were engaged in manufacturing. They examined data from two years (1995 and 1998) and came to the conclusion that market uncertainty attenuated the unfavorable association between a company's outsourcing and the performance indicators it was measuring. (Calantone and Stanko (2007) discovered that the relationship between increased profits and the outsourcing of research and development was not the same for high-tech, non-tech, and low-tech businesses. In the past three decades, there has been a growing trend toward outsourcing industrial tasks in order to save money on the cost of labor. Manufacturing is comprised of many different aspects, some of which include logistics, production, and assembly. According to C  nez, Platts and Probert (2000), manufacturing outsourcing is the purchase of parts and components from third-party vendors that were originally produced in-house by an organization. Pagell and Sheu (2001) examined the link between the proportion of manufacturing that was outsourced and the on-time delivery performance of its suppliers by conducting a cross-sectional analysis utilizing primary data. They analyzed the responses of 290 people who worked in the machine toolmaking and textile manufacturing industries and discovered that there is a substantial correlation between the proportion of manufacturing operations that are outsourced and the delivery speed of suppliers. (Leachman, Pegels and Kyoon Shin, (2005) discovered that the pace at which components and parts are outsourced has a curvilinear U-shaped connection with the amount of manufacturing output. They examined the performance of eight different automotive manufacturers over the course of five years using data envelopment analysis. It is one of the first studies to use a longitudinal perspective on the link between outsourcing rate and manufacturing performance, which is the distinctive contribution that this research made. This study looked at the association between outsourcing rate and manufacturing performance.

By focusing their attention intently on the factors that determine the performance indicators of companies when production is outsourced, Dabhilkar et al. (2009) have made a significant contribution to the field by focusing their attention They gathered primary information from 136 companies that had outsourced their production over a period of three years. The performance of outsourcing was evaluated using a number of different characteristics, including cost, effectiveness, efficiency, lead time, quality, adaptability, and functionality. They discovered a correlation between the reasons for outsourcing, the portions that were outsourced, the operational capacities of the suppliers, and the performance of the outsourcing. Based on this logic, it is postulated that:

H3: Business process outsourcing have a positive effect on manufacturing firm performance

H4: BPO as a mediating variable has a positive relationship with SCI and Performance

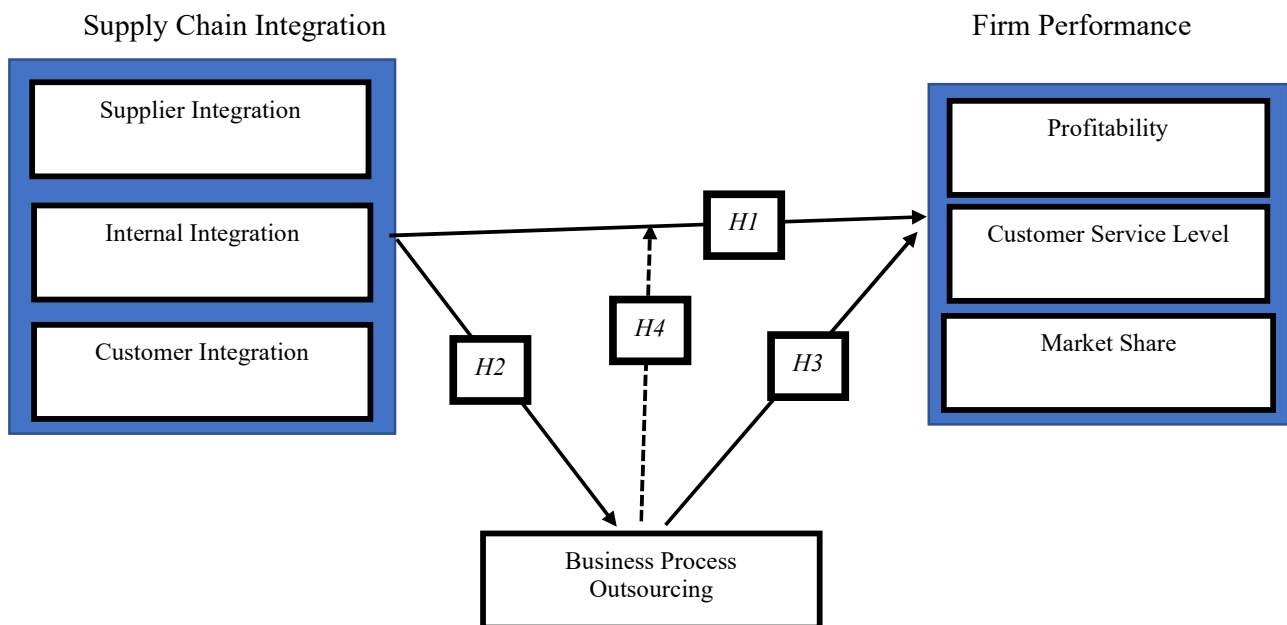


Figure 2.0: Conceptual framework

3.0 Methodology

The study adopted the descriptive cross-sectional research design. The statistical population was manufacturing firms operating in Ghana. There is no official number of the total manufacturing firms operating in Ghana hence adopting the Cochran (1977) formula for unknown population, with an acceptable sampling error of 0.05 and significance level of 0.05 and reliability level of 95%, the study adopted a total sample size of 385. Data was collected purposively from supply chain managers and procurement managers from the manufacturing firms which were sampled conveniently. The study adopted the use of structured questionnaire with a five point Likert Scale with 57 items with subsections on demographic variables and SCI, firm performance and Business process outsourcing. The questionnaires were dropped with the participants and picked up at an agreed time.

Since the questionnaire was adopted from previous studies and have been extensively used in previous studies, their validity was implicitly confirmed. The Cronbach alpha were calculated for each variable. All alpha coefficients were above 70%, thus variables have acceptable reliability (Mohammadbeigi et al., 2015).

SPSS version 25 software was used for the data analysis. Descriptive methodology was used to describe, present and summarize quantitative information in the form of central tendency measurements (mean was used to describe the central position) and distribution measurements (standard deviation was used to describe score distribution). Inferential statistics was used to test statistical hypotheses so as to make conclusions, Spearman's rank correlation and multiple regression was used to measure the direction and strength of the relationship between the research variables.

4. Results of study

4.1 Socio-Demographic Variables

The socio-demographic characteristics (Table 4.1) considered for the study are the gender, age, years of experience and the position the respondents hold in the organization.

In terms of the gender of the respondents, 164 representing 82.2 percent were males whilst 36 representing 17.8 percent were females. This indicates that the manufacturing industry is male dominated. In terms of the years of service, 146 respondents representing 73 percent indicated that they have years of service between 1-5 years, 5 respondents representing 2.5 percent have years of service between 6-10 years, 13 respondents representing 6.7 percent have years of experience of 11-20 years and 36 respondents representing 17.8 percent have years of service of 21 years and above. In terms of Nationality, 151 of the respondents representing 75.6 percent of the respondents were Ghanaians whilst 49 of the respondents representing 24.4 percent of the respondents were foreigners. In terms of the years of experience 41 representing 20.6 percent had below 5 years of working experience, 8 representing 4.1 percent had work experience of 5-10 years, 58.5 percent representing 117 of the respondents had work experiences between 10-15 years and 2 representing 0.9 percent had work experience between 15-20 years and 32 of the respondents representing 15.9 percent had work experiences of 20 years and above.

Table 4.1: Demographic characteristics of the respondents

Variable	Frequency	Valid Percent
Gender		
Male	164	82.2
Female	36	17.8
Total	200	100
Years of Service		
1-5 years	146	73
6-10 years	5	2.5
11-20 years	13	6.7
21 years and above	36	17.8
Total	200	100
Nationality		
Ghanaian	151	75.6
Foreigner	49	24.4
Total	200	100
Years of Experience		
below 5 years	41	20.6
5-10 years	8	4.1
10-15 years	117	58.5
15-20 years	2	0.9
20 years and above	32	15.9
Total	200	100

4.2 Test of Hypotheses

To support the hypothesis of the study, a multiple regression analysis was run. The multiple regression was run to establish the relationship between the variables under study. The B in the model is the regression coefficient

which indicates the extent by which a change in Supply Chain Integration affects Performance of the manufacturing companies in Ghana. The R in the model indicates the Pearson Correlation Coefficient which indicates the degree of linear association between independent variables and the dependent variables. The R² in the model is the correlation coefficient squared which measures the proportion of variation in the outcome variable (performance) that has been explained or accounted for by the predictor (SCI). Significant F-statistic gives a clear evidence of a good model fit.

4.2.1 The effect of Supply Chain Integration on Organizational Performance

The results of the regression model of Table 4.2 shows there is a weak significant positive linear association between Supply Chain integration and Performance with Pearson correlation coefficient ($R=0.091$). In addition, there exist a weak significant positive impact of Supply chain integration on performance with regression coefficient, $\beta = 0.075$ and a significant p-value of $0.000 < 0.05$. These findings provide empirical support for the first hypothesis, **H1**. This implies that any additional change in Supply Chain Integration in the manufacturing firms will yield a 0.075 unit change in performance, holding other factors constant. The R^2 in the model measures the proportion of variation in the Performance that has been explained by the model. In the model above, an R^2 of 0.007 suggest that 0.7 % of the variation in the dependent variable has been explained by the regression equation which is significant. The F-statistic in the model, which is 7.6%, is also significant with p-value of $0.000 < 0.05$. This is an indication that the model fits the data.

Table 4.2: SCI on performance

	Unstandardized estimates	Standard Error	Sig
Constant	3.619	1.263	0.00
B	0.075	0.91	0.00
R	0.091	1.252	
R^2	0.008		
T-test	2.764		
R^2 Adjusted	0.007		
F-statistics	7.642		0.00

****Predictor variable:** SCI ; **Dependent variable:** Performance

4.2.2 The effect of SCI on BPO of manufacturing firms

This section (Table 4.3) of the analysis test the causal effect of SCI on BPO of manufacturing firms in Ghana. The results of the regression model of Table 4.4 shows that there is a weak positive linear relationship between SCI and BPO with Pearson correlation coefficient ($R=0.035$). In addition, there exist a weak negative impact of SCI on BPO with regression coefficient, $\beta = -0.073$ and a significant p-value of $0.000 < 0.05$. Looking at the regression coefficient of $\beta = -0.073$ even though the impact is not that huge, it is still significant. These findings does not support the second hypothesis, **H2**.

Table 4.3: The effect of SCI on BPO of manufacturing firms

	Unstandardized estimates	Standard Error	Sig
Constant	5.83	0.178	0.00
B	-0.073	1.187	0.00
R	0.035	0	
R^2	0.124		
T-test	-11.443		
R^2 Adjusted	0.123		
F-statistics	130.943		0.00

Predictor variable: SCI Mediating variable: BPO

4.2.3 The effect of BPO on Performance

The results of the regression model of Table 4.4 shows that there is a significant positive linear relationship between BPO and performance with Pearson correlation coefficient ($R=0.236$). In addition, there exist a significant positive impact of BPO on performance with regression coefficient, $\beta = 0.944$ and a significant p-value of $0.000 < 0.05$. These findings provide empirical support for the third hypothesis, **H3**. This implies that any additional change in BPO in the manufacturing firms will yield a 0.55 unit change in performance, holding other factors constant. The R^2 in the model measures the proportion of variation in the Performance that has been explained by the model. In the model above, an R^2 of 0.056 suggest that 5.6 % of the variation in the dependent variable has been explained by the regression equation which is significant. The F -statistic in the model, which is 54.42%, is also significant with p-value of $0.000 < 0.05$. This is an indication that the model fits the data.

Table 4.4: The effect of BPO on Performance

	Unstandardized estimates	Standard Error	Sig
Constant	24.388	0.428	0.00
B	0.944	0.128	0.00
R	0.236	0	
R²	0.056		
T-test	7.377		
R² Adjusted	0.55		
F-statistics	54.422		0.00

Mediating variable: BPO; Dependent variable: Performance

4.2.4 The Mediating effect of BPO on the relationship between Supply Chain Integration and Performance

This section of the analysis seeks to establish the mediating effect of BPO on Supply chain integration for the prediction of Performance of manufacturing firms. To analyze the mediation according to Shrout & Bolger (2002) steps for mediation analysis. Since we have already established an association between BPO and SCI in previous sections, then this method is ideal for establishing the mediation effect. The results of the study are presented below. (Table 4.5)

Model 1: The effect of Supply Chain Integration on Performance

Outcome variable: performance

Model	Coeff	se	t	p	LLCI	ULCI
Constant	2.6211	.6932	4.124	.0000	5.6700	5.9718
SUPPLYC	0.3961	.1123	3.443	.0000	.1220	.2135

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Model 2: The effect of Supply Chain Integration on BPO

Outcome Variable: BPO

Model	Coeff	se	t	p	LLCI	ULCI
Constant	1.3211	.5784	3.5023	.0000	5.1910	5.5313
SUPPLYC	0.5612	.0858	5.9098	.0000	.1100	.1934

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Model 3: The mediating effect of BPO on relationship between Supply Chain Integration and Performance

Outcome variable: performance
 Model

	Coeff	se	t	p	LLCI	ULCI
Constant	1.9011	.6384	3.2023	.0000	5.0102	5.3490
SUPPLYC	0.0312	.1108	4.6092	.0011	.1080	.1200
BPO	0.6512	.1058	5.1028	.0000	.1620	.1821

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 Level of confidence for all confidence intervals in output: 95 percent

After the mediating variable (BPO) was included in the model, the direct effect of SCI on Performance was significant with a *p-value* of .0011. This is an indication that there is a partial mediation of BPO on the effect of Supply chain Integration on Performance, this does not provide support for the **H4**.

Table 4.6 Regression Hypothesis

Hypotheses	Regression(β) / coefficient	t-value	Decision (Supported /Unsupported)
H1: Supply chain integration has a positive relationship with performance	$\beta = 0.075$	t-value=2.76	Supported
H2: SCI has a positive correlation with BPO	$\beta = -0.073$	t-value = -11.44	Not supported
H3: BPO has a positive correlation with performance	$\beta = 0.944$	t-value = 7.38	Supported
H4: BPO as a mediating variable has a positive relationship with SCI and Performance	$\beta = -0.0775$	t-value= -0.1017	Not supported

P value=0.00

Discussion of Findings

The results of the regression model of Table 4.2 shows that there is a weak significant positive linear association between Supply Chain integration and performance with Pearson correlation coefficient ($R=0.091$). In addition, there exist a weak significant positive impact of Supply chain integration on performance with regression coefficient, $\beta = 0.075$ and a significant p-value of $0.000 < 0.05$. These findings provide empirical support for the first hypothesis, **H1**.

The results of the regression model of Table 4.3 shows that there is a weak positive linear relationship between SCI and BPO with Pearson correlation coefficient ($R=0.035$). In addition, there exist a weak negative impact of SCI on BPO with regression coefficient, $\beta = -0.073$ and a significant p-value of $0.000 < 0.05$. Looking at the

regression coefficient of $\beta = -0.073$ even though the impact is not that huge, it is still significant. These findings does not support the second hypothesis, **H2**.

The outcome of the regression model of Table 4.4 indicates a significant positive linear association between BPO and performance with Pearson correlation coefficient ($R=0.236$). In addition, there exist a significant positive impact of BPO on performance with regression coefficient, $\beta = 0.944$ and a significant p-value of $0.000 < 0.05$. These findings provide empirical support for the third hypothesis, **H3**.

From Table 4.5, after the mediating variable (BPO) was included in the model, the direct effect of SCI on Performance was significant with a p-value of .000. However, after introducing the mediating variable (BPO) into the model, the indirect effect of SCI on Performance was statistically insignificant with an effect of -0.0775 . This is because for it to be statistically significant, the Bootstrap confidence interval should not include zero but from the figure above, it could be clearly verified that an interval of $-.1017$ and $-.0563$ include zero. This implies that BPO does not mediate the outcome of SCI on performance, this does not provide support for the **H4**.

Today's competitive market climate is characterized by increasingly longer and more complex supply chains, with more integrated ties, higher expectations of stakeholders, and more sources of competition from the supply chain. Resource-based theory suggests that effective firm need to build distinct skills on which to base their potential competencies. The skills need to be unique to the firm to improve its competitiveness studies (Das, Narasimhan and Talluri, 2006; Koufteros, Vonderembse and Jayaram, 2005).

As organizations become more specialized, it is critical for manufacturing firms to control their entire network of supply chains so as to optimize their overall performance. Ninlawan et al (2010), noted that reverse logistics provides numerous advantages to manufacturers, some of which include; reducing production costs, promoting an image of being environmentally responsible, meeting customer demands with minimal defects, protecting aftermarkets to discourage independent companies (external entrants) from imitating and selling the organization's product and as a result avoiding losses in both market share and brand identity and finally pre-empting legislation whose effects in non-compliance will be enormous financial penalties. From a business perspective, manufacturing firms actively seek new opportunities over their competitors. For manufacturing firms to remain competitive, they need to embrace supply chain integration.

The study found out that a better relationship between the manufacturing firms with their suppliers, coupled with an effective management of the supplier's knowledge by the manufacturing firms will enhance product acceptance as well as an increase in the quality of the firm's brand.

Information sharing by allowing suppliers to access firms inventory system has increased the reliability of order fulfillment and that intra-organizational knowledge transfer has been enhanced by the manufacturing firm's capacity to link its operational system with its suppliers. These were found to be consistent with Lang (2001) findings that information management can help supply chain managers better manage uncertainty as part of their organizational strategy.

Supply chain integration practices are considered a powerful weapon for manufacturers to gain a competitive advantage by linking performance measurement systems to supply chain integration practices leading again to increased success of the supply chain activities. The relational view theory advocates for a competitive advantage to be generated through value adding activities enabled by inter firm resources and routines (Richard and Devinney, 2005).

The study found out that supply chain integration practices resulted in the integration of technology, people, business and processes in the current digital age, the manufacturing firms have been able to provide value to their customers through integration of its supply chain activities, that sharing of information by the manufacturing firms has enabled it to align its operational plans to the changes in its operating environment, the speed of service delivery has been enhanced due to the supply chain integration process and that the manufacturing firms have been able to reduce cost of product delivery to customers due to their supply chain integration practices. The resource-based view supports the above suggestion that an organization's performance is mainly determined by internal rather than external variables (Barney, 1991). Firms' follow heterogeneous historical paths and as a result, create different qualifications that affect their capabilities in different ways (Wernerfelt, 1984). Effective and efficient practicing Supply Chain firms are successful because they can access a range of resources to their advantage. Kim (2009) noted that supply chain integration practice can help a firm produce and deliver products or services to the customers at lower cost and higher speed through the improvement in supply chain performance. Awad and Nassar (2010) indicate that supply chain integration practices are needed to enable businesses to cope with growing environmental complexity and uncertainty.

5. Conclusion

The results from this study identify the effect of integration of the supply chain on the operational performance of a firm. Good supply chain management (internal, consumer, and supplier) contributes directly to improved operational efficiency. The outcome of the study are consonance with preceding studies results. The results, however, show that there is no statistically significant relation between SCI and Performance. Furthermore, the findings of this study demonstrate the value of implementing integration of the supply chain in a firm as integration of the supply chain can be a source of competitive advantage leading to superior success by enhancing operational efficiency of the firm. Managers of manufacturing firms in Ghana are expected to consider supply chain integration as a one corporate objective in order to excel in their operational performance through providing quality customer service, quality products, reduction of cost to meet market demand in a flexible manner.

5.1 Recommendations

Managers are recommended to strengthen the integration of their internal functional departments as well as their external supply chain partners leading to effective organizational performance.

This study recommends that acquisition of the latest technology for manufacturing operations will enhance the performance of the manufacturing firm. In this light, the Supply Chain Integration of the firms must be highly ICT compliant to stay competitive and to enhance operations efficiently.

5.2 Future Research Findings

First, Primary data for the study was collected solely from the manufacturing firm. Future research findings can widen the scope by collecting data from all the Supply Chain Actors i.e. From Suppliers, Manufacturers and Customers.

Second, this study focused on the impact of SCI on Performance from the perspective of industries of various sizes. Future studies could examine SCI research outcomes and their link with performance in industries of same size and capacity.

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