

The Effect of Supply Chain Integration on Dashen Brewer Share Company Operational Performance

Adisu Moges Tsehaye
College of Business and Economics, Department of Management

Abstract

This thesis paper makes an assessment on the effect of supply chain integration (Supply, internal, and customer integration) on Dashen Brewer Share Company operational performance at Gondar branch. The main objective of this paper is to assess the effect of supply chain integration on Dashen Brewer Factory operational performance. The study discusses different concepts on supply chain integration of internal, customer integration and supplier integration, and operational performance. The study used an explanatory study design to generate answers to the research questions with stratified simple random sampling techniques. To determine the sample size for selecting the respondents the researcher employed a sample size determination formula developed by Yemenis 1967. Accordingly, an aggregate of 121 respondents were selected, and participated in this study and out of these, data were obtained from 109 respondents of Dashen Brewery Share Company. Primary type of data was collected with the help of questionnaires and personal interviews. The collected data are analyzed by inferential statistics of correlation and regression. In order to examine the relationship between supply chain integration and the operational performance Pearson correlations was used. And to see the impact of independent variables on dependent variable regression model developed and tested with ANOVA statistics, model fit test, coefficients analysis, and collinearity test. And the research comes up with the following findings. Internal integration and customer integration have a stronger impact than the impact of supplier integration on operational performance. But all independent variables internal integration, customer integration and supplier integration have significant positive impact on operational performance. Finally based on the finding the recommendations forwarded as follow. Dashen Brewery Share Company is better to enhance the extents of integration of the three variables (internal integration, customer integration and supplier integration) since these variables help to the improvement of operational performance.

Keywords: Customer Integration; Internal integration; Supplier integration; Supply Chain Integration; Delivery Time; Product Quality; Flexibility

1. INTRODUCTION

In an increasingly competitive global marketplace, most firms are competing with a high level of market pressure worldwide. In the context of supply chain management, it is necessary for firms to develop supply chain networks of activities involved in producing and delivering final products from suppliers to end customers. A prerequisite for successful supply chain management (SCM) is the integration of information flow, material flow within a supply chain network (Danese & Thomas, 2014).

According to (Aslan & Özdemir, 2011; Kibera & Orwa, 2016), organizations adopt numerous business improvement strategies to improve the business performance. Supply Chain (SC) is a part and puzzle of any business. SC is a network of facilities and distribution operations for the entire business system of firms to work together to design, produce, deliver, and service products. According to (Mansoori, Jamshidinaid, & Hashemi, 2014), with the advancement of information and communication technologies, supply chain integration has been considered a strategic tool for firms to improve their competitiveness.

According to (Jiqin Han, 2007), in order to fully benefit and implement supply chain management concepts, it is important for the firms to integrate efficiently with their suppliers, customers, warehouses, and other intermediate value-adding partners.

Moreover, even though many researchers (Boon-itt., 2009; Jiqin Han, 2007) find the impact of supply chain integration is seriously crucial things for operational performance and successes, but there is no clearly known researches conducts regarding to the effect of supply chain integration for operational performance in Ethiopia on alcoholic beverages. So, it seems that it is worth to study the effect of integration of supply chain processes and activities for operational performance and forwarded possible recommendations based on findings of the study. Therefore, this study was assessed the effect of supply chain integration on operational performance at Dashen Brewery Share Company in Gondar Town.

1.2 Problem Statement

Organizations globally have begun to embrace the strategy of integrated supply chain management. Supply chain integration systems pushes down costs and delivers super efficiencies into the company processes, all private and public companies should strive to adopt the system (Njagi & Ogutu, 2014). Businesses, organizations and companies should look beyond initial price for implementing SCI and recognize that integrating supply chain

systems and tools can build a strong and unrelenting relationship with suppliers can in fact pay greater dividends in the long run (Chimwani, Iravo, & Tirimba, 2014; Otchere, Annan, & Anin, 2013).

Despite the recent increase of interest from academics and practitioners on SCM, and SCI as one of the most significant features (Frohlich & Westbrook, 2001; Danese & Thomas, 2014; Lee, 2000; Kibera & Orwa, 2016), there seems to be some disagreement amongst authors concerning its impact on operational performance. Although overwhelming number of authors, empirically agree that SCI plays significant positive impact and improves operational performance (Danese & Thomas, 2014; Daniel & Shambachew, 2015; Mansoori, Jamshidinavid, & Hashemi, 2014), others have however not reported such a relationship. Furthermore in some cases investigation on this issue reported a negative relationship between SCI and operational performance (Rosenzweig, 2003; Vickery, 2003) and (Chen, 2007; Cousins and Menguc, 2006; Sezen, 2008) as cited by (Ebrahimi, 2015), those who reported a negative relationship between SCI and operational performance. According to research conducted in Ethiopia on supply chain integration by (Fasika & Thoben, 2014; Daniel & Shambachew, 2015), even though the supply chain integration within processes and between organizations has enhanced operational performance, however supply chain integration enablers are also restricted to internal operations they have not understanding about the effect of supply chain integration by incorporating all integration elements (customer integration and supplier integration).

Besides, very few researches in the effect supply chain integration on operational performance has focused mainly other than alcoholic beverages, especially in Ethiopia only some researches has been done in garment and cement industries and as Dashen Brewery Private Share Company research and development manager told to the researcher, there is no research conducted on the effect of supply chain integration on operational performance in Dashen Brewery Share Company even if it is necessary. Therefore, the researcher seeks to conduct study on the effect of supply chain integration (integration with supplier, integration with customer and internal integration) on operational performance at Dashen Brewery Share Company at Gondar Town.

1.3 Research Questions

The following are the research questions that help to assess the impact of supply chain integration on operational performance:

- ✓ What is the effect of supplier integration on operational performance?
- ✓ What is the effect of internal integration on operational performance?
- ✓ What is the effect of customer integration for operational performance?

2. LITERATURE REVIEW

2.1. Conceptual Framework of the Study

According to (Chimwani, Iravo, & Tirimba, 2014) conceptual Framework is a basic structure that consists of certain abstract blocks which represent the observational, the experiential and the analytical/synthetically aspects of a process or system being conceived. An independent variable is that variable which is presumed to affect or determine a dependent variable. It can be changed as required, and its values do not represent a problem requiring explanation in an analysis, but are taken simply as given. Therefore, independent variables for this research are internal integration, customer integration and supplier integration that influence dependent variables operational performance (flexibility, delivery time and product quality).

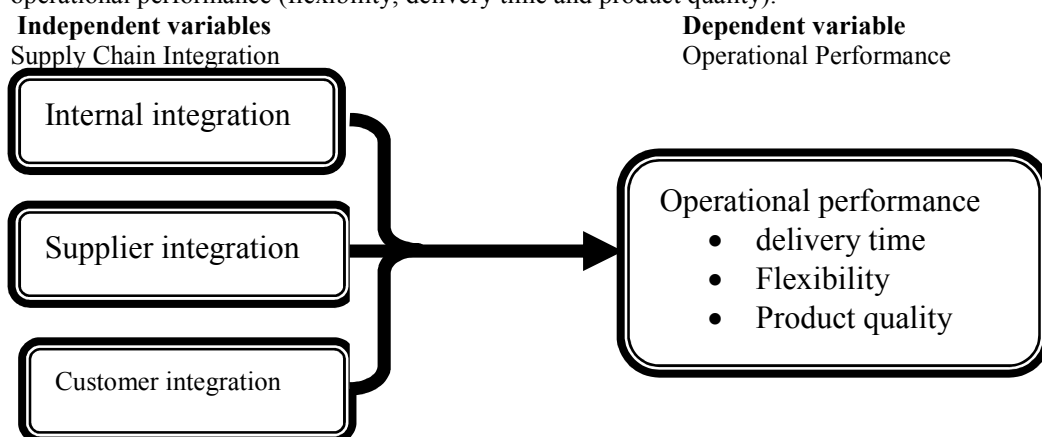


Figure 1: Research Framework

Source: Adapted from (Bahrami & Sabetfar, 2015; El-Tamimi, 2015)

3. RESEARCH METHODOLOGY

3.1 Research Design

For this study the researcher employed explanatory design. The reason the researcher used explanatory research is to investigate the cause and effect relationships, in order to determine causality; to observe variation in the variable that is assumed to cause the change in the other variable. Therefore, researcher used explanatory research design that can be used to investigate the cause and effect relationships between supply chain integration elements and operational performance.

And for this research the researcher used mixed types of research approaches since the research can be both qualitative and quantitative in nature. considering the purpose of the research and the nature of the phenomenon the researcher used explanatory research design on the basis of findings of research, and regarding to time horizon of the research the researcher would use cross –sectional research design since in cross-sectional research design information are collected on different cases or objects at a specific time once.

3.2 Target Population

Since the main objective of this research was to assess the effect of supply chain integration on operational performance in Dashen Brewery Share Company in Gondar Town, the study area was within Dashen Brewery Share Company by targeting populations of employees (specially in four departments) namely, Procurement department 16, Marketing & Selling department 22, Production department 121 and Quality management department 13 workers who works in the factory permanently and who have more direct relation with internal activities, and customers and suppliers activities, with total of 172 workers plus 4 managers respective of each departments.

3.3. Sampling Technique and Sample Size

3.3.1. Sample Size Determination Techniques

The researcher was purposively select four departments for this research. Since according to (Dattalo, 2008), purposive sampling involves the use of the researcher’s knowledge of the population in terms of research goals. Therefore, the researcher expect that the selected four department namely, Procurement department, Marketing & Selling department, Production department and Quality management department.

Since it become difficult to take all populations as a respondent in each department because of cost, time and management issues, it become essential to determine the possible sample size from four departments. So, the researcher used the following sample size determination formula of Yemenis (1967).

$$\text{Therefore, } n = \frac{N}{e^2(N)+1}$$

Where n =sample size N =total population e =margin of error

The researcher use the confidence level of 95 % (1.96 in table of normal distribution)

$$e=0.05 \text{ or } 5\% \quad n=? \quad \text{Therefore, } n = \frac{172}{0.0025(172)+1} = 121 \text{ respondents.}$$

3.3.2 Sampling Selection Techniques

Since the total sample was taken from four departments therefore, the researcher used sample size allocation formula to know the size of the sample in each department, after that the researcher was selected respondents with stratified simple random methods from each departments since they are different.

Sample proportional allocation formula

$$n_i = N_i * n/N \quad \text{Where } i=1, 2, 3, \dots, k$$

n =Total sample N =total population in all department

N_i =total population of a single department

n_i =single sample from the strata (kothari, 2004).

The sample of respondents was selected from the each department as shown in the table below.

Table 3.1. Sample Size Allocation

Department	Number of Population	Sample size
Procurement	16	16*121/172=11
Production	121	121*121/172=85
Marketing and Selling	22	22*121/172=16
Quality Management	13	13*121/172=9
Total	172	121

Therefore, the researcher was randomly select 11 from procurement department out of 16, 16 from marketing & selling department out of 22, 85 from production management department out of 121, and 9 from quality management department 13 with the total respondents of 121.

3.4. Data Sources and Collection Methods

There are mainly two types of data based on the sources of availability – primary and secondary. Only the primary data were collected through questionnaires and semi-structured interviews that were forward to employees and managers of Dashen Brewery Share Company. In order to collect necessary information from the respondents for this research the researcher was both close ended questionnaire, and semi-structured interview. Since questionnaire method of data collection is quite popular, particular

Therefore for this research the researcher was used structured questionnaire which were distributed for Dashen Brewery share company workers. And semi structured interviews were prepare for four department managers to get relevant information which were essential for this study result.

3.5. Methods of Data Analysis and Presentation

To analysis and test the given questionnaire the researcher was used Statistical Package for Social Science (SPSS) 20 versions. The Pearson correlation analysis was used to establish with statistical significance of the existing relationship between the independent variables and dependent variables. Regression is was used to analyze the effect of supply chain integration on operational performances, and the researcher develops regression model with two sets of variables, independent variables (internal integration, supplier integration and customer integration) and dependent variable operational performance. The basic objective of using regression equation on this study is to make the study more effective at describing, understanding and predicting the stated variables. The following regression model is formulated with three independent variables and one dependent variable.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where, Y= dependent variable = operational performance,

β_0 = y-intercept /the regression coefficient/constant

X_1 =internal integration, X_2 = customer integration, X_3 = supplier integration

ϵ =error term at 95% confidence level.

The significance of the analytical model was tested by the use of ANOVA statistical model which is analysis of variance and a multiple- linear regression analysis were done to find out the case effect relationship between supply chain integration and operational performance.

3.6. Validity and Reliability Test

Validity is one of the strategies used to measure how well an answer is given in relation to a research question. In simpler terms it means how accurately a concept has been measured. For this study the researcher was conducted a pilot study to refine the methodology and test instrument such as a questionnaire before administering the final phase. Questionnaires were tested on potential respondents to make the data collecting instruments objective, relevant, suitable to the problem and reliable and issues raises by respondents would be corrected and questionnaires were refined. Further the study tested for construct validity through in-depth reviews by major advisor and co-advisor prior to the dispatching of the questionnaire so as to solicit valid concepts. The key informants provided relevant information that was used to modify the questionnaire thereby coming up with constructs that were valid. Finally, the improved version of the questionnaires were printed and dispatched.

Table 3. 2. Reliability Statistics

Variables	No. of items	Cronbach's Alpha Value
Internal integration	6	.805
Customer integration	6	.772
Supplier integration	6	.708
Operational performance	12	.825

Source: survey data 2017

And in order to measure reliability of the study the researcher conducted in Dashen Brewery share company with a sample of 30 workers and tested with Cronbach's alpha coefficient analysis methods and the Cronbach's alpha coefficient for all variables were ranged from 0.708 to 0.805 as shown in table 3.2, which is reliable since typically an alpha value of 0.67 or higher is taken as a good indication of reliability (B.Burns & Burns, 2008) as cited by (Njeru, 2015). Therefore, all variables are reliable since they are above 0.67.

4. DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Correlation Analysis

In order to determine if there were any significant relationships between the variables, the main focus of this section being on the overall relationship between the dependent and independent variables in table 4.8, Correlation coefficient of Pearson was applied to study the relation between constructs variables. According to (B. Burns & Burns, 2008) as cited by (Njeru, 2015), correlation Values between 0 and 0.3 (0 and -0.3) indicate a weak positive (negative) linear relationship, Values between 0.3 and 0.7 (-0.3 and -0.7) indicate a moderate positive (negative) linear relationship and values between 0.7 and 1.0 (-0.7 and -1.0) indicate a strong positive

(negative) linear relationship. Hence, in this study Bivariate Pearson Coefficient (r) was used to examine the relationship between the variables by using a two-tailed test of statistical significance at the level of 95% significance, $P < 0.05$. Therefore, in this study all correlation results are interpreted in light of this rule.

Table 4.8 reveals that, the value of correlation between internal integration and operational performance $r = 0.599$ and the Correlation is significant at the 0.01 level. And the value of correlation between customer integration and operational performance is 0.611 and the correlation is significant at the 0.01. This indicates a moderate positive relationship between the two variables. As depicted in the table 4.8 below the correlation value between supplier integration and operational performance is $r = 0.620$, correlation is significant at the 0.01. This informs there is a moderate positive relationship between the two variables.

Table 4.1: Correlation Matrix among Variables

		INI	CI	SI	DT	Flex	PQ	OP
INI	Pearson Correlation	1	.261**	.466**	.276**	.396**	.572**	.599**
	Sig. (2-tailed)		.006	.000	.004	.000	.000	.000
CI	Pearson Correlation		1	.540**	.633**	.395**	.255**	.611**
	Sig. (2-tailed)			.000	.000	.000	.007	.000
SI	Pearson Correlation			1	.755**	.183	.362**	.620**
	Sig. (2-tailed)				.000	.056	.000	.000
DT	Pearson Correlation				1	.176	.290**	.696**
	Sig. (2-tailed)					.067	.002	.000
Flex	Pearson Correlation					1	.207*	.664**
	Sig. (2-tailed)						.031	.000
PQ	Pearson Correlation						1	.724**
	Sig. (2-tailed)							.000
OP	Pearson Correlation							1
	Sig. (2-tailed)							

** . Correlation is significant at the 0.01 level (2-tailed).
 * . Correlation is significant at the 0.05 level (2-tailed).

(Source: Survey Data 2017)

4.2 Testing of Model Fitness

To be able to use multiple line regressions the following assumptions should be fulfilled: Normality, validity, reliability, multi-co linearity and linearity.

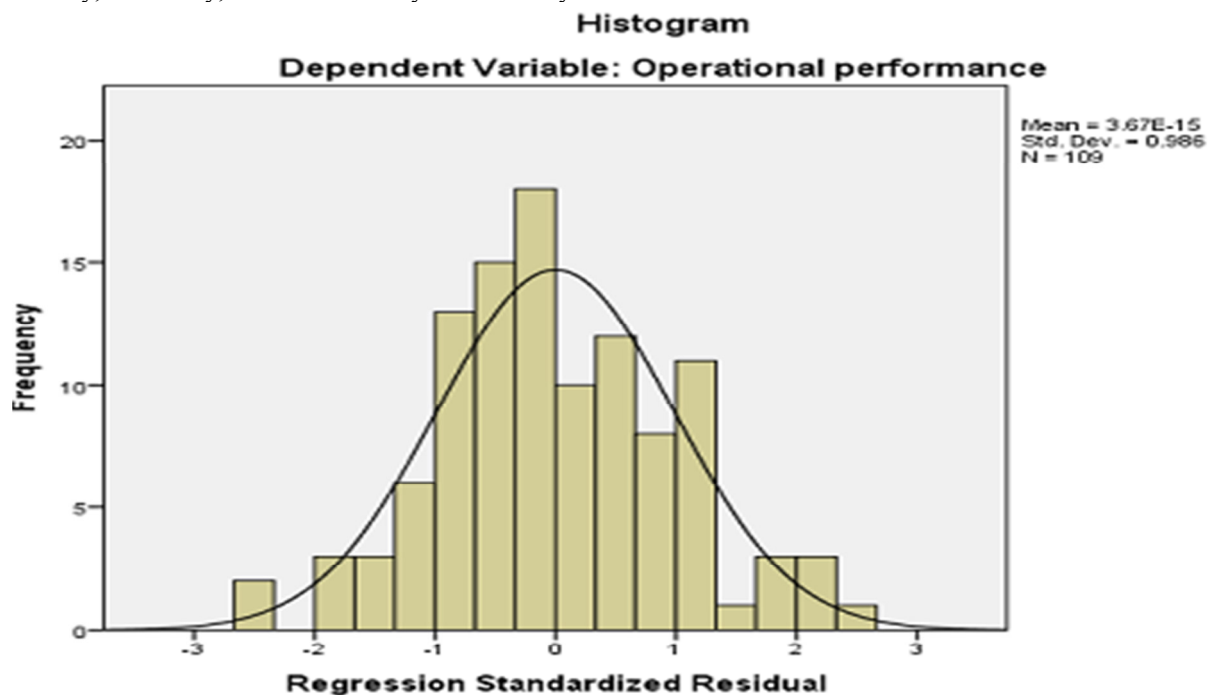


Figure 1: Normality of Histogram

Normal Distribution (Histogram): Normality: According to (kothari, 2004), Normality requires all variables to be multivariate normal or a normal distribution symmetrical, bell-shaped. This assumption can best be checked with a histogram and a fitted normal curve or a Q-Q-Plot. Normality can be checked with a goodness of fit test. When the data is not normally distributed a non-linear transformation. If the residuals are not skewed, that means that the assumption is satisfied. Therefore, for this model there is no a problem of normality.

Linearity: Figure 2 shows that the relationships between independent and dependent variables are linear.

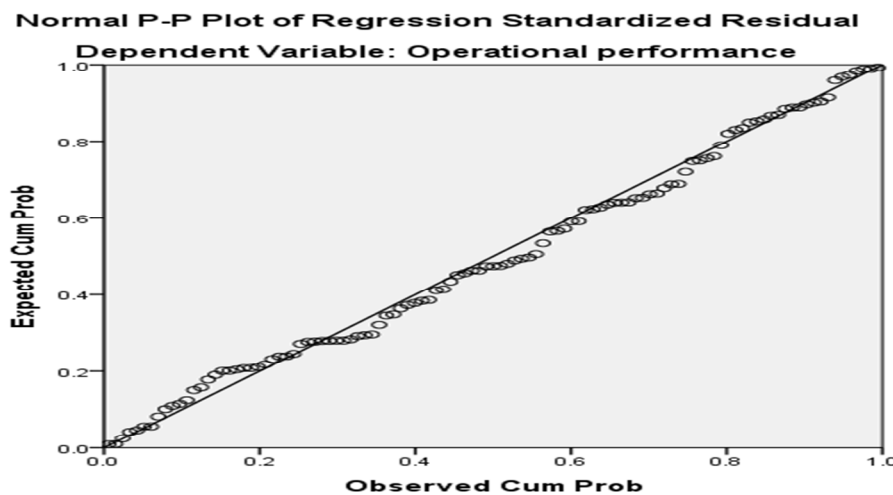


Figure 2: Linearity Test

According to (kothari, 2004), Linear regression needs the relationship between the independent and dependent variables to be linear. It is also important to check for outliers since linear regression is sensitive to outlier effects. If the scatter plot follows a linear pattern (i.e. not a curvilinear pattern) that shows that linearity assumption is met. Therefore, the data not have a problem of linearity.

Table 4.2: Multi- Collinearity Statistics

Model	Tolerance	VIF
1		
Internal integration	.783	1.277
customer integration	.709	1.411
supplier integration	.596	1.679

a. Dependent Variable: Operational performance

(Source: Survey Data 2017)

According to (B. Burns & Burns, 2008) as cited by (Njeru, 2015) a high correlation of 0.90 and above implies the two variables are measuring the same variance and over-inflate R. Therefore only one of the two is needed. The Variance Inflation Factor (VIF) measures the impact of co linearity among the independent variables in a multiple regression model on the precision of estimation or t he VIF indicates whether a predictor has a strong linear relationship with the other predictor(s). Since, in this study, the maximum value of VIF is 1.679 and the minimum one is 1.277, multicollinearity is not the problem of this model and inter correlations are not sufficiently high to cause concern. On the other hand, tolerance below 0.1 indicates a serious problem and below 0.2 indicates a potential problem. In this the tolerances of the variables are ranges between 0.783 and 0.596. Therefore, there is not a problem of multi co linearity, reliability, normality, linearity and validity.

4.3 Regression Analysis of Study Variables

A standard multiple regression was performed between operational performance as the dependent variable and supplier integration, internal integration, customer integration system as independent variable. According to Graham (2002) as cited by (Njeru, 2015), that R-squared is always between 0 and 100%: 0% indicates that the model explains none of the variability of the response data around its mean and 100% indicates that the model explains the variability of the response data around its mean.

Table 4.3: Regression Analysis between SCI and OP

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.783 ^a	.613	.601	.26444

a. Predictors: (Constant), supplier integration, Internal integration, customer integration

b. Dependent Variable: Operational performance

(Source: Survey Data 2017)

The result of multiple regressions displayed in table 4. 3 model summary shows a highly significant relationship between the dependent variable and the linear combination of the predictor variables as indicated by multiple R (0.783). The coefficient of determination (R Square) is a measure of how good a prediction of the criterion variable can make by knowing the predictor variables. Accordingly, 61.3% of the variation in the dependent variable is explained by the set of mentioned independent variables. However, R-squared measures the proportion of the variation in the dependent variable explained by independent variables, irrespective of how well they are correlated to the dependent variable. Conversely, adjusted R-squared provides an adjustment to the R-squared statistic such that an independent variable that has a correlation to dependent variable increases adjusted R-squared and any variable without a strong correlation will make adjusted R-squared decrease. Accordingly the adjusted R-squared, the variation explained by the regression of dependent variable on the combined effect of all the predictor variables is 60.1%, this mean that 60.1 % of dependent variable (operational performance) is determined by independent variable (supply chain integration).

Table 4.11: ANOVA Result

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	11.607	3	3.869	55.327	.000 ^b
	Residual	7.343	105	.070		
	Total	18.949	108			

a. Dependent Variable: Operational performance

b. Predictors: (Constant), supplier integration, Internal integration, customer integration

(Source: Survey Data 2017)

Table 4.3: presents the results of Analysis of Variance (ANOVA) on supply chain integration versus operational performance. It reveals that the significance of the F statistics is 0.00 which is less than 0.05 and the value of F (55.327) being significant at 0.00 confidence level. This informs us that the three independent variables taken together as a set are significantly related to the dependent variable and at least one of the independent variable has an effect on the dependent variable.

Table 4.4: Coefficients Analysis

a. dependent variable :operational performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.495	.151		3.277	.001
	Internal integration	.308	.054	.392	5.707	.000
	customer integration	.287	.054	.385	5.338	.000
	supplier integration	.167	.057	.230	2.916	.004

(Source: Survey data 2017)

The Coefficients table 4.4; reveals that the independent variables of internal integration (t = 5.707, p=.000), customer integration (t = 5.338, p = .000) and supplier integration (t=2.916, p=.004) with respective β value of (0.308, 0.287 and 0.167) are found to uniquely and significantly contribute to the prediction of operational performance. These significance levels tell that three (internal integration, customer integration and supplier integration) variables uniquely contribute to the regression equation there by making a significant contribution to the prediction, but internal integration and customer integration variables have more significant impact for operational performance. The constant term is β = 0.495. The constant term is the value of the dependent variable when all the independent variables are equal to zero.

The purpose of the regression in this study is to find such an equation that could be used to find the impact of predictors (independent variable) on dependent variable. The specified regression equation takes the following form.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where, Y= dependent variable = operational performance

β₀ = y-intercept /the regression coefficient/constant

X₁=internal integration, X₂ = customer integration, X₃ = supplier integration

ε =error term at 95% confidence level

Therefore, Y= 0.495+0.308 X₁ + 0.287 X₂ +0.167 X₃ +0.26444

The regression equation above shows that, by taking all factors into account constant at zero, the availability of operational performance will have a value of 0.495. And the findings presented also show that taking all other independent variables at zero, a unit increase in internal integration lead to a 0.308 increase in the

operational performance; a unit increase in customer integration lead to a 0.287 increase in the operational performance; a unit increase in supplier integration lead to a 0.167 increase in the operational performance.

4.4 Discussion

This part presents detailed discussions pertaining to the study. The results of the present study are discussed in line with the basic questions raised in chapter one, those are what is the effect of supplier integration on operational performance? What is the effect of internal integration on operational performance? What is the effect of customer integration on operational performance?

It also provided possible explanations regarding to the raised research questions based on the results presented on the above. From this study, it is possible to determine impact of supply chain integration with its sub elements on operational performance. Therefore, as the analysis inform, internal integration plays highest significant positive impact on operational performance as shown in coefficients β value 0.308, which mean that if internal integration increases by one unit operational performance will increase by 30.8%. And the finding is largely consistent with those of previous studies (Mansoori, Jamshidinavid, & Hashemi, 2014; Schoenherr & Swink, 2012) which states that internal integration has either a direct or indirect positive significant effect on operational performance specially found that a high degree of internal integration activities are critical enablers to operational performance, which assist the timely trade of key data (know-how) in relation to customers and suppliers and also the finding is in line with the finding of (Frohlich & Westbrook, 2001; Daniel & Shambachew, 2015) internal integration leads to significant effect on operational performance (i.e. delivery time, flexibility, product quality). Since the finding of this research regarding to internal integration reveals that the company's internal integration is not strong and it plays its own positive significant impact on operational performance. Then, this study depicted the positive significance effect of internal integration on operational performance.

The coefficients β value is 0.287 which mean that if customer integration increases by one unit the case company operational performance will increase by 28.7%. So integration with customer has significant positive effect on operational performance, it is line with those of previous studies (Lee, 2000; Eltantawy & Fox, 2009) integration among customers leads to significant effect on operational performance in terms of delivery, quality, flexibility, and (Zhao X, 2011; Boon-itt., 2009; Mansoori, Jamshidinavid, & Hashemi, 2014) those state that customer integration plays positive significant effects on operational performance, when it apply it helps the manufacturer to understand better the customer needs, delivering within agreed time and to forecast better customer demand, as well as collaborative involvement of customers with respect to product design, provision of better quality products and more flexibility in responding to customer demand.

And this study also found that supplier integration has a positive significant effect on operational performance since its coefficients β value is 0.167 which mean that if customer integration increases by one unit operational performance will increase by 16.7%, and this finding is line with those of the previous studies (Frohlich & Westbrook, 2001) supplier integration has a positive significant effect on operational performance in terms of delivery time, flexibility, and quality. according to (Kibera & Orwa, 2016), the integration between suppliers and manufacturers about product quality, products quantity, schedules and capabilities helps manufacturers in developing their production plan and producing goods on time leading to improved delivery performance. And according to (Daniel & Shambachew, 2015), a higher degree of supplier integration is positively associated with operational performance.

Finally, supply chain integration elements plays significant positive effect on operational performance as shown in regression analysis adjusted R-squared, the variation explained by the regression of dependent variable on the combined effect of all the predictor variables is 60.1%, this mean that 60.1% of operational performance is determined by independent variable of supply chain integration elements.

Accordingly, supply chain integration elements (internal integration, customer integration and supplier integration) affect operational performance positively. And this finding is similar with the previous finding of empirically agree that SCI plays significant positive effect and improves operational performance (Danese & Thomas, 2014; Daniel & Shambachew, 2015; Mansoori, Jamshidinavid, & Hashemi, 2014) and disagreed with those who not reported such a relationship, and differ with the finding of (Rosenzweig, 2003; Vickery, 2003) and (Chen, 2007; Cousins and Menguc, 2006; Sezen, 2008) as cited by (Ebrahimi, 2015), those who reported a negative relationship between SCI and operational performance.

5. SUMMARY, CONCLUSION AND RECOMMENDATIONS.

5.1 .Summary of Major Findings

The study specifically determined the effect of internal integration, customer integration and supplier integration on operational performance.

The value of correlation between internal integration and operational performance $r = 0.599$ and the correlation is significant at the $p=0.01$ level. Correlation value between supplier integration and operational performance is $r=0.620$, correlation is significant at the $p= 0.01$. There is significant relationship in all

independent variable (internal integration, customer integration and supplier integration) and dependent variable (operational performance). In case of model fitness test, the results reveals a highly significant relationship between the dependent variable and the linear combination of the predictor variables as indicated by multiple R (0.783), with adjusted R square 0.601 and Std. Error of the Estimate 0.26444, and the independent variables plays significant impact on operational performance. And 60.1 % of operational performance is determined by internal integration, customer integration and supplier integration. .

5.2. Conclusion

As the study result shows that there is a significant positive relationship between supply chain integration and operational performance dimensions of Dashen Brewery Company. In addition, independent variables are correlated among themselves, and with the operational performance dimensions. Again, dependent variable dimensions are also positively related together.

The company produces modernized quality products through effective implementation of quality management system based on ISO 9001:2008, this let the brewery company to be award of international certificates managements systems, mean there is no a problem of product quality. Supplier integration has positive significant effect on operational performance, the effect of internal integration on operational performance is significantly positive and also the effect of customer integration for operational performance is positively significant. Since all the independent variables have positive correlation with the dependent variable, they have the potential to affect the operational performance. As a result, it is possible to conclude that supply chain integration elements (internal integration, supplier and customer integration) affect operational performance positively and in significant manner but among them internal integration is takes the largest effect followed by customer integration and supplier integration.

5.3. Recommendations

Based on the findings of the study, the researcher forwarded the following recommendations.

The study is about the effect of customer integration, supplier integration and internal integration on Dashen Beer Company operational performance.

- Since there is a positive and significant relationship between customer integration, supplier integration, internal integration and operational performance of Dashen Beer Company, the industry managers better to ensure that the extents of integration of the three variables (internal integration, customer integration and supplier integration) to enhance since these variables help to the improvement of operational performance.
- It is recommended that Dashen Brewery private company is better to work more closely with suppliers in order to increase the level of integration which in turn it will increases the operational performance. To integrate the supply side, the sector is advisable to build strategic relationship with their suppliers, establishing system of information exchange with major suppliers through information network and by establishment of quick ordering systems with the company major suppliers.
- The researcher believes that internal integration variable has the highest effect and it is better the company's managers acquire awareness about the importance of internal integration and it's positive impact on the dependent variable, and improving the extent of internal integration ensures a great potential to improve the company's operational performance. It is recommended to pay greater attention to the internal integration through the involvement of various departments in formulating the strategic plans and creating continuous interdepartmental contact among internal functions. It is desirable to give more attention to the strategic relationship with customers through enhancing joint programs about their relation, engages its customers in the preparation of marketing programs, link the customer through information network and high degree of follow-ups with its customer's feedback which help to increase coordination between the customers and the company since customers are the cornerstone for the existence of every organizations.

5.4 Directions for Further Study

The present study used only the case company workers as respondents, future studies should consider expanding their scope to include upstream suppliers and downstream customers as respondents and it possible to conduct study by assess the challenges that affecting supply chain integration in brewery industry, the impact of supply chain integration on organizational performance and doing the same topic after some years to see the changes.

Works Cited

- Aslan, & Özdemir. (2011, october). Supply Chain Integration, Competition Capability and BusinessPerformance: A Study on Turkish SMEs. *Asian Journal of Business Management*, 3(4).
- Bahrami, A., & Sabetfar, P. '. (2015). The Impact of Supply Chain Integration on Competitive Capabilities in Automobile Parts Manufacturing Industry in Qazvin Province. *International Journal of Business and Marketing*.

- Barbara Flynn , Baofeng Huo. (2009). The impact of supply chain integration on performance: A contingency and configuration approach. *Journal of Operations Management*, 58–71.
- Bhagwat, R., & Sharma, M. K. (2007). Performance measurement of supply chain management: A balanced scorecard approach. *Computers and Industrial Engineering*, 53(1), 43–62.
- Boon-itt., S. (2009). The Effect of Supply Chain Integration on Product Quality. *International Journal of Integrated Management*, 5(2), 97-112.
- Chi, T. A., Hamid, A. B., Rasli, A., & Tat, H. H. (2013, december). The Impact of Supply Chain Integration on Operational Capability in Malaysian Manufacturers. *International Journal of Ethics in Social Sciences*, 1(1), 2308-5096.
- Chimwani, B. I., Iravo, D. M., & Tirimba, a. O. (2014, denceber). FACTORS INFLUENCING PROCUREMENT PERFORMANCE IN THE KENYAN PUBLIC SECTOR. *Innovative Space of Scientific Research Journals*, 9(4), 1626-1650.
- Danese, P., & Thomas. (2014). Supply chain integration patterns and operational performance: a plant-level survey-based analysis. *international journal of production research*, 54(23).
- Daniel, A., & Shambachew, o. h. (2015). The Effect of Supply Chain Integration on Operational Performance: The Case of Chemical Industry in Ethiopia. *European Journal of Business and Management*, 27(7).
- Dattalo, P. (2008). *Determining Sample size Balancing Power, Precision, and Practicality*. Oxford university press.
- Ebrahimi, S. M. (2015). *Examining The Impact Of Supply Chain Integration On Organization Structure And Operational Performance in Oil and Gas Supply Chains: A Contingency Approach*. research , Management.
- El-Tamimi, H. S. (2015). *The Impact of Supply Chain Integration on Operational Performance at Jordanian Pharmaceutical Manufacturing Organizations*. research report.
- Eltantawy, R. a., & Fox, G. L. (2009). A strategic skill based model of supplier integration and its effect on supply management performance. *Industrial Marketing Management*, 38(8), 925–936.
- Fasika, B., & Thoben, K.-D. S. (2014). Supply Chain Integration in the Manufacturing Firms in Developing Country: An Ethiopian Case Study. *Journal of Industrial Engineering*, 13.
- Frohlich, M., & Westbrook. (2001). Arcs of integration: an international study of supply chain strategies. *Journal of Operations Management*, 185-200.
- Jiqin Han, (. O. (2007). The Joint Impact of Supply Chain Integration and Quality Management on the Performance of Pork Processing Firms in China. *International Food and Agribusiness Management Review*, 10(2).
- Kibera, L. W., & Orwa, B. H. (2016, march). . Implementation of Intergrated Supply Chain in Manufacturing Companies Kenya. *International Journal of Education and Research*, 4(3).
- kothari, c. r. (2004). *research methodology methods and tecniques* (2 ed.). jaipur: New Age International (P) Ltd., Publishers.
- Lee, H. (2000). Creating value through supply chain integration. *Supply Chain Management Review*, 4(4), 30-36.
- Mansoori, S., Jamshidnavid, B., & Hashemi. (2014). The Impact of Supply Chain Integration on Supply Chain Performance (Case study: National Company of Oil Products Distribution of Kermanshah Province). *Journal of Applied Environmental and Biological Sciences*, 4(3), 229-237.
- Moshkdanian, F., & Molahosseini, D. A. (2013, may). Impact of supply chain integration on the performance of Bahman group. *Interdisciplinary Journal of Contemporary Research in Business*, 5(1).
- Njagi, M. M., & Ogutu, P. M. (2014). . *International Journal of Current Business and Social Sciences*, 1(2).
- Njeru, s. e. (2015). Factors affecting effective implementation of Procurement Practices in tertiary public training institutions in Kenya.
- Otchere, A. F., Annan, J., & Anin, E. K. (2013). Achieving Competitive Advantage through Supply Chain Integration in the Cocoa Industry: A Case Study of Olam Ghana Limited and Produce Buying Company Limited. *International Journal of Business and Social Research (IJBSR)*, 3(2).
- Rosenzweig, E. D. (2003). The influence of an integration an exploratory study of consumer products manufacturers: strategy on competitive capabilities and business performance. *Journal of operations management*, 21, 437-456.
- Schoenherr, T., & Swink, M. (2012). Revisiting the arcs of integration: Cross-validations and extensions. *Journal of Operations Management*, 30, 99-115.
- Vickery, S. K. (2003). The effects of an integrative supply chain strategy on customer service and financial performance: an analysis of direct versus indirect relationships. *Journal of Operations Management*.
- Zhao X, B. H. (2011). The impact of internal integration and relationship commitment on external integration. *Journal of Operations Management*, 17-32.