

The Effect of Supply Chain Management Practices on Operational Performance of Jordanian Pharmaceutical Companies

Lana Ahmad Suleiman AlGhasawneh¹, Dr. Mahesha M.²

¹Research Scholar, DOS in Economics and Co-operation, University of Mysore,
Manasagangothri, Mysuru

²Professor, DOS in Economics and Co-operation, University of Mysore,
Manasagangothri, Mysuru

Abstract

Operational Performance is related to a firm's internal operations and business processes. Operations strategy is a pattern of decisions regarding the selection and development of capabilities – with the latter accomplished through a variety of strategic choices of operational practices and processes. This study aims to assess the effect of supply chain management practices on operational performance of Jordanian Pharmaceutical Companies using primary and secondary sources of data. The responses recorded from questionnaire were assessed with the operational performance ratios between 2013 and 2018 when the Syrian crisis prevailed. The study found a relationship between supply chain management practices and operational performance implying that the performance was severely affected during the crisis period with consistent reduction in operational profits.

Keywords: Operational Performance, Jordanian Pharmaceutical Companies, Supply Chain Management Practices and Syrian crisis.

Introduction

Globalization, stringent quality requirements and intense competition have forced most manufacturing firms to "improve their performance by re-examining how they get products into their customer's hands, and how they can quickly respond to customer's needs in a constantly changing environment. Therefore, a prerequisite for manufacturers enhances profitability and remains competitive in the current global dynamic market to understand and practice Supply Chain Management (SCM).

Most firms formulate a supply chain strategy based on their overall strategy and use SCM facilitators to realize the supply chain strategy and achieve organizational goals (Chopra and Meindl, 2001). Information integration which includes information sharing and information technology has a positive impact on logistics integration, leading to operational integration with suppliers in logistics activities (Prajogo and Olhager, 2012). Collaborative planning and collaborative decision-making positively influence collaborative execution (Ramanathan and Gunasekaran, 2014). In supply chain collaborations, supply chain partners carry out production and distribution planning jointly with other partners. A supply chain's promotional sales, discounted sales, and new product introductions are often decided by all supply chain partners (Ramanathan, 2012). Collaborative decision-making has a positive impact on the implementation of sales plans in retail stores (Ramanathan and Muyldermans, 2010).

Review of Literature

Gyaneshwar Singh Kushwaha (2012) attempted to find the gap between agreement level and adoption level of various supply chain management (SCM) practices in paint companies who were operating in India. An empirical study was carried out with paint companies. Paired samples t- test was used to find out the difference in agreement and adoption level of various SCM practices and multiple regression analysis was used to check the relationship between dependent and independent variables. A significant difference was found between the agreement level of SCM practices and adoption level of such practices in the responses of Indian paint companies. A significant correlation was found between the operational performance of companies and SCM practices.

Zaheed Halim (2015) investigated how supply chain complexity impacted firms' operational performance and what role supply chain orientation played in complexity-performance relationship. Drawn on the System Complexity literature, the study proposed three dimensions of supply chain complexity – process flow complexity, product complexity and network complexity. The research approach adopted was positivist as the procedure was objective. A survey research was conducted and quantitative data was collected from 235 manufacturing firms in Australia. Structural equation modelling was used to test hypotheses about the relationships between dimensions of supply chain complexity, firms' operational performance and supply chain orientation. The results showed that not all dimensions of complexity have the same implications on operational performance. The analysis determined that product and network dimensions of supply chain complexity did not have a significant impact on performance; therefore, contemporary manufacturing firms must be working effectively to absorb the negative effect of such complexities on performance.

Lomendra Vencataya et al. (2016) discussed the impact of Supply Chain Management (SCM) on competitive advantage and operational performance with reference to the four star hotels of Mauritius. The study showed that SCM does have an impact on competitive advantage and operational performance. The study demonstrated that effective SCM practices could lead to better management of the SC which in turn can have a significant impact on competitive advantage of the hotel industry.

Shobayo, Peter (2017) examined the effect of supply chain management on firm's operational performance in Nigeria manufacturing companies with specific interest on supply chain strategy and supply chain flexibility. Supply chain management does not have a significant overall effect on operational performance at P-value =0.343 which is above the sig. level of <.005, and the magnitude of variation which supply chain management cause on operational performance is 7.6% for all the companies samples which is significantly low. Hence, it was recommended that the management of a company's supply chain do not necessarily affect their operations; thus organizations can adopt a combination of strategies and flexibilities in their level of operation.

Osei, M.B, Kagniciogu, C.H. (2018) identified the impact of internal and external supply chain integration on firms' business and operational performance in the food retail sector in Turkey. Two big cities in Turkey, namely, Istanbul and Eskişehir were selected for this study due to the availability of major food retailers in these cities. Stratified sampling method was used to select respondents. In total, 216 firms were selected out of which only 208 firms responded to the questionnaire distributed. Structural Equation Model specifically Amos was used to analyze the data. The study found a positive and significant relationship between internal and external integration, and the study also found a significant and a positive relationship between internal integration and firms' operational and business performance. On the other hand, the study also found a significant and a positive relationship between external integration and firms' operational and business performance.

Objectives of the Study

- To identify the determinants of operational performance in Supply Chain Management Practices in the Jordanian pharmaceutical companies.
- To assess the impact of supply chain practices on operational performance.

Methodology of the Study

Study Approach and Design

The study is considered as a descriptive and cause-and-effect study. It aims at studying the effect of Supply Chain Management Practices (SCMPs) on operational performance in Jordanian Pharmaceutical Manufacturing Organizations. Data was collected through means of a questionnaire distributed to managers working in the pharmaceutical companies. The collected data was analyzed using SPSS. Descriptive statistics was used along with operational ratios to assess the impact of Supply Chain Management Practices (SCMPs) on operational performance.

Data Collection Methods

The study collected data using both primary and secondary sources. Secondary data was collected from annual reports of companies, company websites, stock exchange website and reports and government reports. Primary data was collected by means of a well-structured questionnaire.

Operational Performance of Jordanian Pharmaceutical Companies

Analysis of operational performance was related to 2 pharmaceutical companies namely Arab Center for Pharmaceuticals and Chemicals Industries and Hikma Pharmaceuticals listed on Amman Stock Exchange, Jordan. 21 companies were selected for the study but out of 21 companies, secondary data related to 2 companies were chosen from Amman Stock Exchange for the study. Companies that were unlisted from the Stock Exchange did not have their operational data available. Also, the opinions of the respondents from the 2 companies are considered for the analysis of operational performance.

The operational performance of the firm is measured against standard or prescribed indicators of effectiveness, efficiency, and responsibility such as cycle time, productivity, waste reduction, and regulatory compliance. The main objective of operational performance within a firm is to boost production efficiency within the overall operation. Analysis of operational performance using ratios measure the performance of the company's operating activities. The ratios considered for analyzing operational performance of the Jordanian pharmaceutical companies are Operating Profit Ratio, Total Assets Turnover, Fixed Assets Turnover, Working Capital Turnover, Debtors Turnover and Inventory Turnover Ratio. Reliable delivery date, accurate order fulfillment, level of complaints/ returns, delivery at specified time, flexibility, fast order cycle time, handling of complaints, added value, quality of materials, quality of service, trust and simplifying the whole manufacturing process were the factors considered to impact the supply chain management practices on operational performance.

I. Operational Performance of Arab Center for Pharmaceuticals and Chemicals Industries

Table 1(a): Indicators Representing Supply Chain Relationship with Suppliers

Sl. No.	Indicators	Mean	Standard Deviation
1	Reliable delivery date	3.667	0.516
2	Accurate order fulfillment	4	0.894
3	Level of complaints/ returns	3.833	0.753
4	Delivery at specified time	4.167	0.753
5	Flexibility	4.333	0.816
6	Fast order cycle time	4	0.632
7	Handling of complaints	4	0.632
8	Added value	3.833	0.983
9	Quality of materials	4	0.894
10	Quality of service	4.167	0.753
11	Trust	4.167	0.408
12	Simplifying the whole manufacturing process	4	0.894

Reliable delivery date, accurate order fulfillment, level of complaints/ returns, delivery at specified time, flexibility, fast order cycle time, handling of complaints, added value, quality of materials, quality of service, trust and simplifying the whole manufacturing process were the factors considered to impact the supply chain management practices on operational performance. The indicators show the perceptions related to successful supply chain relationship with suppliers. It was observed that the perception of respondents with respect to flexibility generated a mean value of 4.33 with a standard deviation of 0.816 respectively. The factors delivery at specified time, quality of service and trust had a mean value of 4.167. The factors level of complaints/ returns and added value had a mean of 3.833. The quality had a mean and standard deviation of 4.167 and 0.753 respectively. The accurate order fulfillment, fast order cycle time, handling of complaints, quality of materials and simplifying the whole manufacturing process had a mean of 4. Based on the perception of the customers, reliable delivery date was considered important with a mean and standard deviation of 3.667 and 0.516 respectively. Based on the perceptions of the respondents, the factors related to operational performance were considered to significantly affect the company's operations.

Table 1(b): Indicators Representing Supply Chain Relationship between Organization and Customers

Sl. No.	Indicators	Mean	Standard Deviation
1	Reliable delivery date	4.5	0.548
2	Top management support	4.333	0.516
3	Trust	4.833	0.408
4	Mutual interest	4.5	0.548
5	Manpower development	4.167	0.408
6	Closer links between demand/ supply	4.5	0.548
7	Free flow of information	4.667	0.516
8	Integrated information systems (e.g. EDI)	4.333	0.516
9	Simplifying the whole manufacturing process	3.833	0.408
10	Creating standardization of processes	4	0.632

Reliable delivery date, top management support, trust, mutual interest, manpower development, closer links between demand/ supply, free flow of information, added value, quality of materials, quality of service, integrated information systems, simplifying the whole manufacturing process and creating standardization of processes were the factors considered to impact the supply chain management practices on operational performance. The indicators show the perceptions related to the successful supply chain relationship between organization and customers. It was observed that the perception of respondents with respect to free flow of information had a mean value of 4.667. Reliable delivery date, mutual interest and closer links between demand/supply were found to have a mean of 4.5. The indicators delivery at specified time, quality of service and trust had a mean of 4.167. The indicator trust had a mean of 4.833. The indicators top management support and integrated information systems had a mean of 4.33. As per the perceptions of the respondents, creating standardization of processes was considered important with a mean value of 4. The factor simplifying the whole manufacturing process had a mean and standard deviation of 3.833 and 0.408. Creating standardization of processes had a mean and standard deviation of 4 and 0.632 respectively. Based on the perceptions of the respondents, the factors related to operational performance were considered to significantly affect the company's operations.

Table 1(c): Operational Performance Ratios

Years	Operating Profit Ratio	Total Assets Turnover (Times)	Fixed Assets Turnover (Times)	Working Capital Turnover (Times)	Debtors Turnover	Inventory Turnover
2013	-92.17	0.11	0.25	-1.31	2.01	3.19
2014	-127.76	0.1	0.2	-0.24	1.38	3.84
2015	-339.57	0.05	0.08	-0.2	1.56	1.31
2016	-300.57	0.06	0.1	-0.08	7.10	2.61
2017	-509.09	0.04	0.05	-0.12	2.60	1.55
2018	-537.82	0.01	0.02	-0.04	3.84	0.83

Negative operating profit ratio in all the years under study states that though sales were increasing over the years, the profit generated was less. Total Assets Turnover was found to be positive from 2013 to 2016 which stood at 0.01 in 2018 showing that the company had effectively managed its assets to generate revenue. The Fixed Assets Turnover ratio was positive for all the years under study which indicated the company managed its fixed assets effectively to generate sales. Working Capital Turnover Ratio was negative for all the years under study indicating management of the company is being inefficient in using short-term assets and liabilities to support sales. Debtors turnover ratio helps the company to quantify the effectiveness in collecting its receivables or money owed by clients which was found to be varying over the years. Inventory Turnover Ratio shows the items in inventory being sold or not. It was observed that the ratio reduced from 3.19 in 2013 to 1.31 in 2015 which further reduced to 0.83 in 2018 which meant that the items in the inventory were not sold effectively. The mean values obtained from the opinions of the respondents pertaining to operational performance were high and the operating ratios except operating profit ratio showed positive values indicating that though the crisis in Jordan led to company incur consistent losses, the company maintained its operational performance at a significant level.

Determinants of Operating Profit Ratio

Table 1(d): Regression Results between Operating Profit Ratio and Total Asset Turnover Ratio

Dependent Variable: Operating Profit Ratio

Variable	Coefficients	Standard Error	t-value	Sig.
Constant	-613.202	42.536	-14.416	.000
Total Assets Turnover Ratio	4789.821	602.553	7.949	.001
No. of Observations = 5 ; $R^2 = .940$; F value = 63.190				

The above Table 1(d) shows the result of regression between dependent variable, operating profit ratio and independent variable, Total Assets Turnover Ratio. The estimated R Square value is 0.940 which shows that the variation in operating profit ratio is explained by the Total Assets Turnover Ratio to the extent of 94%. The regression coefficient of Total Assets Turnover Ratio is 4789.821 indicating a positive effect of Total Assets Turnover Ratio on operating profit ratio which is statistically significant as the significance value is lesser than 0.05 (5%). An increase in Total Assets Turnover Ratio by one percent leads to increase in operating profit margin of the company by 4789.821 indicating there is a positive relationship between Total Assets Turnover Ratio and operating profit ratio.

Table 1(e): Regression Results between Operating Profit Ratio and Fixed Assets Turnover Ratio

Dependent Variable: Operating Profit Ratio

Variable	Coefficient	Standard Error	t-value	Sig.
Constant	-551.705	38.161	-14.457	.000
Fixed Assets Turnover Ratio	2004.643	267.836	7.485	.002
No. of Observations = 5 ; $R^2 = .933$; F value = 56.019				

The above Table 1(e) shows the result of regression between dependent variable, operating profit ratio and independent variable, Fixed Assets Turnover Ratio and the value of R Square is 0.933 explaining the variation in operating profit ratio explained by the Fixed Assets Turnover Ratio is to the extent of 93.3%. The regression coefficient of Fixed Assets Turnover Ratio is 2004.643 indicating a positive effect of Fixed Assets Turnover Ratio on operating profit ratio which is statistically significant as the significance value is lesser than 0.05 (5%). This shows that an increase in Fixed Assets Turnover Ratio by one percent leads to increase in operating profit margin of the company by 2004.643. Though Syrian Crisis prevailed in Jordan during the study period, the company managed its operations well as the operational performance of the company was controlled by micro factors such as effectiveness, efficiency, productivity, waste reduction, regulatory compliance with respect to supply chain practices. Hence, there is a positive relationship between Fixed Assets Turnover Ratio and operating profit ratio.

Table 1(f): Regression Results between Operating Profit Ratio and Working Capital Turnover Ratio

Dependent Variable: Operating Profit Ratio

Variable	Coefficient	Standard Error	t-value	Sig.
Constant	-404.270	77.742	-5.200	.007
Working Capital Turnover Ratio	-260.622	140.535	-1.854	.137
No. of Observations = 5 ; $R^2 = .462$; F value = 3.439				

The above Table 1(f) shows the result of regression between dependent variable, operating profit ratio and independent variable, Working Capital Turnover Ratio. R Square value was found to be 0.462 indicating that the variation in operating profit ratio is explained by the Working Capital Turnover Ratio to the extent of 46.2%. The estimated regression coefficient of Working Capital Turnover Ratio is -260.622 indicating a negative effect of Working Capital Turnover Ratio on operating profit ratio which is statistically insignificant as the significance value is higher than 0.05 (5%). An increase in Working Capital Turnover Ratio by one percent leads to decrease in operating profit margin of the company by 260.622. Hence, there is a negative relationship between Working Capital Turnover Ratio and operating profit ratio.

Table 1(g): Regression Results between Operating Profit Ratio and Debtors Turnover Ratio

Dependent Variable: Operating Profit Ratio				
Variable	Coefficients	Standard Error	t-value	Sig.
Constant	-246.777	151.717	-1.627	.179
Debtors Turnover Ratio	-23.057	41.473	-.556	.608
No. of Observations = 5 ; $R^2 = .072$; F value = 0.309				

The above Table 1(g) shows the result of regression between dependent variable, operating profit ratio and independent variable, Debtors Turnover Ratio. The variation in operating profit ratio is explained by the Debtors Turnover Ratio to the extent of 7.2% as the value of R Square is 0.072. A negative effect of Debtors Turnover Ratio on operating profit ratio is found as the regression coefficient of Debtors Turnover Ratio is -23.057 which is statistically insignificant as the significance value is higher than 0.05 (5%). It indicated that an increase in Debtors Turnover Ratio by one percent leads to decrease in operating profit margin of the company by 23.057 as the company was not successful in collecting debtors' cash flow and was lenient in selling credit products. Hence, there is a negative relationship between Debtors Turnover Ratio and operating profit ratio.

Table 1(h): Regression Results between Operating Profit Ratio and Inventory Turnover Ratio

Dependent Variable: Operating Profit Ratio				
Variable	Coefficient	Standard Error	t-value	Sig.
Constant	-634.490	83.975	-7.556	.002
Inventory Turnover Ratio	142.532	34.028	4.189	.014
No. of Observations = 5 ; $R^2 = .814$; F value = 17.545				

The above Table 1(h) shows the result of regression between dependent variable, operating profit ratio and independent variable, Inventory Turnover Ratio. The value of R Square is 0.814 indicating the variation in operating profit ratio is explained by the Inventory Turnover Ratio to the extent of 81.4%. The regression coefficient of Inventory Turnover Ratio is 142.532 indicating a positive effect of Inventory Turnover Ratio on operating profit ratio.

There is a statistical significance as the significance value is lesser than 0.05 (5%) which indicates that an increase in Inventory Turnover Ratio by one percent leads to increase in operating profit margin of the company by 142.532. Hence, there is a positive relationship between Inventory Turnover Ratio and operating profit ratio as the company was selling goods quickly, and there was considerable demand for their products.

Results of Correlation among Factors of Operational Performance

Table 1(i): Results of Correlation among Factors of Operational Performance

		OPR	TATR	FATR	WCTR	DTR	ITR
OPR	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	6					
TATR	Pearson Correlation	.970**	1				
	Sig. (2-tailed)	0.001					
	N	6	6				
FATR	Pearson Correlation	.966**	.981**	1			
	Sig. (2-tailed)	0.002	0.001				
	N	6	6	6			
WCTR	Pearson Correlation	-0.68	-0.716	-0.802	1		
	Sig. (2-tailed)	0.137	0.109	0.055			
	N	6	6	6	6		
DTR	Pearson Correlation	-0.268	-0.332	-0.348	0.348	1	
	Sig. (2-tailed)	0.608	0.521	0.498	0.499		
	N	6	6	6	6	6	
ITR	Pearson Correlation	.902*	.927**	.892*	-0.48	-0.124	1
	Sig. (2-tailed)	0.014	0.008	0.017	0.336	0.815	
	N	6	6	6	6	6	6

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

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

The Table 1(i) contains the results of the correlation coefficient for the selected indicators, i.e., operating profit ratio, total assets turnover ratio, fixed assets turnover ratio, working capital turnover ratio, debtors turnover ratio, inventory turnover ratio and its p-value.

The estimated Pearson correlation coefficient for Operating Profit Ratio and Working Capital Turnover Ratio is -0.680 with a p-value of 0.137 showing negative correlation between these two variables. The Pearson correlation coefficient for Operating Profit Ratio and Debtors Turnover Ratio is -0.268 with a p-value of 0.608 showing negative correlation between these two variables.

The correlation coefficient for Operating Profit Ratio and Total Assets Turnover Ratio is 0.970 with a p-value of 0.001 which is less than 1% level of significance. Hence, correlation between these two variables is significant at 1% level. The Pearson correlation coefficient for Operating Profit Ratio and Fixed Assets Turnover Ratio is 0.966 with a p-value of 0.002 which is less than 1% level of significance. Hence, correlation between these two variables is significant at 1% level. The estimated Pearson correlation coefficient for Operating Profit Ratio and Inventory Turnover Ratio is 0.902 with a p-value of 0.014 which is less than 5% level of significance. Hence, correlation between these two variables is significant at 5% level. The Pearson correlation coefficient for ROA and Price Earnings Ratio is -0.892 with a p-value of 0.017 which is less than 5% level of significance. Hence, correlation between these two variables is significant at 5% level.

The correlation coefficient for Total Assets Turnover Ratio and Fixed Assets Turnover Ratio is 0.981 with a p-value of 0.001 which is less than 1% level of significance. Hence, correlation between these two variables is significant at 1% level. The estimated Pearson correlation coefficient for Total Assets Turnover Ratio and Inventory Turnover Ratio is 0.927 with a p-value of 0.008 which is less than 1% level of significance. Hence, correlation between these two variables is significant at 1% level. The correlation coefficient for Fixed Assets Turnover Ratio and Inventory Turnover Ratio is 0.892 with a p-value of 0.017 which is less than 5% level of significance. Hence, correlation between these two variables is significant at 5% level. The results of correlation showed that Operating Profit Ratio, Total Assets Turnover Ratio, Fixed Assets Turnover Ratio and Inventory Turnover Ratio were statistically significant which meant that the company managed its assets and inventory well and ensured maximum sales though the economic position of Jordan was affected by Syrian Crisis during the study period.

II. Operational Performance of Hikma Pharmaceuticals

Table 2(a): Indicators Representing Supply Chain Relationship with Suppliers

Sl. No.	Indicators	Mean	Standard Deviation
1	Reliable delivery date	3.6	0.894
2	Accurate order fulfillment	4	0.707
3	Level of complaints/ returns	3.8	0.837
4	Delivery at specified time	3.8	0.837
5	Flexibility	4	1
6	Fast order cycle time	3.6	0.894
7	Handling of complaints	4	0.707
8	Added value	4.4	0.548
9	Quality of materials	4.8	0.447
10	Quality of service	3.6	0.894
11	Trust	4.4	0.548
12	Simplifying the whole manufacturing process	4.8	0.447

Reliable delivery date, accurate order fulfillment, level of complaints/ returns, delivery at specified time, flexibility, fast order cycle time, handling of complaints, added value, quality of materials, quality of service, trust and simplifying the whole manufacturing process were the factors considered to impact the supply chain management practices on operational performance. The indicators show the perceptions related to successful supply chain relationship with suppliers. It was observed that the perception of respondents with respect to quality of materials and simplifying the whole manufacturing process generated mean value of 4.8 with a standard deviation of 0.447 respectively. The factors added value and trust had a mean value of 4.4. The factors accurate order fulfillment, fast order cycle time, handling of complaints and flexibility had a mean of 4. The level of complaints/returns and delivery at specified time had a mean and standard deviation of 3.8 and 0.837 respectively. The reliable delivery date, fast order cycle time and quality of service had a mean of 3.6. Based on the perceptions of the respondents, the factors related to operational performance were considered to significantly affect the company's operations.

Table 2(b): Indicators Representing Supply Chain Relationship between Organization and Customers

Sl. No.	Indicators	Mean	Standard Deviation
1	Reliable delivery date	4.4	0.548
2	Top management support	4.6	0.548
3	Trust	4.2	0.447
4	Mutual interest	4.4	0.548
5	Manpower development	4.8	0.447
6	Closer links between demand/ supply	4.2	0.447
7	Free flow of information	5	0
8	Integrated information systems (e.g. EDI)	3.8	0.447
9	Simplifying the whole manufacturing process	3.2	0.447
10	Creating standardization of processes	4.6	0.548

Reliable delivery date, top management support, trust, mutual interest, manpower development, closer links between demand/ supply, free flow of information, added value, quality of materials, quality of service, integrated information systems, simplifying the whole manufacturing process and creating standardization of processes were the factors considered to impact the supply chain management practices on operational performance. The indicators show the perceptions related to the successful supply chain relationship between organization and customers. It was observed that the perception of respondents with respect to manpower development had a mean value of 4.8 with a standard deviation of 0.447. Top management support and creating standardization of processes were found to have a mean of 4.6 with a standard deviation of 0.548. The indicators delivery at specified time, quality of service and trust had a mean of 4.167. The indicators reliable delivery date and mutual interest had a mean of 4.4. As per the perceptions of the respondents, closer links between demand/supply and trust was considered important with a mean value of 4.2. The factor Integrated information systems (e.g. EDI) had a mean and standard deviation of 3.8 and 0.447. Based on the perceptions of the respondents, the factors related to operational performance were considered to significantly affect the company's operations.

Table 2(c): Operational Performance Ratios

Years	Operating Profit Ratio	Total Assets Turnover (Times)	Fixed Assets Turnover (Times)	Working Capital Turnover (Times)	Debtors Turnover	Inventory Turnover
2013	25.79	0.75	3.16	1.63	4.02	2.19
2014	27	0.71	3.11	1.88	3.87	2.32
2015	28.96	0.59	2.82	3.68	3.53	2.37
2016	18.62	0.56	2.64	2.49	3.45	2.72
2017	16.68	0.5	2.15	2.67	2.87	2.05
2018	18.26	0.6	2.44	5.85	3.17	2.01

Positive operating profit ratio in all the years under study states that the sales were increasing over the years and the company generated profits. Total Assets Turnover was found to be positive in all the years under study showing that the company had effectively managed its assets to generate revenue. The Fixed Assets Turnover ratio was positive for all the years under study which indicated the company managed its fixed assets effectively to generate sales. Working Capital Turnover Ratio was positive for all the years under study indicating management of the company is being efficient in using short-term assets and liabilities to support sales. Debtors turnover ratio helps the company to quantify the effectiveness in collecting its receivables or money owed by clients which was found to be positive over the years. Inventory Turnover Ratio shows the items in inventory being sold or not. It was observed that the ratio increased from 2.19 in 2013 to 2.37 in 2015 which further reduced to 2.01 in 2018 which meant that the items in the company put efforts to sell its inventory at the earliest. The mean values obtained from the opinions of the respondents pertaining to operational performance were high and the operating ratios except operating profit ratio showed positive values indicating that though the crisis in Jordan led to company incur consistent losses, the company maintained its operational performance at a significant level.

Determinants of Operating Profit Ratio**Table 2(d): Regression Results between Operating Profit Ratio and Total Asset Turnover Ratio****Dependent Variable: Operating Profit Ratio**

Variable	Coefficients	Standard Error	t-value	Sig.
Constant	-.563	13.084	-.043	.968
Total Assets Turnover Ratio	37.382	20.959	1.784	.149
No. of Observations = 5 ; $R^2 = .443$; F value = 3.181				

The above Table 2(d) shows the result of regression between dependent variable, operating profit ratio and independent variable, Total Assets Turnover Ratio. The value of R square is 0.443 indicating the variation in operating profit ratio is explained by the Total Assets Turnover Ratio to the extent of 44.3%. The regression coefficient of Total Assets Turnover Ratio is 37.382 which is statistically insignificant as the significance value is higher than 0.05 (5%). It shows that an increase in Total Assets Turnover Ratio by one percent leads to increase in operating profit margin of the company by 37.382. There is a positive relationship between Total Assets Turnover Ratio and operating profit ratio.

Table 2(e): Regression Results between Operating Profit Ratio and Fixed Assets Turnover Ratio**Dependent Variable: Operating Profit Ratio**

Variable	Coefficient	Standard Error	t-value	Sig.
Constant	-8.236	10.116	-.814	.461
Fixed Assets Turnover Ratio	11.319	3.687	3.070	.037
No. of Observations = 5 ; $R^2 = .702$; F value = 9.422				

The above Table 2(e) shows the result of regression between dependent variable, operating profit ratio and independent variable, Fixed Assets Turnover Ratio. The value of R square is 0.702 indicating the variation in operating profit ratio is explained by the Fixed Assets Turnover Ratio to the extent of 70.2%. The regression coefficient of Fixed Assets Turnover Ratio is 11.319 indicating a positive effect of Fixed Assets Turnover Ratio on operating profit ratio which is statistically significant as the significance value is lesser than 0.05 (5%). It shows that an increase in Fixed Assets Turnover Ratio by one percent leads to increase in operating profit margin of the company by 11.319. There is a positive relationship between Fixed Assets Turnover Ratio and operating profit ratio. For a positive operational performance, the company managed its operations with effectiveness and efficiency in terms of productivity, waste reduction, regulatory compliance with respect to supply chain practices.

Table 2(f): Regression Results between Operating Profit Ratio and Working Capital Turnover Ratio

Dependent Variable: Operating Profit Ratio

Variable	Coefficient	Standard Error	t-value	Sig.
Constant	25.904	5.385	4.810	.009
Working Capital Turnover Ratio	-1.105	1.608	-.687	.530
No. of Observations = 5 ; $R^2 = .106$; F value = 0.472				

The above Table 2(f) shows the result of regression between dependent variable, operating profit ratio and independent variable, Working Capital Turnover Ratio. The value of R square is 0.106 indicating the variation in operating profit ratio is explained by the Working Capital Turnover Ratio to the extent of 10.6%. The regression coefficient of Working Capital Turnover Ratio is -1.105 indicating a negative effect of Working Capital Turnover Ratio on operating profit ratio which is statistically insignificant as the significance value is higher than 0.05 (5%). It shows that an increase in Working Capital Turnover Ratio by one percent leads to decrease in operating profit margin of the company by 1.105. There is a negative relationship between Working Capital Turnover Ratio and operating profit ratio as the company did not manage its operations with effectiveness in terms of productivity, waste reduction and regulatory compliance with respect to supply chain practices.

Table 2(g): Regression Results between Operating Profit Ratio and Debtors Turnover Ratio

Dependent Variable: Operating Profit Ratio

Variable	Coefficients	Standard Error	t-value	Sig.
Constant	-11.089	13.521	-.820	.458
Debtors Turnover Ratio	9.653	3.856	2.504	.067
No. of Observations = 5 ; $R^2 = .610$; F value = 6.268				

The above Table 2(g) shows the result of regression between dependent variable, operating profit ratio and independent variable, Debtors Turnover Ratio. The value of R square is 0.610 indicating the variation in operating profit ratio is explained by the Debtors Turnover Ratio to the extent of 61%. The regression coefficient of Debtors Turnover Ratio is 9.653 indicating a positive relationship which is statistically insignificant because the significance value is higher than 0.05 (5%) company was not successful in collecting debtors' cash flow and was lenient in selling credit products. It shows that an increase in Debtors Turnover Ratio by one percent leads to increase in operating profit margin of the company by 9.653.

Table 2(h): Regression Results between Operating Profit Ratio and Inventory Turnover Ratio**Dependent Variable: Operating Profit Ratio**

Variable	Coefficient	Standard Error	t-value	Sig.
Constant	14.161	22.912	.618	.570
Inventory Turnover Ratio	3.686	10.010	.368	.731
No. of Observations = 5 ; $R^2 = .033$; F value = 0.136				

The above Table 2(h) shows the result of regression between dependent variable, operating profit ratio and independent variable, Inventory Turnover Ratio. The value of R square is 0.033 indicating the variation in operating profit ratio is explained by the Inventory Turnover Ratio to the extent of 3.3%. The regression coefficient of Inventory Turnover Ratio is 3.686 which is statistically insignificant as the significance value is higher than 0.05 (5%). It shows that an increase in Inventory Turnover Ratio by one percent leads to increase in operating profit margin of the company by 3.686. There is a positive relationship between Inventory Turnover Ratio and operating profit ratio.

Results of Correlation among Factors of Operational Performance

Table 2(i): Results of Correlation among Factors of Operational Performance

		OPR	TATR	FATR	WCTR	DTR_	ITR
OPR	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	6					
TATR	Pearson Correlation	0.666	1				
	Sig. (2-tailed)	0.149					
	N	6	6				
FATR	Pearson Correlation	.838*	.913*	1			
	Sig. (2-tailed)	0.037	0.011				
	N	6	6	6			
WCTR	Pearson Correlation	-0.325	-0.391	-0.507	1		
	Sig. (2-tailed)	0.53	0.444	0.305			
	N	6	6	6	6		
DTR	Pearson Correlation	0.781	.919**	.994**	-0.545	1	
	Sig. (2-tailed)	0.067	0.01	0	0.264		
	N	6	6	6	6	6	
ITR	Pearson Correlation	0.181	-0.035	0.308	-0.385	0.328	1
	Sig. (2-tailed)	0.731	0.948	0.552	0.451	0.525	
	N	6	6	6	6	6	6

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

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

The table contains the results of the correlation coefficient for the selected indicators, i.e., operating profit ratio, total assets turnover ratio, fixed assets turnover ratio, working capital turnover ratio, debtors turnover ratio, inventory turnover ratio and its p-value.

The Pearson correlation coefficient for Operating Profit Ratio and Total Assets Turnover Ratio is 0.666 with a p-value of 0.149 which is statistically insignificant as p-value is higher than 0.05. The estimated Pearson correlation coefficient for Operating Profit Ratio and Working Capital Turnover Ratio is -0.325 with a p-value of 0.530 showing negative correlation between these two variables. The Pearson correlation coefficient for Operating Profit Ratio and Debtors Turnover Ratio is 0.781 with a p-value of 0.067 which is statistically insignificant as p-value is higher than 0.05. The correlation coefficient for Operating Profit Ratio and Inventory Turnover Ratio is 0.181 with a p-value of 0.731 which is statistically insignificant as p-value is higher than 0.05.

The Pearson correlation coefficient for Operating Profit Ratio and Fixed Assets Turnover Ratio is 0.838 with a p-value of 0.037 which is less than 5% level of significance. Hence, correlation between these two variables is significant at 5% level. The estimated Pearson correlation coefficient for Total Assets Turnover Ratio and Fixed Assets Turnover Ratio is 0.913 with a p-value of 0.011 which is less than 5% level of significance. Hence, correlation between these two variables is significant at 5% level. The correlation coefficient for Working Capital Turnover Ratio and Debtors Turnover Ratio is 0.919 with a p-value of 0.010 which is less than 5% level of significance. Hence, correlation between these two variables is significant at 5% level. The Pearson correlation coefficient for Fixed Assets Turnover Ratio and Debtors Turnover Ratio is 0.994 with a p-value of 0.000 which is less than 5% level of significance. Hence, correlation between these two variables is significant at 5% level. The results of correlation showed that Operating Profit Ratio and Fixed Assets Turnover Ratio were statistically significant and, Operating Profit Ratio, Total Assets Turnover Ratio and Inventory Turnover Ratio were statistically insignificant which meant that the company did not manage its assets and inventory well during the study period.

Conclusion

The aim of the study was to assess the impact of supply chain management on operational performance of pharmaceutical companies in Jordan. The results of the study indicated that supply chain management was found to have a direct impact on operational performance of Jordanian pharmaceutical in the industry. There is a high importance of the operational performance at Jordanian Pharmaceutical Manufacturing Organizations and the overall result indicates that there is a significant importance of the operational performance dimensions among Jordanian Pharmaceutical Manufacturing Organizations. This result indicates that the managers and supervisors at Jordanian pharmaceutical manufacturing organization have the knowledge about the criteria and dimensions of evaluating the performance; in addition they apply these criteria and dimensions regularly for the growth and development of their organizations.

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