The impact of supply chain performance on financial performance: Dimensions of the SCOR model

Abdallah Abusalma[a*], Badrea Al Oraini[b], Khaleel Al-Daoud[c] and Muhammad Turki Alshurideh[d]

[a]College of Business Administration, Philadelphia University, Jordan
[b]Business Administration Department. Collage of Business and Economics, Qassim University, Qassim, Saudi Arabia
[c]Department of Accounting, Business school faculty, Al-Ahliyya Amman University, Amman, Jordan
[d]Department of Marketing, School of Business, The University of Jordan, Amman 11942, Jordan

A B S T R A C T

This study aims at exploring the impact of the performance of supply chain dimensions (plan-based, source-based, make-based, delivery-based, and return-based performance) on the financial performance of industrial firms. Using a questionnaire, data were collected from a sample consisting of 250 supply chain and financial managers. Analysis data via IBM SPSS and AMOS, the results showed that hypothesized effects were supported except one hypothesis. That is, the results revealed that plan-based, source-based, make-based, and delivery-based performance have significant effects on firm' financial performance. However, there was a significant negative effect of return-based performance on financial performance. The results concluded that firms should individually influence the supply chain dimensions to address the effects of their performance on financial performance.

1. Introduction

Firms in different industries seek to enhance their financial performance due to numerous drivers such as international and domestic competitiveness (Elgazzar et al., 2012). One of the most important areas by which firms can achieve their financial performance objectives is to pay great attention to supply chain performance (Elgazzar et al., 2012). Thunberg and Persson (2014) provided practical implications for improved overall performance by focusing on communication, material allocation, supplier evaluation, delivery verification, and the use of the SCOR model in construction logistics. Gunasekaran et al. (2004) used the supply chain operations reference (SCOR), i.e., plan-based performance, source-based performance, make-based performance, delivery-based performance, and return-based performance. The SCOR model is an important framework for supply chain planning, emphasizing the importance of understanding supply chain management practices in the context of globalization (Wang et al., 2010). Besides, the classification schemes used by Prakash et al. (2013) provided insights into different focal decision areas of supply chain management research, emphasizing the applicability of SCOR as a strategic tool for improving performance. Research on the effect of supply chain shows significant effects of supply chain characteristics such as supply chain responsiveness, intensity, and performance on firms' financial performance (Wagner et al., 2012; Chehbi-Gamoura et al., 2020; Kottala & Herbert, 2019). However, little research was conducted to explore the effects of supply chain performance dimensions on firms' financial performance. Li et al. (2011) emphasized the necessity of analyzing the strengths and weaknesses of the SCOR model, along with applying the Analytical Hierarchy Process (AHP) with SCOR metrics, to achieve strategic fit for inventory aggregation in horizontal collaboration within supply chains. Consequently, this study seeks to fill such a research gap through investigating these effects.

* Corresponding author
E-mail address aabusalma@philadelphia.edu.jo (A. Abusalma)

2. Literature review

2.1 Supply chain management performance

A firm's supply chain (SC) refers to its operations that are joined directly or indirectly to convert its inputs to customer products (Elgazzar et al., 2012). As performance measurement represents computing the effectiveness and efficiency of actions, SC performance measurement can be understood as quantifying of SC operations. Sellitto et al. (2015) noted that supply chains have evolved from linear to complex structures, requiring multidimensional and multivariate analysis to evaluate them. They also mentioned that the SCOR model is widely used with processes such as sourcing, manufacturing, delivery and returns, widely used to evaluate supply chain performance. The operations, as assumed by SCOR model, are related to plan, source, make, deliver, and return. This model categorizes supply chain operations into five sets: responsiveness, reliability, cost, assets, and flexibility in which ten performance metrics were introduced: return on working capital, return on SC fixed assets, cash cycle time, cost of goods sold, cost of SCM, SC adaptability (upside), SC adaptability (downside), SC flexibility, order cycle time, and perfect order fulfilment (Elgazzar et al., 2012). Gunasekaran et al. (2004) divided SC metrics in terms of SC activities (plan, source, make, delivery) into: measures of order planning (order entry and order lead-time), measures of supplier performance (measures at strategic, tactical, and operational levels), measures at production level (products and services range, effectiveness of scheduling, and capacity utilization), measures of delivery performance (flexibility of customized needs and number of perfect notes billed), measures of customer satisfaction, and measures of SC cost (logistics cost, information processing cost, and related costs of return on assets and investment).

Scholars reported many metrics used to assess SCM performance. Yusuf et al. (2018) confirmed the importance of both financial and non-financial measures of supply chain performance, and identified six vital criteria related to supplier management, customer management, learning and growth, health safety and environment, financial measures such as total shareholder return, and internal business operations. Khan et al. (2021) identified eight key predictors affecting supply chain performance: cost management, government policy, flexibility, workplace and social agreement, quality, sourcing, delivery lead time, and resource management, as well as five moderating factors: textile parks, academic and industry alliance, research and development, technology, in addition to training and development. Panayides et al. (2018) reported some key indicators of supply chains including financial measures, customer-related measures (customer satisfaction and storage effectiveness), internal processes measures (safety and risk analysis), learning and growth measures (information technology and employee effectiveness). Qrunfleh and Tarafdar (2014) added other criteria such as meeting changes in customer demand and specifications, and shorter order delivery cycle time. Exploring supply chains in road projects, Wibowo and Sholeh (2015) indicate that key performance indicators (KPI) that can be used to measure supply chain performance embrace: supply inventory days, cost of SCM, flexibility of production, lead-time of order execution, as well as perfect completion of orders. Chehbi-Gamoura et al. (2020) mentioned that SC performance measurements can be categorized using the SCOR model, which provides standard guidelines for companies to examine SC configuration, identify metrics, and apply best practices. It includes five main processes: Plan, Source, Make, Deliver, and Return, each with specific examples of analytics applications. Another review of the literature conducted by Gopal and Thakkar (2012) on SC performance metrics from 2000-2011 revealed that authors used many metrics related to issues like SC capabilities, management practices, knowledge management, sustainability, SC agility, total quality management, and financial measures such as return on assets. de Vass et al. (2018) assessed SC performance using items related to SC flexibility, costs of SCM, cash cycle time, and sales per employee. Criteria of measuring SC performance are reported in Table 1.

Table 1
Criteria of measuring supply chain performance

	SC performance criteria	Examples	References
(1)	Supplier management	Product or service quality and product or service delivery performance.	Qrunfleh & Tarafdar (2014)
(2)	Customer management	Customer satisfaction, meeting changes in customer demand, final product or service quality, supply reliability, and meeting customer specifications.	Wibowo & Sholeh (2015)
(3)	Learning and growth	Employee training, years of employee experience, employee satisfaction, employee empowerment, and information exchange procedures.	Yusuf et al. (2018)
(4)	Health safety and environment	Number of employees recorded injuries, incidents of environmental damage, and compliance with environmental standards.	Elgazzar et al. (2012)
(5)	Financial measures	Cost difference between budgeted cost and actual cost, total return on shareholder, return on investment, operating costs, return on assets, and return on working capital.	Gopal and Thakkar (2012)
(6)	Internal business operations	Rate of infrastructure utilization, variance between plans and actual performance, and risk analysis.	Panayides et al. (2018)
(7)	Cost management	Pricing policy, and internal costs.	de Vass et al. (2018)
(8)	Delivery lead-time	On time delivery, ordering flexibility, fast response rate, and shorter order delivery cycle time.	
(9)	Workplace and social compliance	Workplace standards, and sustainability.	Khan et al. (2021)
(10)	Flexibility	Vertical development and capacity, product differentiation, and production flexibility.	Vickery et al. (2003)
(11)	Quality	Rate of defect, and ISO compliance.	
(12)	Research and development	Design capability, and innovation, and product improvements.	
(13)	Technology	Digital systems, automation, on-time information exchange, and accurate shared information.	
(14)	Resource management	Resource utilization, and competitive management.	
(15)	Academic and industry alliance	Human capital, and skilled workforce.	

Furthermore, in their study on the effect of SC resilience and SC performance, Aityassine et al. (2022) indicated that SC performance can be measured using three approaches, which are perspective-based approaches such as balanced scorecard models, process-based approaches such as SC integration, and hierarchal-based approaches in which SC performance is measured at strategic, operational, and tactical levels. Using the SCOR model processes, Hammadi et al., (2018) proposed a list of optimal metrics to evaluate plan performance (the percent of production efficiency and accuracy of forecasting techniques), source performance (mutual assistance in solving problems), make performance (product quality, manufacturing cost, effectiveness of production schedule), delivery performance (days of delivery lead time, ability to respond to customer demand, and defect free delivery), and return performance (relationships between buyers and manufacturers and quality of delivered goods). These metrics are adopted for the purpose of the current study.

2.2   Financial performance

The overall business performance can be appraised using indicators of operational performance such as quality and flexibility, and indicators of financial performance such as increased sales, operating profit, return on investment and decreased costs of production and logistics (Kocaoğlu et al., 2015; Lee, 2021). Financial performance in SC context has been measured using numerous measurements. Reviewing the literature on financial performance and supply chains revealed that the most common indicators of financial performance, as depicted in Table 2, include: pre-tax return on assets, return on sales, and return on investment (Dissanayake & Cross, 2015; Abbaspour, 2019;Vickery et al., 2003), growth in sales, profit, market share and return on investment (Long, 2014; Yu et al., 2013), increased sales, profit, return on investment, and decreased costs of production and logistics, return on sales and return on investment (Jum'a et al., 2021).

Table 2
Examples of financial performance measures

Measures	References
Return on assets (ROA) - Return on equity (ROE) - Return on investment (ROI) - Return on sales (ROS) - Market Share Growth (MSG) - Sales Growth (SG) -Profit Growth (PG) - Decreased costs of production and logistics.	Vickery et al. (2003); Elgazzar et al. (2012); Wagner et al. (2012); Yu et al. (2013); Lee (2021), Jum'a et al. (2021).

3.   Research hypotheses and model

3.1   Plan performance and financial performance

SC processes performance has a significant impact on a firm's financial performance (Elgazzar et al., 2012). Analyzing SC processes using the SCOR model, Kottala and Herbert (2019) found that plan-based performance has a significant effect on the overall supply chain performance indicators. Such a dimension of supply chain performance is related to order entry and order lead-time (Gunasekaran et al. (2004), the percent of production efficiency and accuracy of forecasting techniques. These indicators of supply chain planning are expected to elevate the financial performance as they contribute to production efficiency and forecasting accuracy. Therefore, it was proposed that:

H$_1$: *SC plan performance significantly lifts financial performance up.*

3.2   Source performance and financial performance

One of the most important factors that can be used to enhance the overall SC performance is SC source-based performance (Kottala & Herbert, 2019). This dimension of supply chain performance can be understood as a supply chain integration factor by which a firm collaborates with its suppliers to solve supply chain problems. Such an integration results in higher rates of financial performance (Huo et al., 2013; Pakurár et al., 2019). Therefore, it was expected that source-based performance is a significant predictor of firms' financial performance as stated in the following hypothesis:

H$_2$: *SC source performance significantly lifts financial performance up.*

3.3   Make performance and financial performance

Performance of manufacturing (make) can be assessed based on production effectiveness and costs. Previous works (e.g., Lee, 2021) pointed out that production capability as a key dimension of organizational competency is positively associated with financial performance. In a study on SC agility and the financial performance of banks in Jordan, Kottala and Herbert (2019) indicated that SC make-based performance has a significant effect on the overall SC performance.

H$_3$: *SC makes performance significantly lifts financial performance up.*

3.4   Delivery performance and financial performance

Delivery performance as a dimension of SC performance refers to all actions of SC delivery and can be assessed using indicators like defect free delivery, ability to respond to customer demand, and days of delivery lead time, that is, delivery performance is related to performance of customer services. According to Vickery et al. (2003), there is a significant direct link from customer service performance to financial performance. Yu et al. (2013) added that customer satisfaction in SC integration context is a significant predictor of financial performance. For the current study, it was expected that delivery performance is positively related to financial performance, therefore, it was hypothesized that:

H$_4$: *SC delivery performance significantly lifts financial performance up.*

3.5   Return performance and financial performance

The return process in the SCOR model involves activities related to handling returned products and materials within the supply chain. It is considered a functional attribute supporting primary supply chain processes, data management, decision support, and relationship management (Ntabe et al., 2015). Return process signifies the products that are returned from different customers, and it is related to receiving reverted goods, repair, and customer-management expectation. For some prior studies (e.g., Kottala & Herbert, 2019), SC return-based performance is significantly and positively related to the overall SC performance. In other words, low levels of returned products leads to positive outcomes such as cost reduction and lead time (Ricardianto et al., 2022). For this reason, a higher level of return-based performance is expected to improve financial performance. Therefore,

H₅: *SC return performance significantly lifts financial performance up.*

4.   Methodology

4.1   Research sample and data collection

The population of the study comprise both supply chain managers and financial managers in industrial firms. A purposive sample was selected to collect the required data. It consists of 250 managers. Using a 5-point Likert scale, i.e., 1 (strongly disagree) to 5 (strongly agree), 250 questionnaires were distributed, and 185 questionnaires were returned with a response rate of 74%. The final number of the questionnaires utilized for the statistical analysis purpose was 177 questionnaires as 8 of them were excluded due to incomplete responses.

4.2   Research measurements

SC performance was measured using five dimensions of the SCOR model, which are SC plan performance, SC source performance, SC make performance, SC delivery performance, and SC return performance. Each dimension was assessed via four dimensions. Financial performance was measured based on managers' subjective assessments as suggested by Vickery et al. (2003). Therefore, five items were used for the current study, which are "our return on assets has been enhanced in the last two years", "our return on investment has been improved in the last two years", "our return on sales has been improved in the last two years", "our production cost has been decreased in the last two years" and "our logistics cost has been decreased in the last two years" (Jum'a et al., 2021; Lee, 2021).

4.3   Validity and reliability

Validity was tested based on the standardized factor loadings (SFL) and the values of the average variance extracted (AVE), on the other hand, reliability was checked based on composite reliability (CR) and Cronbach's alpha coefficients (α). SFL values should be higher than 0.60 and AVE values should be more than 0.50. In terms of reliability indexes, values of CR and alpha should be higher than 0.70. Using principal component analysis in which Varimax with Kaiser normalization as a rotation method was used, the results in Table 3 show that all SFL values were higher than 0.60 ranging from 0.634 to 0.864, and all AVE values were more than 0.50, CR values and alpha coefficients were greater than 0.70. The results confirm that the validity and reliability was assured.

Table 3
Results of dimension reduction, validity and reliability

| Research variables | Items | Validity | | Reliability | |
		SFL	AVE	CR	α
SC Plan-based Performance	SCPP1	0.704	0.521	0.812	0.799
	SCPP2	0.764			
	SCPP3	0.777			
	SCPP4	0.634			
SC Source-based Performance	SCSP1	0.707	0.524	0.815	0.820
	SCSP2	0.691			
	SCSP3	0.752			
	SCSP4	0.744			
SC Make-based Performance	SCMP1	0.852	0.736	0.918	0.923
	SCMP2	0.864			
	SCMP3	0.827			
	SCMP4	0.888			
SC Delivery-based Performance	SCDP1	0.818	0.632	0.872	0.887
	SCDP2	0.781			
	SCDP3	0.806			
	SCDP4	0.775			
SC Return-based Performance	SCRP1	0.721	0.552	0.831	0.850
	SCRP2	0.711			
	SCRP3	0.723			
	SCRP4	0.812			
Financial Performance	FP1	0.720	0.508	0.837	0.885
	FP2	0.667			
	FP3	0.676			
	FP4	0.781			
	FP5	0.715			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.916. Bartlett's Test of Sphericity (approx. Chi-Square) = 2666.708, df = 300, Sig, = 0.000.					

4.4 Structural model fit

Four indexes of model goodness of fit were used: chi-square, and root mean squared error of approximation (RMSEA). CMIN/DF value should be between 2 and 5, GFI and CFI should be equal or higher than 0.90, and RMSEA should be equal or less than 0.08 (Savalei, 2021). For the present structural model, CMIN/DF = 1.235, GFI = 0.876, CFI = 0.976, and RMSEA = 0.037. the results indicate that the values of these indexes are good except the values of GFI which is less than 0.90. However, it is close to 0.90. Based on these findings, the structural model was used to test research hypotheses.

5. Results and discussion

This study hypothesized as shown in Fig. 2 that SC plan-based performance (SCP), SC source-based performance (SCS), SC make-based performance (SCM), SC deliver-based performance (SCD), and SC return-based performance (SCR) are significantly and positively lifting financial performance up. The results of testing these hypotheses as shown in Fig. 2 and Table 4 revealed that four hypotheses were supported.
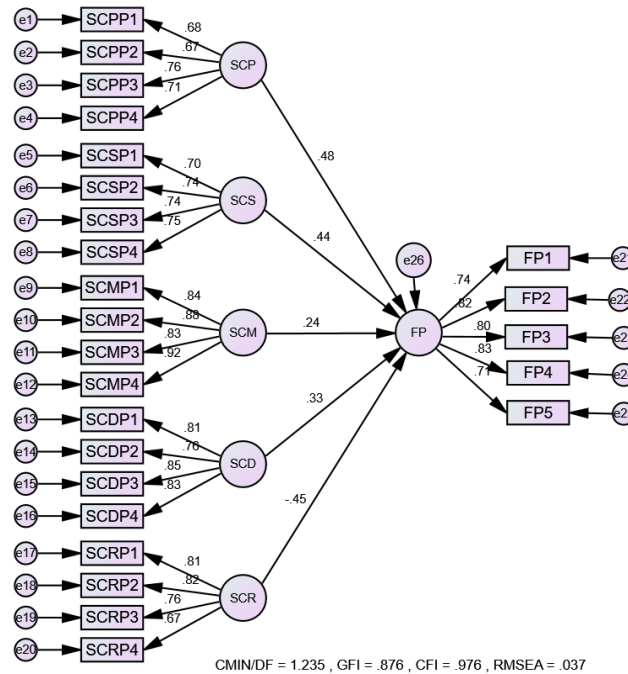

Fig. 2. Research structural model

The results showed that SC plan-based performance (estimate = 0.566, C.R. = 2.277, P = 0.023), SC source-based performance (estimate = 0.447, C.R. = 3.740, P = 0.000), SC make-based performance (estimate = 0.164, C.R. = 3.266, P = 0.001), SC delivery-based performance (estimate = 0.311, C.R. = 3.062, P = 0.002) have significant effects on financial performance.

Table 4
Results of hypotheses testing

Hypotheses				Estimate	S.E.	C.R.	P	Result
H1	SCP	→	FP	0.566	0.249	2.277	0.023	Established
H2	SCS	→	FP	0.447	0.119	3.740	0.000	Established
H3	SCM	→	FP	0.164	0.050	3.266	0.001	Established
H4	SCD	→	FP	0.311	0.102	3.062	0.002	Established
H5	SCR	→	FP	-0.403	0.170	-2.355	0.019	Rejected

However, the results show that SC return-based performance has a negative effect on firms' financial performance (estimate = -0.403, C.R. = -2.355, P = 0.019). Therefore, four hypotheses were established (H1-H4) and one was rejected (H5). These results are echoed in previous studies (e.g., Kottala & Herbert, 2019; Huo et al., 2013; Pakurár et al., 2019; Yu et al., 2013; Vickery et al., 2003; Ricardianto et al., 2022). The fifth hypothesis in which return-based performance was found to exert a negative significant effect on firms' financial performance can be justified in terms of managers' perceived impact of the return process on the financial performance.

6. Implications and conclusion

Theoretical and empirical implications of the current study are four. First, the study is one of the first studies that explored the effect of the performance of supply chain dimensions as suggested in the SCOR model (plan, source, make, delivery, and return) on the financial performance of industrial firms. Hence, the study helps in filling such a research gap. Second, based on the current results, researchers are informed that generalizing the effect of supply chain performance on firms' financial

performance should inspect the individual effects of supply chain dimensions. Third, managers in industrial firms are notified that supply chain performance is very critical for financial performance and should pay more attention to specific areas of supply chain to lift the financial performance of their firms up. Fourth, not all dimensions of supply chain performance have the same effects on the financial performance. In the current study, supply chain plan-based performance has the highest significant effect, followed by supply chain source-based performance, then supply chain delivery-based performance, and finally, supply chain make-based performance. Moreover, the study showed that SC return-based performance lifts the financial performance down, so managers are requested to enhance the ability to control the returned faulty products. Consequently, it was concluded that industrial firms can boost their financial performance through ensuring good results of supply chain planning such as production efficiency, and performance of supply chain source in areas such as mutual assistance in solving problems, as well as delivery performance through make certain of defect-free delivery, accurate delivery lead-time, and ability to respond to customer demand.

References

Abbaspour, A. (2019). Supply chain analysis and improvement by using the SCOR model and Fuzzy AHP: A Case Study. *International Journal of Industrial Engineering and Management Science*, 6(2), 51-73.

Aityassine, F., Soumadi, M., Aldiabat, B., Al-Shorman, H., Akour, I., Alshurideh, M. and Al-Hawary, S. (2022). The effect of supply chain resilience on supply chain performance of chemical industrial companies. *Uncertain Supply Chain Management, 10*(4), 1271-1278.

Chehbi-Gamoura, S., Derrouiche, R., Damand, D., & Barth, M. (2020). Insights from big Data Analytics in supply chain management: an all-inclusive literature review using the SCOR model. *Production Planning & Control*, 31(5), 355-382.

De Vass, T., Shee, H. and Miah, S. J. (2018). The effect of Internet of Things on supply chain integration and performance: An organisational capability perspective. *Australasian Journal of Information Systems, 22*, 1-29.

Dissanayake, C. K., & Cross, J. A. (2018). Systematic mechanism for identifying the relative impact of supply chain performance areas on the overall supply chain performance using SCOR model and SEM. *International Journal of Production Economics*, 201, 102-115.

Elgazzar, S. H., Tipi, N. S., Hubbard, N. J. and Leach, D. Z. (2012). Linking supply chain processes' performance to a company's financial strategic objectives. *European Journal of Operational Research, 223*(1), 276-289.

Gopal, P. R. C. and Thakkar, J. (2012). A review on supply chain performance measures and metrics: 2000-2011. *International Journal of Productivity and Performance Management, 61*(5), 518-547.

Hammadi, L., de Cursi, E. S., Barbu, V. S., Ouahman, A. A., &Ibourk, A. (2018). A SCOR model for customs supply chain process design. *World Customs Journal*, 12(2).

Huo, B., Han, Z., Zhao, X., Zhou, H., Wood, C. H. and Zhai, X. (2013). The impact of institutional pressures on supplier integration and financial performance: Evidence from China. *International Journal of Production Economics, 146*(1), 82-94.

Jum'a, L., Zimon, D., & Ikram, M. (2021). A relationship between supply chain practices, environmental sustainability and financial performance: evidence from manufacturing companies in Jordan. *Sustainability, 13*(4), 2152.

Khan, N., Ishizaka, A., & Genovese, A. (2021). A framework for evaluating the supply chain performance of apparel manufacturing organizations. *International Journal of Supply and Operations Management, 8*(2), 134-164.

Kocaoğlu, B., Gülsün, B., &Tanyaş, M. (2013). A SCOR based approach for measuring a benchmarkable supply chain performance. *Journal of Intelligent Manufacturing*, 24, 113-132.

Kottala, S. Y. and Herbert, K. (2019). An empirical investigation of supply chain operations reference model practices and supply chain performance: Evidence from manufacturing sector. *International Journal of Productivity and Performance Management, 69*(9), 1925-1954. DOI: 10.1108/IJPPM-09-2018-0337.

Lee, R. (2021). The effect of supply chain management strategy on operational and financial performance. *Sustainability, 13*(9), 5138.

Li, L., Su, Q., & Chen, X. (2011). Ensuring supply chain quality performance through applying the SCOR model. *International Journal of Production Research*, 49(1), 33-57.

Long, Q. (2014). Distributed supply chain network modelling and simulation: integration of agent-based distributed simulation and improved SCOR model. *International journal of production research*, 52(23), 6899-6917.

Ntabe, E. N., LeBel, L., Munson, A. D., & Santa-Eulalia, L. A. (2015). A systematic literature review of the supply chain operations reference (SCOR) model application with special attention to environmental issues. *International Journal of Production Economics*, 169, 310-332.

Pakurár, M., Haddad, H., Nagy, J., Popp, J. and Oláh, J. (2019). The impact of supply chain integration and internal control on financial performance in the Jordanian banking sector. *Sustainability, 11*(5), 1248.

Panayides, P., Borch, O. J. and Henk, A. (2018). Measurement challenges of supply chain performance in complex shipping environments. *Maritime Business Review, 3*(4), 431-448.

Prakash, S., Sandeep Gunjan, S., & Rathore, A. (2013, October). Supply Chain Operations Reference (SCOR) model: an overview and a structured literature review of its application. In *International Conference on Smart Technologies for Mechanical Engineering* (pp. 1-20).

Qrunfleh, S. and Tarafdar, M. (2014). Supply chain information systems strategy: Impacts on supply chain performance and firm performance. *International Journal of Production Economics, 147*, 340-350.

Ricardianto, P., Barata, F., Mardiyani, S., Setiawan, E., Subagyo, H., Saribanon, E., & Endri, E. (2022). Supply chain management evaluation in the oil and industry natural gas using SCOR model. *Uncertain Supply Chain Management, 10*(3), 797-806.

Savalei, V. (2021). Improving Fit Indices in Structural Equation Modeling with Categorical Data. Multivariate *Behavioral Research, 56*(3), 390-407.

Sellitto, M. A., Pereira, G. M., Borchardt, M., Da Silva, R. I., & Viegas, C. V. (2015). A SCOR-based model for supply chain performance measurement: application in the footwear industry. *International Journal of Production Research*, *53*(16), 4917-4926.

Thunberg, M., & Persson, F. (2014). Using the SCOR model's performance measurements to improve construction logistics. *Production planning & control*, *25*(13-14), 1065-1078.

Vickery, S. K., Jayaram, J., Droge, C. and Calantone, R. (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, 21*(5), 523-539.

Wagner, S. M., Grosse-Ruyken, P. T. and Erhun, F. (2012). The link between supply chain fit and financial performance of the firm. *Journal of operations management, 30*(4), 340-353.

Wang, W. Y., Chan, H. K., & Pauleen, D. J. (2010). Aligning business process reengineering in implementing global supply chain systems by the SCOR model. *International journal of production research*, *48*(19), 5647-5669.

Wibowo, M. A. and Sholeh, M. N. (2015). The analysis of supply chain performance measurement at construction project. *Procedia Engineering, 125,* 25-31.

Yu, W., Jacobs, M. A., Salisbury, W. D. and Enns, H. (2013). The effects of supply chain integration on customer satisfaction and financial performance: An organizational learning perspective. *International Journal of Production Economics, 146*(1), 346-358.

Yusuf, Y., Gunasekaran, A., Papadopoulos, T., Auchterlounie, W., Hollomah, D. and Menhat, M. (2018). Performance measurement in the natural gas industry: A case study of Ghana's natural gas supply chain. *Benchmarking: An International Journal, 25*(8), 2913-2930.

1416