

Environmental dimensions have been included in every area of life and every activity with the increasing environmental sensitivity and the concern to leave resources for future generations. This strategic path and strategic decisions gained an environmental dimension under the name of green supply chain management and green supplier selection, and attracted great attention in both academic and corporate life. New strategies such as green principles and related environmental performance are imperative and very important for companies, with increasing awareness of environmental issues and increasing concerns for future generations and our world. In order to address the growing environmental concerns of various stakeholders, companies have focused on external partners in the supply chain. The purpose of the current study is to investigate the effect of green supply chain practices on firm performance. To this end, a survey was conducted with the managers of 120 large-scale firms operating in Turkey in order to measure this effect. Explanatory and confirmatory factor analyses, correlation analysis and multiple regression estimators were used in the empirical analysis. Since all items of the Green Supply Chain Applications Scale and Firm Performance Scale had factor loads (>60), all items remained in the analysis. In DFA, item factor weight values with 3 sub-dimensions are in the range (0.73; 0.90). According to these results, the internal and external supply chain practices have a positive and significant effect on all the indicators of firm performance that are reduction of pollutants, reduction of green costs and firm competitiveness. Similarly, reduction of pollutants and reduction of green costs, two indicators of green performance, positively affect firm competitiveness

Keywords: green supply chain practices, green performance, firm competitiveness, firm performance

THE EFFECT OF GREEN SUPPLY CHAIN PRACTICES ON THE FIRM PERFORMANCE: AN EMPIRICAL RESEARCH

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Received date 14.06.2022

Accepted date 19.08.2022

Published date 31.08.2022

How to Cite: Alshiqi, S., Dogan, M., Cerci, H. S., Koyluoglu, A. S. (2022). The effect of green supply chain practices on the firm performance: an empirical research. *Eastern-European Journal of Enterprise Technologies*, 4 (13 (118)), 61–67. doi: <https://doi.org/10.15587/1729-4061.2022.263634>

1. Introduction

Ecological problems cannot be solved solely with an anthropocentric understanding of environment has brought a new perspective on supply chain practices. Before green practices, little emphasis used to be placed on environmental issues in the definitions of supply chain and supply chain practices. Supply chain is the flow of product, money and information from source to customer through three or more organizations [1]. The supply chain is the conversion of raw materials into products and their delivery to customers through a distribution system [2]. When the definitions of supply chain practices are examined, it is understood that the concept of supply chain is viewed from a wider perspective. Supply chain practices are defined as the processes that connect supplier and user businesses from inception to consumption [3]. Supply chain management contributes to knowledge sharing, building trust, and developing meaningful and long-term relationships with more specific supplier personnel [4]. Ayers saw supply chain practices as a cycle of physical, fi-

nancial and information flows that enable the transportation of a wide range of products [5].

The scarcity of resources, the concern to leave a more liveable world to future generations and the balanced use of natural resources have made more efficient supply chain management mandatory [6]. Customers' sensitivity to environmental impacts has intensified discussions, and businesses have tried to act in the supply chain according to customer demands and needs and turn this into competitive advantage [7, 8]. In this context, green practices in supply chain management have quickly become operational. Green supply chain management, which is also used as sustainable supply chain management in the literature, can be explained as the integration of supply chain management and environmental thinking from production processes to product delivery to customers and even to the end product life cycle [9–12].

Businesses that take customer trends into consideration through green practices aim to increase their financial gains by increasing their performance while achieving environmental gains. It is essential for businesses that want to gain

sustainable competitive advantage through green practices to monitor, evaluate and manage their performance [13]. In this connection, author has defined the green supply chain in terms of efficient use of existing resources and the change in performance indicators. Performance management in green supply chain applications requires the company to be transparent in information management. It is important to ensure continuity of performance measurement, monitoring and sharing, as a loss of a link in the supply chain will harm green practices. There is limited research on the performance of green supply chain practices in the literature [14]. Moreover, besides financial measures, the use of non-financial measures is seen as a necessity [15]. Especially interaction and coordination between stakeholders in the supply chain is an important part of this requirement [16]. Performance measurement methods of green practices in the supply chain include balanced corporate card, life cycle analysis, activity-based costing, analytical hierarchy process (AHP), performance measurement matrix, ISO 14031 and green score model, SMART and holistic dynamic performance measurement method [15]. It is seen that different measurement methods are used in studies on the relationship between green practices in the supply chain and business performance. Y TZ practices have addressed firm performance [17] in terms of environmental, operational and economic; [18] while considering environmental, operational, economic and organizational; [19] economically and environmentally, finally [20] environmental, financial and operational. These results show that green practices play an important role in both establishing the environmental sustainability infrastructure of businesses and reducing climate change. As a result, it is very important to investigate the effect of companies' green supply chain practices on company performance. Therefore, it is important to determine the impact of green supply chain practices on firm performance.

2. Literature review and problem statement

When the studies are examined, they generally focus on green supplier selection and performance evaluation studies are very few. Since the environmental performance of a company depends on the environmental performance of the suppliers from which it receives services, as well as its own internal efforts, the evaluation and improvement of this performance is of great importance in order to improve its own performance. This study was conducted to evaluate the performance of green supply chain applications in order to eliminate the gaps specified in the literature study.

Until recently, external and internal practices (e. g. customers and markets; products and services offered; suppliers, vendors, partners, green purchasing, eco-design) have been widely applied as any environmental crisis has occurred in other businesses and can harm businesses as a result of disruptions in the supply chain [21]. Moreover, businesses with strong policies and awareness of environmental issues have the potential to easily attract customers with higher environmental awareness and sensitivity. Numerous studies have highlighted the impact of internal green practices and external green practices on business performance [22]. A positive correlation has been found between internal green practices and operational performance [23].

The green supply chain is defined as a closed loop supply chain [24] or a sustainable supply chain while some other researchers define it as an environmental supply chain and ethical supply chain [25] or a socially-responsible supply chain [26]. Since the late 1980s, when the concepts of green supply chain practices and environmental management emerged as strategic organizational practices to gain competitive advantage, a wide variety of subtopics have been consistently included in the research on green supply management [27].

Basically, green supply chain management practices have a common purpose to promote environmental sustainability and green supply chain management practices have a positive impact on environmental performance Green supply chain management practices include a complete lifecycle including product design, manufacturing process, packaging and after-sales services. Interest in environmental problems in the supply chain has been increasing continuously [28]. In the supply chain research, the relationship between environmental factors and business performance has been the most emphasized issue [29].

People are more conscious than ever before about climate change and environmental sustainability. In addition to the rapidly increasing pressure of government regulations, the increasing green concerns in consumer markets are driving companies to manage their day-to-day operations taking into account ecological perspectives [30]. Research on green supply chain management started to gain importance when organizations and researchers realized that the management of environmental programs and operations does not end outside the borders of the organization [31]. Although it has different definitions, the most widely recognized aspects of green supply chain management are that it reduces the ecological impact of industrial activity, promotes energy use efficiency and synergy among business partners, strengthens companies and minimizes waste while helping to improve environmental performance and corporate green image [11].

Internal green practices refer to practices that are independently adopted by individual businesses aiming to improve their environmental performance [32]. Eliminating and preventing pollution created by an enterprise's daily practices is an indicator of the enterprise's green capability [33], which helps to alleviate the environmental impact of its production.

Until recently, external practices (e. g. customers and markets; products and services offered; suppliers, vendors, partners, green purchasing, eco-design) have been widely applied as any environmental crisis has occurred in other businesses and can harm businesses as a result of disruptions in the supply chain [17]. Moreover, businesses with strong policies and awareness of environmental issues have the potential to easily attract customers with higher environmental awareness and sensitivity [34]. Numerous studies have highlighted the impact of internal green practices and external green practices on business performance [22]. A positive correlation has been found between internal green practices and operational performance [35].

Green performance can be defined as the reduction of a firm's environmental impact achieved through coordination between business and environmental concerns Green performance can be measured in terms of various indices that assess the reduction of firms' environmental

impacts in several categories, each measured by a separate item variable [36]. These variables include water, energy, non-renewable resources, toxic inputs, solid waste, soil pollution, waste water emissions, emissions to air, noise, odour emissions, landscape damage and serious accident risk reduction [37].

In relation to firm performance, some experimental research has been done on green supply chain management only in recent years. An algorithm was developed to evaluate the green supply chain management performance in an uncertain environment; in 2017, the pricing policies of green supply chain management were analyzed in a big data environment [38].

When the literature is examined, some of the studies have examined the effect of green supply chain practices on the non-financial performance indicator. In studies examining the effect of green supply chain practices on financial performance, different financial performance measures have been used. In addition, no research has been found on companies using high technology. In recent years, environmental awareness has increased significantly in large companies using high technology. All this allows to assert that it is expedient to conduct a study on it.

3. The aim and objectives of the study

The aim of the study is to identify the influence of green supply chain practices on performance. This will make it possible to determine the interactions between firms' internal and external green supply chain practices and green performance and financial performance.

To achieve this aim, the following objectives are accomplished:

- to investigate demographics of the participants;
- to analyze results of the exploratory factor analysis;
- to analyze results of the confirmatory factor analysis;
- to investigate descriptive statistics;
- to examine hypothesis test results.

4. Materials and methods of research

4.1. Sample

The research was carried out on large-scale companies operating in Istanbul, Ankara and Antalya. A questionnaire was applied to the managers of these companies between 1 June and 26 July 2019. Approximately 150 companies were contacted, but some companies did not want to respond the questionnaire. Some firms were excluded from the study as some companies returned incomplete questionnaires. The number of the questionnaires good enough to be included in the current study was found to be 120.

4.2. Measurements

In the current study, it is aimed to measure the effect of green supply chain practices on firm performance.

Green supply chain practices consist of internal green supply chain practices and external green supply chain practices. The firm performance scale consists of green performance (reduction of pollutants and reduction of green costs) and competitiveness (firm competitiveness) dimensions. The green performance dimension consists of the reduction of pollutants and the reduction of the green cost sub-dimensions. The items in these scales are shown in the appendix. These items were scored on a five point Likert scale ranging from "1 Strongly Disagree" to "5 Strongly Agree".

4.3. Conceptual model and research hypotheses

When the researches on the subject are examined, green supply chain applications are divided into 2 groups as internal and external, and the effect on green performance and firm competitiveness is examined. In line with the literature, The following model was developed to measure the impact of green supply chain practices on firm performance. In this context, the model of the research is given in Fig. 1.

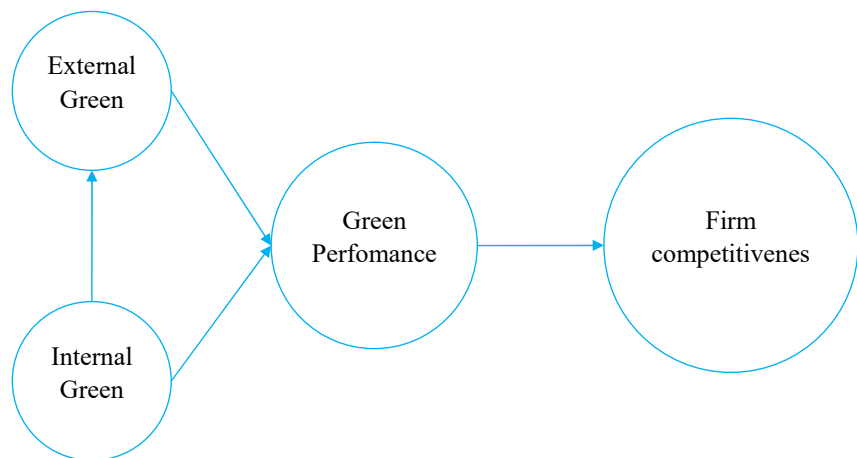


Fig. 1. Conceptual model

H1 – there is a positive and significant correlation between the internal green supply chain practices and external green supply chain practices.

H2 – there is a positive and significant correlation between the internal green supply chain practices and green performance.

H3 – there is a positive and significant correlation between the external green supply chain practices and green performance.

H4 – there is a positive and significant correlation between the green performance and firm competitiveness.

4.4. Data analysis

First, explanatory factor analysis and then confirmatory factor analysis was used to determine the basic dimensions of green supply chain practices and firm performance scales. Second, the reliability of the scales and dimensions was determined. Then, as a result of the normality test, it was determined that the scales and dimensions were normally distributed and the Pearson correlation method was used. For empirical analysis, structural equation model regression estimation was performed. The Durbin-Watson d statistics were used to test whether there was a first order auto-correlation between the error terms of the sample, and

the variance inflation factor (VIF) method was used to determine whether there was a multicollinearity problem. All the analyses were conducted in SPSS and AMOS statistical packages.

5. Results of research of the effect of green supply chain practices on the firm performance

5. 1. Demographics of the participants

The company profiles and characteristics of the participants are shown in Table 1.

Table 1

Profile of the participants (n=120)

Characteristics of the participants	N	%
Ownership	–	–
National firm	93	77.50
International-national firm	10	8.33
International firm	17	14.17
The number of employees	–	–
100 or fewer	79	65.83
101–500	37	30.83
501 or more	4	3.33
Seniority	–	–
Less than 10 years	27	22.50
11–15 years	22	18.33
16–20 years	34	28.33
More than 20 years	36	30.00
Job title	–	–
Vice president or higher	19	15.83
Manager/assistant manager	28	23.33
Director/assistant director	67	55.83
Officer	15	12.50
Department	–	–
Operation	59	49.17
Management	30	25.00
Sales	31	25.83

When the results are examined, it is seen that 77.50 % of the participating firms are national firms while 14.17 % are international firms. Moreover, in 65.83 % of the firms, more than 100 employees are working. About half of the company managers participating in the current study have the title of Manager/Assistant Manager in the operations department and 30 % of them have more than 20 years of professional experience.

5. 2. Results of the exploratory factor analysis

Results of the exploratory factor analysis conducted on the green supply chain practices scale are presented in Table 2. The green supply chain practices scale is divided into two dimensions as internal green supply chain practices and external green supply chain practices. The dimensions of the green supply chain practices scale are the same as the original scale.

Table 3 shows the results of the factor analysis conducted on the firm performance scale

The firm performance consists of three dimensions: firm competitiveness, reduction of green costs and reduction of pollutants. The scale has the same dimensions as the original scale.

Table 2

Factor Analysis of the green supply chain practices scale

Factor	Items	Factor Loadings	Factor Extraction (%)	Cronbach Alpha
Internal green supply chain practices	IGSCP2	0.751	39.132	0.889
	IGSCP3	0.727		
	IGSCP1	0.681		
	IGSCP4	0.671		
	IGSCP5	0.646		
External green supply chain practices	EGSCP2	0.713	29.323	0.871
	EGSCP3	0.701		
	EGSCP5	0.661		
	EGSCP4	0.652		
	EGSCP1	0.628		
	TOTAL		68.445	
	Sample Measurement Value Adequacy		0.893	
	Bartlett Test	Chi square	2436.48	
		Df	88	
		Sig.	0.000	

Table 3

Factor analysis of the firm performance scale

Factor	Items	Factor Loadings	Factor Extraction (%)	Cronbach Alpha
Firm Competitiveness	FC4	0.724	29.021	0.849
	FC5	0.711		
	FC3	0.691		
	FC2	0.663		
	FC1	0.643		
Reduction of Green Costs	DGC1	0.703	23.918	0.821
	DGC3	0.673		
	DGC5	0.651		
	DGC4	0.642		
	DGC2	0.622		
Reduction of Pollutants	ROP4	0.681	15.451	0.806
	ROP1	0.652		
	ROP3	0.643		
	ROP5	0.624		
	ROP2	0.611		
	TOTAL		68.390	
	Sample Measurement Value Adequacy		0.891	
	Bartlett Test	Chi-square	2322.41	
Df		88		
Sig.		0.000		

5. 3. Confirmatory factor analysis

Since all items of the Green Supply Chain Applications Scale and Firm Performance Scale had factor loads (>60), all

items remained in the analysis, and no items were discarded. In DFA, item factor weight values with 3 sub-dimensions are in the range (0.73; 0.90). The standard Good Fit Criteria of the Green Supply Chain Applications scale calculated from the model have a value of X^2 of 187.255; X^2/df is 1.821; GFI value, 0.882; CFI value, 0.913; RMSEA value is 0.633; The SRMR value was calculated as 0.0523. The values of the standard Good Fit Criteria of the Firm Performance scale calculated from the model are X^2 value 1890,431; X^2/df is 1.743; GFI value, 0.885; CFI value, 0.902; RMSEA value 0.612; The SRMR value was calculated as 0.0531. When all Standard Good Fit criteria were evaluated, it was understood that the Confirmatory Factor Analysis was within the limits of Acceptable Fit, and therefore the model is meaningful.

5. 4. Descriptive statistics

The descriptive statistics of the scales used in the current study are given in Table 4.

Table 4

Descriptive statistics

Dimensions	N	Mean	Standard Deviation	Skewness	Kurtosis
Internal green supply chain practices	120	4.08	0.72	-0.82	0.13
External green supply chain practices	120	4.07	0.66	-0.76	0.30
Reduction of green costs	120	3.96	0.67	-0.45	-0.41
Reduction of pollutants	120	4.11	0.56	-0.42	-0.27
Firm competitiveness	120	4.26	0.72	-1.02	1.00

The results show that the firm competitiveness has the highest mean score. If kurtosis and skewness values are between +2.0 and -2.0, the scale has a normal distribution and parametric tests should be used. Thus, since the kurtosis and skewness values of the scales used in the current study are between +2.0 and -2.0, the Pearson correlation and regression estimator were used in the study.

5. 5. Hypothesis test

Table 5 shows the results of the correlation analysis for the correlation between green supply chain practices and firm performance. According to the results of the analysis, there is a positive and statistically significant correlation between the internal and external green supply chain practices and reduction of pollutants, reduction of green costs and firm competitiveness as the indicators of firm performance ($p < 0.05$). In addition, there is a positive correlation between the internal green supply chain practices and external green supply chain practices ($p < 0.05$).

Table 6 shows the results of the regression estimator. According to these results, the internal and external supply chain practices have a positive and significant effect on all the indicators of firm performance that are reduction of pollutants, reduction of green costs and firm competitiveness ($p < 0.05$). Similarly, reduction of pollutants and reduction of green costs, two indicators of

green performance, positively affect firm competitiveness ($p < 0.05$). As a result, the hypotheses H1, H2, H3 and H4 developed in the current study were supported.

Durbin-Watson d statistic was used to test whether there is a first order autocorrelation in the model. The Durbin-Watson d statistic generally shows that there is no autocorrelation when the value is between 1.5 and 2.5. The Variance Inflation Factor (VIF) was used to test the multicollinearity problem and supports the results of the regression model. In addition, another method used to determine whether there is a multicollinearity problem is the tolerance value of the variables. If the VIF value is smaller than 10 and the tolerance value is not very close to 0, it means that there is no multicollinearity problem in the model. As a result, absence of the multicollinearity problem and autocorrelation in the model shows the robustness and reliability of the model.

Table 5

Correlation analysis

-	[1]	[2]	[3]	[4]	[5]
Internal green supply chain practices [1]	1	-	-	-	-
External green supply chain practices [2]	0.523**	1	-	-	-
Reduction of green costs [3]	0.543**	0.585**	1	-	-
Reduction of pollutants [4]	0.543**	0.620**	0.485**	1	-
Firma competitiveness [5]	0.554**	0.642**	0.511**	0.671**	1

Note: ** - indicate significance at the level of 1 %

Table 6

Results of regression estimator

Variables and Parameters	Model 1	Model 2	Model 3	Model 4
	Firm competitiveness	Reduction of green costs	Reduction of pollutants	Firm competitiveness
Constant	---(3.521)***	---(2.744)**	---(2.471)***	---(3.287)***
Internal green supply chain practices	0.921 (3.232)***	0.774 (2.644)**	0.682 (2.286)***	---
External green supply chain practices	0.895 (3.116)***	0.701 (2.381)**	0.671 (2.202)***	---
Reduction of green costs	---	---	---	0.892 (3.388)***
Reduction of pollutants	---	---	---	0.821 (2.931)***
F	88.783	75.215	71.237	83.641
Adjusted R ²	55.43	45.23	44.62	53.71
Durbin-Watson	1.903	1.873	1.895	1.924

Note: *** and ** indicate significance at the level of 1% and 5% respectively

6. Discussion of results of study the effect of green supply chain practices on the firm performance

Environmental social responsibility; It aims for businesses to try to minimize the negative effects in the environment, to display environmentally friendly behaviors while performing their activities, to prefer environmentally friendly production technologies, and to use resources effectively and efficiently due to limited resources.

The effect of green supply chain practices on the green performance and competitiveness of businesses has increased its importance in the 21st century. In the current study, the effect of green supply chain practices on firm performance was investigated. Green supply chain practices consist of the dimensions of internal green supply chain practices and external green supply chain practices. The firm performance scale has two dimensions called green performance (reduction of pollutants and reduction of green costs) and firm competitiveness.

As a result of the analysis, internal and external green supply chain practices were found to have a positive and statistically significant effect on the reduction of pollutants, reduction of green costs and competitiveness, which are the performance indicators of the company. In other words, as the green supply chain practices develop, the green performance and competitiveness of companies also increase. In addition, there is a positive correlation between internal green supply chain practices and external green supply chain practices. These findings show that the collaboration of internal and external green practices allows firms to increase their green performance and that it is important to maintain internal green practices in order to increase external green cooperation.

This study, which investigates the relationship between the green supply chain and firm performance, has some limitations. First of all, the findings should be evaluated in the sample of Turkey. Similar studies with different samples may yield different results. Similar studies can be conducted on different countries or sectors in future studies.

7. Conclusions

1. 77.50 % of the participants are national companies and 14.17 % are international companies. Moreover, in 65.83 % of the firms, more than 100 employees are working.

2. The green supply chain practices scale is divided into two dimensions as internal green supply chain practices and external green supply chain practices. The firm performance consists of three dimensions: firm competitiveness, reduction of green costs and reduction of pollutants. The scales have the same dimensions as the original scale.

3. The standard Good Fit Criteria of the Green Supply Chain Applications scale calculated from the model have a value of X^2 of 187.255; X^2/df is 1.821; GFI value, 0.882; CFI value, 0.913; RMSEA value is 0.633; The values of the standard Good Fit Criteria of the Firm Performance scale calculated from the model are X^2 value 1890,431; X^2/df is 1.743; GFI value, 0.885; CFI value, 0.902; RMSEA value 0.612; The SRMR value was calculated as 0.0531.

4. The kurtosis and skewness values of the scales used in the current study are between +2.0 and -2.0, the Pearson correlation and regression estimator were used in the study.

5. According to the hypothesis test results; The internal and external supply chain practices have a positive and significant effect on all the indicators of firm performance that are reduction of pollutants, reduction of green costs and firm competitiveness. Reduction of pollutants and reduction of green costs, two indicators of green performance, positively affect firm competitiveness.

Conflict of interest

The authors declare that they have no conflict of interest in relation to this research, whether financial, personal, authorship or otherwise, that could affect the research and its results presented in this paper.

References

1. Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D., Zacharia, Z. G. (2001). Defining Supply Chain Management. *Journal of Business Logistics*, 22 (2), 1–25. doi: <https://doi.org/10.1002/j.2158-1592.2001.tb00001.x>
2. Lee, H. L., ve Billington, C. (1992). Managing Supply Chain Inventory: Pitfalls and Opportunities. *Sloan Management Review*, 33 (3), 65–73.
3. Cox, J. F., Blackstone, J. H., ve Spencer, M. S. (1995). *APICS Dictionary*. Falls Church, Va: American Production And Inventory Control Society.
4. Berry, D., Towill, D. R., Wadsley, N. (1994). Supply Chain Management in the Electronics Products Industry. *International Journal of Physical Distribution & Logistics Management*, 24 (10), 20–32. doi: <https://doi.org/10.1108/09600039410074773>
5. Ayers, J. B. (2000). A Premier on Supply Chain Management. *Information Strategy: The Executives Journal*, 1–9.
6. Meera, B. L., ve Chitramani, P. (2014). Environmental Sustainability Through Green Supply Chain Management Practices Among Indian Manufacturing Firms With Special Reference To Tamilnadu. *International Journal of Scientific and Research Publications*, 4 (3).
7. Lam, J. S. L., Dai, J. (2015). Environmental sustainability of logistics service provider: an ANP-QFD approach. *The International Journal of Logistics Management*, 26 (2), 313–333. doi: <https://doi.org/10.1108/ijlm-08-2013-0088>
8. Srivastava, S. K. (2007). Green supply-chain management: A state-of-the-art literature review. *International Journal of Management Reviews*, 9 (1), 53–80. doi: <https://doi.org/10.1111/j.1468-2370.2007.00202.x>
9. Van Hoek, R. I. (1999). From reversed logistics to green supply chains. *Supply Chain Management: An International Journal*, 4 (3), 129–135. doi: <https://doi.org/10.1108/13598549910279576>
10. Morana, J. (2013). *Sustainable Supply Chain Management*. John Wiley & Sons, Inc. doi: <https://doi.org/10.1002/9781118604069>
11. Golinska, P., Romano, C. A. (Eds.) (2012). *Environmental Issues in Supply Chain Management*. Springer. doi: <https://doi.org/10.1007/978-3-642-23562-7>
12. Green, K. W., Zelbst, P. J., Meacham, J., Bhadauria, V. S. (2012). Green supply chain management practices: impact on performance. *Supply Chain Management: An International Journal*, 17 (3), 290–305. doi: <https://doi.org/10.1108/13598541211227126>

13. Taticchi, P., Tonelli, F., Cagnazzo, L. (2010). Performance measurement and management: a literature review and a research agenda. *Measuring Business Excellence*, 14 (1), 4–18. doi: <https://doi.org/10.1108/13683041011027418>
14. Ageron, B., Gunasekaran, A., Spalanzani, A. (2012). Sustainable supply management: An empirical study. *International Journal of Production Economics*, 140 (1), 168–182. doi: <https://doi.org/10.1016/j.ijpe.2011.04.007>
15. Kurien, G. P., ve Qureshi, M. N. (2012). Performance measurement systems for green supply chains using modified balanced score card and analytical hierarchical process. *Scientific Research and Essays*, 7 (36). doi: <https://doi.org/10.5897/sre11.1655>
16. (Gary) Chen, S.-J., Huang, E. (2007). A systematic approach for supply chain improvement using design structure matrix. *Journal of Intelligent Manufacturing*, 18 (2), 285–299. doi: <https://doi.org/10.1007/s10845-007-0022-z>
17. Zhu, Q., Sarkis, J., Lai, K. (2008). Green supply chain management implications for “closing the loop.” *Transportation Research Part E: Logistics and Transportation Review*, 44 (1), 1–18. doi: <https://doi.org/10.1016/j.tre.2006.06.003>
18. Chen, X., Xiu, G. (2014). Research on the Degree of Ecological Supply Chain Management Practice among Chinese Manufacturing Enterprises. *Journal of Quality and Reliability Engineering*, 2014, 1–5. doi: <https://doi.org/10.1155/2014/160957>
19. Lee, K.-H., Wu, Y. (2014). Integrating sustainability performance measurement into logistics and supply networks: A multi-methodological approach. *The British Accounting Review*, 46 (4), 361–378. doi: <https://doi.org/10.1016/j.bar.2014.10.005>
20. Diab, S. M., AL-Bourini, F. A., Abu-Rumman, A. H. (2015). The Impact of Green Supply Chain Management Practices on Organizational Performance: A Study of Jordanian Food Industries. *Journal of Management and Sustainability*, 5 (1). doi: <https://doi.org/10.5539/jms.v5n1p149>
21. Corbett, C. J., Klassen, R. D. (2006). Extending the Horizons: Environmental Excellence as Key to Improving Operations. *Manufacturing & Service Operations Management*, 8 (1), 5–22. doi: <https://doi.org/10.1287/msom.1060.0095>
22. Swink, M., Nair, A. (2006). Capturing the competitive advantages of AMT: Design-manufacturing integration as a complementary asset. *Journal of Operations Management*, 25 (3), 736–754. doi: <https://doi.org/10.1016/j.jom.2006.07.001>
23. Saeed, K. A., Malhotra, M. K., Grover, V. (2005). Examining the Impact of Interorganizational Systems on Process Efficiency and Sourcing Leverage in Buyer-Supplier Dyads. *Decision Sciences*, 36 (3), 365–396. doi: <https://doi.org/10.1111/j.1540-5414.2005.00077.x>
24. Beamon, B. M. (1999). Designing the green supply chain. *Logistics Information Management*, 12 (4), 332–342. doi: <https://doi.org/10.1108/09576059910284159>
25. Beamon, B. M. (2005). Environmental and sustainability ethics in supply chain management. *Science and Engineering Ethics*, 11 (2), 221–234. doi: <https://doi.org/10.1007/s11948-005-0043-y>
26. Salam, M. A. (2008). Retracted article: Corporate Social Responsibility in Purchasing and Supply Chain. *Journal of Business Ethics*, 85 (S2), 355–370. doi: <https://doi.org/10.1007/s10551-008-9733-0>
27. Fahimnia, B., Sarkis, J., Davarzani, H. (2015). Green supply chain management: A review and bibliometric analysis. *International Journal of Production Economics*, 162, 101–114. doi: <https://doi.org/10.1016/j.ijpe.2015.01.003>
28. Zhu, Q., Sarkis, J. (2004). Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises. *Journal of Operations Management*, 22 (3), 265–289. doi: <https://doi.org/10.1016/j.jom.2004.01.005>
29. Vachon, S., Klassen, R. D. (2008). Environmental management and manufacturing performance: The role of collaboration in the supply chain. *International Journal of Production Economics*, 111 (2), 299–315. doi: <https://doi.org/10.1016/j.ijpe.2006.11.030>
30. Mutingi, M., Mapfira, H., Monageng, R. (2014). Developing performance management systems for the green supply chain. *Journal of Remanufacturing*, 4 (1). doi: <https://doi.org/10.1186/s13243-014-0006-z>
31. Zhu, Q., Sarkis, J., Geng, Y. (2005). Green supply chain management in China: pressures, practices and performance. *International Journal of Operations & Production Management*, 25 (5), 449–468. doi: <https://doi.org/10.1108/01443570510593148>
32. Zhu, Q., Sarkis, J., Lai, K. (2013). Institutional-based antecedents and performance outcomes of internal and external green supply chain management practices. *Journal of Purchasing and Supply Management*, 19 (2), 106–117. doi: <https://doi.org/10.1016/j.pursup.2012.12.001>
33. Zhang, M., Tse, Y. K., Doherty, B., Li, S., Akhtar, P. (2018). Sustainable supply chain management: Confirmation of a higher-order model. *Resources, Conservation and Recycling*, 128, 206–221. doi: <https://doi.org/10.1016/j.resconrec.2016.06.015>
34. Xu, X., Gursoy, D. (2015). Influence of sustainable hospitality supply chain management on customers' attitudes and behaviors. *International Journal of Hospitality Management*, 49, 105–116. doi: <https://doi.org/10.1016/j.ijhm.2015.06.003>
35. Germain, R., Iyer, K. N. S. (2006). The interaction of internal and downstream integration and its association with performance. *Journal of Business Logistics*, 27 (2), 29–52. doi: <https://doi.org/10.1002/j.2158-1592.2006.tb00216.x>
36. Wagner, M., Schaltegger, S. (2004). The Effect of Corporate Environmental Strategy Choice and Environmental Performance on Competitiveness and Economic Performance: *European Management Journal*, 22 (5), 557–572. doi: <https://doi.org/10.1016/j.emj.2004.09.013>
37. Yang, C., Lin, R., Krumwiede, D., Stickel, E., Sheu, C. (2013). Efficacy of purchasing activities and strategic involvement: an international comparison. *International Journal of Operations & Production Management*, 33 (1), 49–68. doi: <https://doi.org/10.1108/01443571311288048>
38. Liu, P., Yi, S. (2016). New Algorithm for Evaluating the Green Supply Chain Performance in an Uncertain Environment. *Sustainability*, 8 (10), 960. doi: <https://doi.org/10.3390/su8100960>