Journal of Cleaner Production 258 (2020) 120613

Contents lists available at ScienceDirect

Journal of Cleaner Production

journal homepage: www.elsevier.com/locate/jclepro

Exploring financial performance and green logistics management practices: Examining the mediating influences of market, environmental and social performances

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ARTICLE INFO

Article history:
Received 16 December 2019
Received in revised form
3 February 2020
Accepted 15 February 2020
Available online 23 February 2020

Handling editor: Charbel Jose Chiappetta Jabbour

Keywords:
Green logistics management practices
Environment
Social
Market
Financial performance
Sustainability

ABSTRACT

This study primarily assesses a conceptual model that links green logistics management practices with social, environmental, market and financial performances to examine its capability in achieving sustainable performance. The study examines the direct influence of green logistics management practices on environmental, social, market and financial performances. Further, the mediating effects of environmental performance, social performance and market performance between green logistics management practices and financial performance are examined. The study uses dataset gathered from 240 firms across three industries (entertainment, manufacturing and logistics) using structured questionnaires. The structural equation modelling partial least square (Smartpls software 3.2.8) is used to simultaneously test both the direct and indirect relationships between the variables. The results indicate that green logistics management practices has significant positive influence on environmental performance while it insignificantly influences social, market and financial performances. Besides, environmental performance mediates green logistics management practices and financial, social and market performances, while social performance fails to mediate the influence of both green logistics management practices and environmental performance on financial performance. This study expands literature by obtaining the results for the conceptual model and dealing with the implication from the Ghanaian perspective, which is a lower middle-income economy to strike a balance between knowledge. The study reveals that the adoption of green logistics management practices has little influence on improving the social welfare and health of the society and employees while it improves financial performance through environmental and market performances.

1. Introduction

The drastic increase in demand for goods and services and transportation resulting in the dramatic increase in the consumption of resource and energy, and emission of environmentally hazardous gases and waste into the environment (Dekker et al., 2012; Wang et al., 2018) has heightened the demand for environmental practices in recent years. The environmental concerns of the activities of firms have caught the attention of both primary and secondary stakeholders to demand the firms to adopt policies and strategies that remedy the adverse effect of their practices on the environment and the safety of the society. This demand has met opposition since some practitioners and researchers argue that the businesses have the core responsibility to increase shareholders' wealth, while social and environmental responsibilities belong to the government.

Supply chain activities, especially logistics activities form part of the critical activities of firms that consume more energy and emit enormous hazardous gasses and waste into the environment, which threatens the sustainability of the earth and the existence of humanity. There has been a significant increment in global carbon emissions by 90% since the 1970s (Herold and Lee, 2017; Khan et al., 2019), with about 78% of the emission associated with the burning of fossil oil and industrialization (IPCC, 2014). The improper management of logistics activities may increase waste and energy

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https://doi.org/10.1016/j.jclepro.2020.120613
0959-6526/

consumption and the emission of greenhouse gas leading to excessive pollution (Chien and Shih, 2007; Demir et al., 2015).

In order to meet the environmental demands of stakeholders to reduce environmental pollution and ensure societal safety, many firms have infused several eco-friendly practices into their logistics activities, resulting in the formation of green logistics management practices (GLMPs). This has caught the attention of practitioners and scholars to investigate the potency of the environmental practices to safeguard the environment and ensure the continuity of the firms through improved profitability and increased shareholders wealth (Baah et al., 2019; Agyabeng-Mensah et al., 2019a,b,c; Wang et al., 2018; Turki et al., 2018). These studies have reported inconsistent findings of the influence of green logistics practices on both environmental performance (EP) and financial performance (FP) (Baah et al., 2019; Bajdor et al., 2012; Lai et al., 2012; Agyabeng-Mensah et al., 2019a,b,c). This requires further studies to contribute to the ongoing debate and guide managers to be clear on their decisions to adopt green practices that may ensure improved performance and sustainability.

Most of the extant pieces of literature were conducted in single industries, especially in the manufacturing firms (Lin and Ho, 2008; Evangelista, 2014), which limits the generalizability of their findings (Baah et al., 2019) and overlooks other industries that contribute significantly to environmental pollution. The influence of GLMPs on all the dimensions of the sustainability performance and the interactions among the dimensions have been understudied. The influence of GLMPs on the achievement of improved market performance (MP) and the mediating effect of MP on the link between GLMPs and FP has not courted enough attention from scholars. This requires research to fill all the identified significant gaps, which has incentivized this study.

Considering the existing significant literature gaps, this study is conducted to assess the effectiveness of GLMPs in achieving higher environmental, social (SP), financial and market performances in the manufacturing, logistics and the entertainment industries to widen the scope of extant literature in the terrain of small and medium firms. The study is set to investigate the direct influences of GLMPs on EP, SP, MP and FP, EP on SP, MP and FP, and both SP and EP on FP. Consequently, the paper examines the mediating effects of EP and both SP and MP on the links, GLMPs-SP, GLMPs−MP, GLMPS-FP and GLMPs-FP, respectively. Finally, the mediating effects of SP and MP on the link EP-FP are examined.

The findings of this study will significantly influence the work of managers and contribute to literature. The study develops a comprehensive model that explains the influence of GLMPs on FP, EP, SP, and MP. This contributes to the ongoing debate about the effectiveness of GLMPs in ensuring environmental and social sustainability in the midst of improving market and financial performances. The examination of the mediating roles of EP, SP, and MP is a major contribution to literature since these relationships have not received adequate attention from scholars. This study if not the first is among the few studies that explore the interactions between each of the sustainable performance measures and their mediating effects in the line of GLMPs as an independent variable from the perspective of Ghana, a developing country in Africa since most of the existing studies are undertaken in Asia, Europe and America. Besides, the study will provide a comprehensive guide to managers to choose the appropriate green strategy to achieve the required organizational objective to meet the demands of stakeholders. Sections 2, 3, 4, 5, and 6 of the study detail the literature review, research methodology, analysis and results, discussion and implication, and conclusion, respectively.

2. Literature review

2.1. Research background

2.1.1. Green logistics management practices (GLMPs)

Logistics management encompasses a chain of incorporated undertakings covering freight transport, inventory storage, handling of materials, information processing, and sharing of information with supply chain participants that are involved in moving products (Martel and Klibi, 2016). Logistics management is a key function of supply chain management (Baah et al., 2019), which ensures that a firm's resources (raw material and goods and services) are effectively managed to improve production efficiency and ensure customer satisfaction to enhance competitive advantage and improve performance. Logistics activities include warehousing management, inventory management, transportation and information processing and dissemination from the supplier to the end consumer. Due to the complex nature and the increasing demand for logistics activities in recent years, the attention of practitioners have been drawn towards its contribution to environmental pollution, increasing consumption of resources and energy, and how it can be managed to ensure environmental and social sustainability while improving financial performance (Pagell et al., 2010; Bom et al., 2019; Beske et al., 2014).

Several green practices have been introduced into logistics functions such as purchasing, warehousing, distribution, product design, transportation, and packaging to improve social and environmental sustainability (Khan et al., 2020) and create competitive advantage to advance financial performance. GLMPs is the introduction of environmentally sound principles and strategies into logistics activities to conserve energy and resources and reduce their adverse effect on the environment and the society while improving firm performance. GLMPs enhance environmental sustainability and FP through waste reduction (Hartmann and Germain, 2015) and energy and resource-efficient strategies. Several scholars have found positive relationship between green supply chain practices and firm performance (Zailani et al., 2012; Longoni et al., 2018; Gold and Schleper, 2017; Mitra and Datta, 2014; Baah et al., 2019). Khan et al. (2018) suggests that GLMPs improves environmental and societal health status through reduced carbon emissions and solid waste. Feng et al. (2017) and Zaid et al. (2018) found negative relationship between green supply chain practices and financial performance in China and Pakistan respectively. This study investigates the impact of GLMPs on EP, SP, MP, and FP across the logistics, manufacturing, and entertainment industries in order to capture a majority of the GLMPs in Ghanaian firms to enhance the credence, realism and generalizability of our findings. The study employs reverse logistics, sustainable transport, sustainable warehousing, green logistics reward scheme and promotion, sustainable information sharing and processing, and sustainable packaging and distribution, which were the predominant practices among the manufacturing, logistics and entertainment firms in Ghana.

Reverse logistics is a key aspect of GLMPs. Sarkis (2010) and Bouzon et al. (2018) suggest that there is a need to highlight the use of recyclable packages and ecological materials in logistics processes to reduce carbon footprints and waste. Reverse logistics practices such as the repair, reuse, remanufacturing, recycling, and proper disposal of waste (Acciaro et al., 2014; Zaman and Shamsuddin, 2017; Bouzon et al., 2018) are GLMPs that reduce the negative impact of firm's product on the environment. Moreover, sustainable transportation, sustainable product packaging and distribution involve the use of environmentally friendly fuel, packaging materials and the distribution of goods and services to promote cleaner production through less mission of greenhouse

gases, waste reduction and conservation of energy along the supply chain. Besides, the use of sustainable energy such as the solar energy, which has less impact on the ecology of the earth, promotes less waste and conserve energy that safeguards the environment and ensure human safety. Moreover, firms may not be able to implement effective system without information technology considering the key role it plays in processing and gathering data. Green information processing and distribution is required for processing, distributing, and tracking of information concerning the green activities of the firm to be able to evaluate the effectiveness of environmental policies and strategies towards achieving environmental, societal and financial goals. Furthermore, engaging employees and stakeholders in green practices is fundamental to the effective achievement of green objectives (Longoni et al., 2018; Zaid et al., 2018). Employees and stakeholders require training and evaluation to develop the required green skills and determine the efficacy of green strategy implementation to provide suggestions and execute green activities to effectively assist firms to improve cleaner production process to advance SP, FP, EP and MP. Reverse logistics, green information processing and distribution, sustainable transportation, packaging and distribution, and employee and stakeholder training and evaluation may not be effectively implemented to achieve sustainability performance, if employees are not well motivated and remunerated. This call for the development of reward schemes and policies bordering on green performance to induce employees to work assiduously toward achieving cleaner production objectives of efficiency, less energy usage, and prevention of environmental pollution to achieve sustainability. The next section elaborates the dependent variables (EP, SP, MP and FP).

2.1.2. Performance (EP, SP, MP, FP)

Organizational performance is very crucial to every organization since it is the means through which firms can have an objective assessment of the outcome of the combination of both financial and nonfinancial resources in achieving their goals. Measurement of firm performance helps them to determine the achievement of set objectives (Zeng et al., 2010) and put in place strategies to either improve or maintain it to strengthen and sustain the going concern feature of the company. Traditionally, the performance of firms has been measured from the financial perspective due to their prime objective of achieving higher profit margins and adding value to shareholders' wealth. However, the introduction of balance scorecard and triple-bottom-line approaches have expanded the performance measurement to cover nonfinancial measures such as environmental, market, and social performances.

Many scholars have examined the influence of green practices on EP (De Giovanni and Vinzi, 2012; Zhang et al., 2019; Ruiz-Benitez et al., 2018; Chien and Shih, 2007; De Giovanni and Vinzi, 2012; Zhu et al., 2007), operating performance (Danso et al., 2019; Kuei et al., 2015; Testa and Iraldo, 2010), manufacturing performance (Vachon and Klassen, 2008; Al-Shboul et al., 2017) and financial performance (Feng et al., 2017; Miroshnychenko et al., 2017; Baah et al., 2019). Some of the findings of the extant literature indicated positive correlation between green practices and performance, others found negative relationships while others obtained insignificant relationships in the both the longterm and short term. This study modelled EP, SP, MP and FP as dependent constructs.

EP is viewed as a firm's capability to cause reductions in pollution and solid waste and its ability to reduce the use of unsafe materials and the occurrence of environmental accidents (Zhu et al., 2007). EP is defined as the degree to which firms can combine both financial and nonfinancial resources to reduce the adverse impact of its activities on the environment and ensure environmental sustainability through reduction in air pollution, consumption of harmful materials, and environmental accidents, and conservation of energy and resources. EP is usually measured using reduction in energy and material consumption, decrease in air and water pollution, minimization of waste generation and reduced usage of toxic and harmful materials, minimization of the environmental mishaps, and rate of renewable energy consumption, which is applied in this study (Çankaya and Sezen, 2019).

SP relates to the enhancement of organizational reputation through the adoption of practices that safeguards the society and the welfare of employees through environmental practices. SP involves a company's evident commitment to social responsibility issues such as wages and benefits, training/education, quality of management, health and safety issues, equal opportunities policy (Wood, 1991), child labor, freedom of association, forced labor, and human rights and services (Vallance et al., 2011). This study employs employees' health and safety, community health and safety, employees' skills, and job satisfaction levels of employees to measure SP due to its prevalence usage among firms in Ghana.

MP is one of the essential measurement variables of performance. According to Lanier et al. (2019) and Baah and Jin (2019), MP encompasses revenue growth, and market share, which have been categorized into effectiveness, efficiency and adaptability. This study defines MP as the measure of the extent to which firms' environmental practices and strategies can meet customer requirements to create a competitive advantage to enhance market growth, sales growth, customer loyalty, customer acquisition, brand awareness and customer perception.

Finally, we look at the meaning of FP. FP is the extent to which combined tangible and intangible financial and nonfinancial resources are able to achieve set organizational financial goals. FP measurement is key to an organization since it forms the core reason for the establishment of a profit-making organization. The study adopted return on equity, return on investment, gross profit margin, net profit, return on assets etc based on the ease in accessing data coupled with key reason for the existence of a firm (Li et al 2018). Extant literature suggests inconsistent relationship between FP and EP. According to Spicer (1978), there is a significant positive relationship between EP and FP. Nonetheless, Klassen and McLaughlin (1996) established significant negative correlation between EP and FP. Besides, Mahapatra (1984) found negative relationship between EP and FP when relatively larger sample size was used. According to Zeng et al. (2010), the differences in technology, work force and work environment contribute to the variations in the results of implementing green practices that promote cleaner productions and FP in developing and developed countries. This study examines how GLMPs, directly and indirectly, influences FP through EP, SP, and MP. The study further examines the direct influence of MP, SP, and EP on FP. Consequently, the mediating effects of EP, SP, and MP between GLMPs and FP, while mediating effects of MP between both EP and SP, and FP, SP between EP and FP are examined. Though this model was developed by adapting the measurement items and variables of other studies, it presents a unique feature of examining the mediating roles of EP, SP, and MP between GLMPs and FP, which is missing in extant literature. Moreover, the model considers four key performance measurements that are crucial to every organization. The model is shown in Figs. 1 and 2.

2.2. Hypotheses development

2.2.1. The connection between GLMPs, EP, SP, MP, and FP

Increasing environmental concerns and pressure from stakeholders due to the increased pollution associated diseases affecting such as lung dysfunction, neurobehavioral disorders and asthma attacks (Khasnis and Nettleman, 2005; Khan et al., 2018) has caused firms to take both reactive and proactive stands towards the

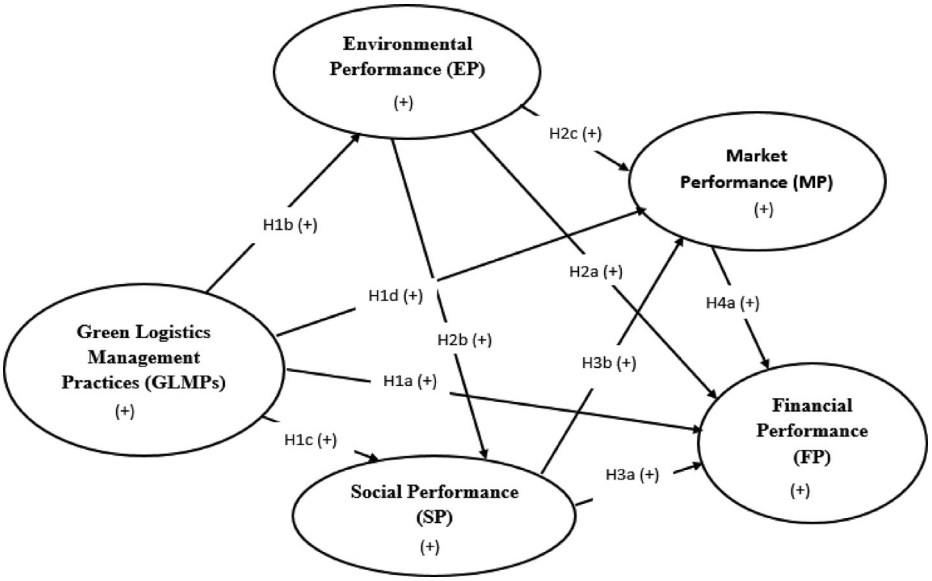

Fig. 1. Research model.

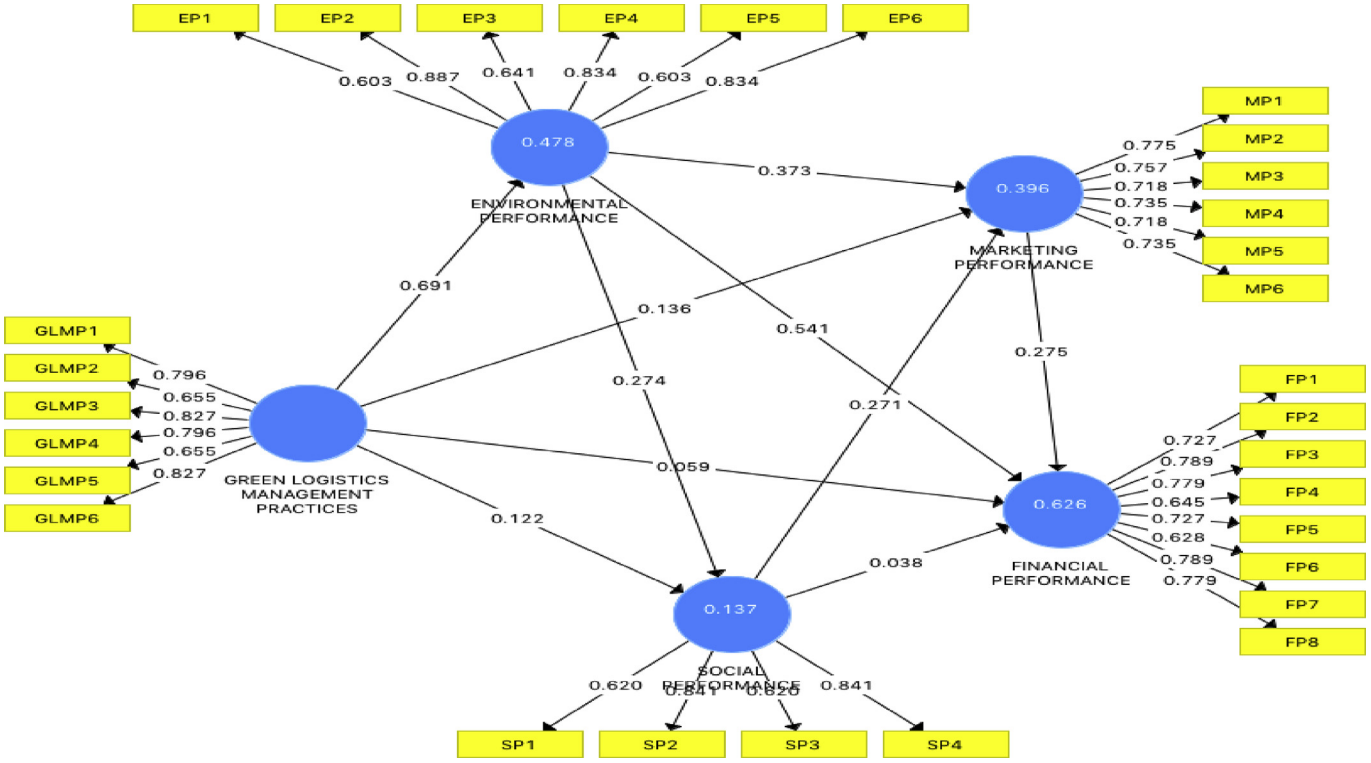

Fig. 2. Measurement model.

adoption of green practices. The implementation of practices such as green product design, green packaging, and distribution and reverse logistics, which ensure cleaner production are capital intensive and have dire impact on the financial position of firms in the short-run (Baah et al., 2019; Feng et al., 2018). Studies such as Hajmohammad et al. (2013) and Feng et al. (2017) found a negative relationship between green supply chain practices and MP, and FP, respectively.

That notwithstanding, GLMPs ensures the reduction of waste, and energy consumption, which improve operational performance and EP, leading to customer satisfaction through lower prices of products. This finally results in increased sales, gross profit, net profit, return on assets, and return on investment. GLMPs ensures improved health and welfare of society through the minimization of air pollution emanating from greenhouse gasses from transportation (Baah et al. (2019), which are key sources of deadly illness such as asthma, and lung cancer (Khan, 2020). GLMPs are needed for environmental sustainability (Centobelli et al., 2018; Khan et al., 2019), which suggests that green packaging, reuse, repair, remanufacturing, proper disposal of used products, the used of eco-

friendly fuels for transportation and the use of green sources of energy advance EP (Demirel and Gökçen, 2016).

Again, green training equips employees with distinctive and imitable capabilities (Zaid et al., 2018; Gonzalez - Benito and Gonzalez Benito, 2006) that are required for the effective implementation of other GLMPs to help improve EP. Green processing and sharing of information about firms' green activities create the brand awareness of the firm's products and attract enthusiastic environmental customers that may stay loyal to the firm. The use of the internet for music distribution instead of the usual compact disc, and the increase in the number of movies and songs on storage materials for sale may limit the production activities, and material usage leading to conservation of energy and resources and reduction in the emission of gases leading to improved EP. We then hypothesize that; *GLMPs has a positive and significant influence on FP (H1a), EP (H1b), SP (H1c), and MP (H1d).*

2.2.2. The connection between EP, SP, MP, and FP

EP is the apparent motive for the implementation of green practices in firms. EP, which emanates from the adoption of green initiatives, projects the image of firms through the reduction of the adverse impact of the activities of the firm. For instance, the reduction of an environmental mishap through green training reduces the impact of firms' activities on the health and safeguards the lives of employees and society. Baah et al. (2019) suggest that the EP, which results from incorporating green practices into companies' operations, enhance their positive reputation and image while ensuring increased market share. Logistics activities emit many gasses (McMICHAEL et al., 2008), which create several environmental and health problems such as pulmonary cancer, neurobehavioral disorders, mesothelioma, liver, and bronchitis (Khasnis and Nettleman, 2005; Khan, 2018). However, the introduction of environmental initiatives such as green transport and the use of green fuel for logistics activities may reduce the emission of hazardous gasses into the environment to reduce airborne diseases and secure the health of society (Seman et al., 2019).

Rehman and Shrivastava (2011) and Sánchez-Flores et al. (2020) suggests that green practices in logistics operations, such as green transportation and green packaging promote and maintains the global competitiveness of the firm and improve EP and FP. Reduced environmental waste and pollution enhances the cleaner production process of firms which help them to avoid penalties and fines that are associated with environmental breaches leading to cost saving (Baah et al., 2019). Again, reduction in environmental mishaps and accidents may help firms reduce hospital bills leading to cost saving and better health status of employees. The above discussions indicate that; *EP has positive and significant influence on FP (H2a), SP (H2b), and MP (H2c) while EP mediates the connections GLMPS-FP (H2d), GLMPs-SP (H2e), and GLMPs-MP (H2f).*

2.2.3. The connection between SP, MP, and FP

The adoption of green initiatives such as cleaner productions, reverse logistics, sustainable packaging and distribution, and sustainable transportation aims at reducing the negative influence of organizational activities on the lives and welfare of employees and society. Green supply chain practices such as reverse logistics make firms repair, remanufacture, and reuse products to eliminate the negative impact of products on the society. This enhances the reputation of firms leading to the attraction of new customers who have love for the environment, which may improve the customer loyalty, brand awareness, sales, market growth, return on assets and investment.

Suganthi (2019) and de Sousa Jabbour (2015) suggested that environmental initiatives create high MP. The reuse and recycling of plastics and proper disposal of waste lead to a reduction of the externalities of products on the members of the society and employees, which creates customer satisfaction, enhance market growth, sales, profit margin, and return on investment (D'Souza et al., 2020). Further, green education, and reward schemes and promotions incentivize employees to work hard in achieving better EP and help protect them from environmental mishaps that may be harmful to their health and safety (Longoni et al., 2018). Besides, the green reward schemes and compensations provide funds to employees, which improve their welfare and the welfare of their families despite the adverse effect it may have on the financial resources of the firm. The above discussion indicate that; *SP has positive and significant influence on FP (H3a) and MP (H3b) while SP mediates the links GLMPs-FP (H3c), GLMPs-MP (H3d), EP-FP (H3e), EP-MP (H3f).*

2.2.4. The connection between MP and FP

Firms adopt several strategies with the motive of enhancing their competitive strategy to improve EP and FP. GLMPs is one of the strategies used by firms to strengthen their positions in the market. Sroufe and Gopalakrishna-Remani (2018) suggest that green supply chain practices enhance FP through the firm's access to the international market, which increases sales and market share. Besides, green practices in the supply chain increase market share, enhance brand image, attract potential customers, which increase in net income, and minimizes cost of sales (Laari et al., 2018) According to Jia and Wang (2019), firms deploy green practices as market strategy to improve their brand image in both domestic and international markets. Similarly, Green et al. (2019) suggests that green practices capacitate firms to create goodwill among ecologically sentient buyers, which consequently generates higher market value and sales, leading to improved FP. The above discussion suggests that; *MP has positive and significant influence on FP (H4a) while MP mediates the connections GLMP-FP, (H4b), EP-FP (H4c), and SP-FP (H4d).*

3. Research methodology

3.1. Sample size and data collection

The study used the manufacturing, logistics, and entertainment industries as the units of analysis in this study. This is because the activities of these firms contribute hugely to the environmental pollution, high-energy usage, and waste disposal that destabilize the environment and have adverse influence on the health of the society, which has caused stakeholders to pressurize them to practically adopt several green practices to minimize externalities. The researchers employed structured questionnaires to collect the data for this study. The questionnaire used for this study was pilot tested in two parts. The draft questionnaire was distributed to five supply chain academic experts to comment on its content, clarity, and scaling. After receiving their feedback, we made several changes to the draft questionnaire. Further, eight draft questionnaires were sent to senior supply chain and logistics managers through email to comment specifically on the usability, content, and design, of the instrument. The managers suggested slight changes to the design of the questionnaire at this stage of the development process. The final draft was built based on the relevant suggestions of the managers and the academicians. We sampled 290 manufacturing, entertainment, and logistics firms from the database of Ghana Statistical Services (GSS), which contained reliable and up to date information (industry, address, and telephone numbers) about 551 firms in Ghana. The research team contacted the firms through phone calls to inquire about their eligibility (based on green logistics practices) and willingness to partake in the study. Two hundred and seventy-six (276) firms

agreed to participate in the study where 276 structured questionnaires were sent to them through the mail with permission letters explaining the academic purpose of the study. The respondents were given a two-month duration (August-September 2019) to complete the questionnaires while a regular one-week reminder messages were sent to late respondents to increase participation and response rate after the first three weeks. We received an active response of two hundred and forty (240) questionnaires at the end of September which constituted (43.56% = 240/551) of the total population. The valid response rate was relatively adequate since it was above the 20% minimum response rate suggested for supply chain management research (Darnall et al., 2010; Çankaya and Sezen (2019); Pagell et al., 2004). We adhered to the recommendation of Armstrong and Overton (1977) to test the non-response bias of the response considering the early and late responses. The results of the test between the early 167 response (received within the first 3 weeks) and the late 73 response (received within the last 5 weeks) using the *t*-test showed that non-response bias should not be a problem of this study since the two responses are not substantially different at the 5% significance level. Further, the logistics and supply chain managers who had spent more than five years in their current position were the respondents of this study. 52% and 48% of the respondents constituted supply chain managers and logistics managers respectively. Majority of the responses were received from manufacturing (37%), logistics (33%), and entertainment (30%) firms. The firms, which had the employee size of 1–50 (49%) provided the highest responses, followed by 51–100 (21%), 101–150 (20%), and above 150 (10%). The Table 1 contains the profile of the responding firms and the roles of the respondents.

3.2. Description of measurements

The reflective first order model was used to measure all the constructs (GLMPs, EP, SP, MP, and FP) used in this paper. This was aligned with the study of Baah et al. (2019). Thirty (30) items were used to measure the five constructs (GLMPs, EP, SP, MP, and FP). The definition of the constructs and their measurement items were obtained through literature review. The literature were gathered from Elsevier, Scopus, Emerald, Taylor and Francis and Wiley, which covered the articles from 2015 to June 2019 to ensure generalizability and currency (Tseng et al., 2019). We restricted the keywords to the title of the article where 150 papers were obtained. After an initial screening of the dataset, we discarded several papers based on duplications and obtained 20 papers that could be relevant to the study. A further screening of the papers based on the year of publication and similarities of the literature to the existing green supply chain management practices and performance measurements among the manufacturing, entertainment and logistics industries in Ghana was conducted to make the final list of literature shown in Table 3. The items obtained from the final list of the literature were adapted to suit the Ghanaian context to ensure appropriate definition of green supply chain practices considering the relevant GLMPs implemented by the firms of the respondents and their effect on their performance measures. This led to the development of the model and the final definition of the GLMPs.

The study operationalized GLMPs as an independent composite construct, which was measured using six (6) items. The items were adapted from Colicchia et al. (2013) and Baah et al. (2019) to suit the Ghanaian setting after extensive review of literature. The respondents were asked to choose their preference to determine the extent to which their firms have implemented GLMPs to improve EP, SP, MP, and FP over the last five years. A 5-point Likert-type scale (from 1 = very low extent) to 5 = very high extent) was used to measure GLMPs.

In addition, EP was operationalized as a composite construct, which was measured using six (6) items adopted from Zaid et al. (2018), Al-Sheyadi et al. (2019) and Longoni et al. (2018). The respondents were asked to choose their preference to determine the extent to which the implementation of GLMPs had influenced EP of their firms over the last five years. A 5-point Likert-type scale (from 1 = very low extent to 5 = very high extent) was used to measure EP.

Similarly, SP was operationalized as a composite construct and was measured using four (4) items. The respondents were asked to choose their preference to determine the extent to which the implementation of GLMPs has influenced the SP of their firms over the last five years. A 5-point Likert-type scale (from 1 = very low extent to 5 = very high extent) was adopted to measure SP. The scales and items were adopted from Abdullah et al. (2017) and Zaid et al. (2018).

Besides, MP was also measured using six (6) items. A 5-point Likert scale, ranging (from 1 = not significant to 5 = highly significant), was used to measure MP, where the respondents were asked to choose their preference to determine the extent to which the implementation of GLMPs has influenced the MP of their firms over the last five years. The items and scale were adapted from Dangelico (2017) and Suganthi (2019).

The FP was also measured using eight (8) items to broadly cover most of the measuring items used by firms in Ghana. A 5-point Likert scale, ranging (from 1 = not significant to 5 = highly significant) was used to measure FP where the respondents were asked to choose their preference to determine the extent to which

Table 1
Profile of responding companies and respondents.

Industry	Percentage (%)
Manufacturing industry	
Textiles Factories	5.5
Beverage, and alcohol factories	15
Shoe manufacturers	4.5
Plastics and rubbers	12
Entertainment industry	
Hotels	15
Movie and music distributors	11
Cinemas	4
Logistics industry	
Transportation	15
Warehousing	12
Freight forwarders	6
Totals	**100**
Number of employees	
1–50	49
51–100	21
101–150	20
Above 150	10
Total	**100**
Positions of respondents	
Supply chain managers	52
Logistics managers	48
Total	**100**

Table 2
Measurement criteria thresholds.

Measurement criteria	Recommended Threshold
Factor loading (Henseler, 2017).	>0.70
Composite reliability (Bagozzi and Yi, 1988)	>0.70
Average Variance Extracted (Hair et al., 2017)	>0.50
Cronbach's Alpha (Henseler et al., 2015)	>0.70
HTMT Ratio (Hair et al., 2017)	<0.85
P value	<0.05
Inner VIF (Kock, 2015)	<3.3

Table 3
Measurement property of reflective constructs.

Construct		Measuring Items	loading	Item	CA	AVE	CR	Source of items
EP	1	Minimization of the environmental mishaps, waste generation and reduced usage of toxic and harmful materials	0.60	EP1	0.85	0.55	0.88	Green et al. (2019) Zaid et al. (2018)
	2	Reduced the environmental impacts of products/service	0.89	EP2				Al-Sheyadi et al. (2019)
	3	Reduced emission of greenhouse gases into the environment	0.64	EP3				
	4	The increased volume of recycled materials used	0.83	EP4				
	5	Minimization of energy consumption and increased rate of renewable energy consumption	0.60	EP5				
	6	Improved stakeholders knowledge in green activities and involvement in planning and executing environmental practices	0.83	EP6				
FP	1	Return on equity	0.73	FP1	0.88	0.54	0.90	Longoni et al. (2018)
	2	Return on investment	0.79	FP2				
	3	Gross profit margin	0.78	FP3				Feng et al. (2018)
	4	Net profit	0.65	FP4				Baah et al. (2019)
	5	Return on assets	0.73	FP5				
	5	Reduced environmental fines and charges	0.63	FP6				
	6	Earnings per share	0.79	FP7				
	7	Net profit margin	0.78	FP8				
	8	Return on sales						
GLMPs	1	Engage in reverse logistics practices	0.80	GLMPs1	0.85	0.58	0.89	Zaid et al. (2018),
	2	Development of green reward schemes and compensation	0.66	GLMPs2				Longoni et al. (2018),
	3	Engage in employee and stakeholder green training, and monitoring and evaluating of environmental policies and practices	0.83	GLMPs3				Baah et al. (2019)
	4	Use of sustainable transportation, product packaging, and distribution	0.80	GLMPs4				
	5	Use of sustainable energy	0.83	GLMPs5				
	6	Application of green information processing and distribution	0.66	GLMPs6				
MP	1	Growth in market share	0.78	MP1	0.84	0.55	0.88	Suganthi (2019)
	2	Growth in sales	0.76	MP2				Dangelico (2017)
	3	Improvement in customer loyalty	0.72	MP3				
	4	There has been an improvement in the company's reputation and image in the market.	0.74	MP4				
	5	There is better alignment between what the company is offering with consumers' expectations	0.72	MP5				
	6	The company has had success in launching new products	0.74	MP6				
SP	1	Improved employees' health and safety	0.62	SP1	0.73	0.55	0.82	Longoni et al. (2018),
	2	Improved community health and safety	0.84	SP2				Abdullah et al. (2017)
	3	Improved employees skills	0.62	SP3				
	4	Improved job satisfaction levels of employees	0.84	SP4				

the implementation of GLMPs has influenced the FP of their firms over the last five years. The items were adopted from Baah et al. (2019), and Longoni et al. (2018).

Finally, firm size and industry type were used as control variables. The study uses firm size as control is in connection with the fact that bigger firms may possess more internal resources to invest in improving social, market, environmental, and financial performance (Burke and Gaughran, 2007; Hajmohammad et al., 2013). Again, some industries, especially manufacturing, logistics, and entertainment industries, are known to contribute significantly to the environmental pollution, which attracts stricter and more cogent rules to coerce and regulate their green practices (Longoni et al., 2018). This forces firms to improve the implementation of green practices. Hence, it is expected that the kind of industry-specific regulations affect the implementation of green practices to influence performance.

3.3. Assessment of common method bias

Podsakoff et al. (2003) posits that common method bias test deals with an exploratory factor analysis (EFA) which considers all observed variables and when a single factor explicates a value $\geq$ 0.50 (i.e., $\geq$50%), which is majority of the cumulative variance among measures, then, there is common method bias. The EFA performed on the variables in this study suggests 0.4222 (42.22%) as the first extracted factor explicated of the variance, which is below the 50% threshold. Again, we sought to reduce common method bias by placing the endogenous constructs before the exogenous constructs in the questionnaires, which helped reduce the impact of consistency artifacts (Podsakoff et al., 2003). Hence, it could be reasonably and sufficiently stated that our study is without common method bias. Besides, the common method bias of the model was also examined using collinearity statistics (inner variance inflated factors (VIFs) recommended by Kock, (2015). Kock (2015) suggested that the inner VIFs values for each of the constructs should be < 3.3. The results of the test showed that the study was free from common method bias since all the inner VIFs for all the constructs shown in Table 6 were less than 3.3.

4. Data analysis and results

The study uses smartpls 3.2.8 software of structural equation modelling to analyze the data. The software is a 2nd-generation multivariate tool used to analyze and test novel theories, and it is ideal for analyzing data from a small sample size (Hair et al., 2017) like the data used in this study. PLS-SEM can concomitantly identify the hypotheses and statistical features of a conceptual framework (Hair et al., 2017), which has increased its application in management research in recent times (Peng and Lai, 2012). The hypotheses were tested by following the two-step analysis procedure recommended by Anderson and Gerbing (1988). It involved the examination of the measurement model and structural model where the

Table 4
Fornell-Lacker criterion.

Construct	EP	FP	GLMPs	MP	SP
Environmental performance	**0.75**				
Financial performance	0.74	**0.74**			
Green logistics management practices	0.69	0.58	**0.76**		
Market performance	0.56	0.63	0.48	**0.74**	
Social performance	0.36	0.37	0.31	0.45	**0.74**

Table 5
Heterotrait-monotrait ratio (HTMT).

Construct	EP	FP	GLMPs	MP
Financial Performance	0.74			
Green Logistics Management Practices	0.74	0.64		
Market Performance	0.59	0.69	**0.53**	
Social Performance	0.43	0.44	0.42	**0.55**

measurement model assessment consisted of analyzing the validity and reliability of the model to determine its quality. Some of the factor loadings of the indicators (shown in Table 3) were <0.700 thresholds suggested by Ringle and Sarstedt, 2016 and Bagozzi and Yi (1988). However, external loadings from 0.410 to 0.690 were maintained since their retention helped improve the reliability and validity of the model (Hair et al., 2017). The structural model evaluation consisted of the testing of the hypotheses and the effect sizes (f^2), the R^2 adjusted, the Q^2 of the independent variables on the dependent variables, and the goodness of fit of the model. The analysis was executed through the calculation of the Pls algorithm with 300 sample size, bootstrapping with a subsample size of 5000 and blindfolding with a D value of 7 (Hair et al., 2017). The steps are explained below. The thresholds for assessing the validity and reliability of the model are shown in Table 2.

4.1. Measurement model assessment

The model was examined for validity and reliability, considering convergent validity, discriminant validity, and internal consistency reliabiity. We established the convergent validity of the constructs using the average variance extracted (AVEs). The values for the AVEs were above the threshold 0.50 (Henseler et al., 2015), as shown in Table 3. Internal consistency was also established by assessing Cronbach's alpha and composite reliability, where we obtained values above 0.70 and 0.70 respectively (Henseler, 2017), as shown in Table 3. Subsequently, multicollinearity test was performed to determine the robustness of the model. The highest variance-inflated factors (VIF) value (3.201) obtained after the full collinearity test indicated that the model was robust and free from multi-collinearity as shown in Table 6.

The Fornell-Larcker criteria and the Heterotrait-Monotrait Ratio (HTMT) were used to establish the discriminant validity of the model, as suggested by Henseler (2017). The Fornell-Lacker criterion is dependent on the opinion that the discriminant validity of a model is achieved when the square roots of the estimated AVEs are higher than the correlations of each pair of the constructs of a model (Fornell and Larcker, 1981). The results give an indication that discriminant validity of the model has been achieved since the criterion has been met as shown in Table 4 below.

Besides, the HTMT ratio was further used to examine the discriminant validity of the model. The results obtained from our analysis indicated that the model had attained excellent discriminant validity since the HTMT ratios of the constructs shown in Table 5 are less than the threshold of 0.85, as recommended by Henseler (2017).

4.2. Assessment of the structural model

The examination of the structural model involved the determination of the predictive relevance (using the Stone-Geisser Q^2), the variance explained (R^2) of the exogenous constructs on the endogenous constructs, and the examination of both direct and indirect paths between the GLMPs, EP, SP, MP, and FP. The results shown in Table 7 and Fig. 2 indicate that the model has excellent predictive relevance and quality since Q^2 values EP (0.225), FP (0.299), MP (0.193), and SP (0.072) are all greater than 0.000 minimum threshold recommended by Henseler (2017). Again, the structural model explained EP (48%), FP (62%), MP (39%), and SP (13%), while the goodness of fit (GoF) value of 30.70% is also an indication of good global fit of the model.

After the examination of the predictive relevance, quality, and the global fit of the model, we examined the direct and the direct paths between GLMPs, EP, SP, MP, and FP. The results shown in Table 7 suggested that not all the direct paths between GLMPs, EP, SP, MP, and FP were statistically supported. Hence, the hypotheses H2a, H2c, H2b, H1b, H4a, and H3b were supported while hypotheses H1a, H1d, H1c, and H3a were not supported.

The indirect path (mediation) between the constructs (GLMPs, EP, SP, MP, and FP) shown in the Table 8 demonstrated that some of the paths were not statistically supported. The hypotheses H2d, H2e, H2f, H3f, H4c, and H4d were supported while hypotheses H3c, H3d, H3e, and H4b were not supported.

5. Discussion and implications

5.1. Discussions

5.1.1. Direct effect (direct path)

The results shown in Table 7 suggested that GLMPs had direct insignificant and positive influence on FP ($\beta = 0.06$, $T = 0.91$, $P = 0.36$), SP ($\beta = 0.12$, $T = 1.17$, $P = 0.24$), MP ($\beta = 0.14$, $T = 1.45$, $P = 0.15$), while GLMPs directly and significantly influenced EP ($\beta = 0.69$, $T = 23.57$, $P = 0.00$). These wereindications that the hypotheses H1a, H1c and H1d were not supported while hypothesis H1b was supported. The results of the hypothesis H1a suggested that the cost involved in the implementation of GLMPs drain the financial resources of the firm, which are not adequately compensated by the financial benefits, received from GLMPs.

This means that in the medium term, firms can enjoy the benefit of their green practices though it may not be as significant as expected. The findings highlight an important fact that green practices are a potent long-term strategy for financial gains (Shashi et al., 2018). However, this finding is in line with with Baah et al. (2019), which was conducted in the logistics firms in Ghana and recorded insignificant positive relationship between GLMPs and FP. Besides, the results of H1c (shown in Table 7) indicated that green supply chain practices such as GLMPs do not have a significant influence on the welfare and safety of the society, which may not substantially and positively affect the reputation of the firm to gain competitive advantage. This finding contradicted with the claims of Lai and Wong (2012) and Lin and Ho (2008) which suggested that

Table 6
Variance explained, predictive relevance and collinearity.

Constructs	R^2	R^2 Adj.	Q^2=(1-SSE/SSO)	VIF (EP)	VIF (FP)	VIF (GLMPs)	VIF (MP)	VIF (SP)
EP	0.48	0.48	0.225		1.389	2.325	2.195	3.281
FP	0.63	0.62	0.299	2.362		1.369	2.470	2.771
GLMPs				2.108	2.237		2.639	2.772
MP	0.40	0.39	0.193	1.861	1.690	2.197		3.101
SP	0.14	0.13	0.072	3.201	2.318	2.623	3.223	

Table 7
Direct effect (path).

Path	Hypotheses	Beta (β)	Standard error (STDEV)	T Statistics (|O/STDEV|)	P Values	Results
GLMPS -> FP	H1a	0.06	0.06	0.91	0.36	Not supported
GLMPS -> EP	H1b	0.69	0.03	23.57	0.00	Supported
GLMPS -> SP	H1c	0.12	0.10	1.17	0.24	Not supported
GLMPS -> MP	H1d	0.14	0.09	1.45	0.15	Not supported
EP -> FP	H2a	0.54	0.06	9.43	0.00	Supported
EP -> SP	H2b	0.27	0.08	3.42	0.00	Supported
EP -> MP	H2c	0.37	0.08	4.61	0.00	Supported
SP -> FP	H3a	0.04	0.05	0.75	0.45	Not supported
SP -> MP	H3b	0.27	0.06	4.69	0.00	Supported
MP -> FP	H4a	0.28	0.07	3.99	0.00	Supported
Control Variables						
Firm size->FP		0.227	0.090	5.201	0.021	Supported
Firm size->EP		0.422	0.067	3.323	0.041	Supported
Firm size->SP		0.450	0.085	2.835	0.036	Supported
Firm size->MP		0.345	0.085	6.606	0.003	Supported
Industry>FP		0.302	0.098	3.267	0.040	Supported
Industry>EP		0.210	0.087	9.222	0.002	Supported
Industry >SP		0.355	0.067	3.252	0.001	Supported
Industry>MP		0.576	0.060	7.509	0.000	Supported

Table 8
Indirect effect (mediation).

Path	Hypotheses	Beta (β)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Results
GLMPs -> EP -> FP	H2d	0.37	0.04	9.82	0.00	Supported
GLMPs-> EP -> SP	H2e	0.19	0.06	3.30	0.00	Supported
GLMPs -> EP -> MP	H2f	0.26	0.06	4.49	0.00	Supported
GLMPs -> SP -> FP	H3c	0.01	0.02	0.41	0.68	Not supported
GLMPS -> SP -> MP	H3d	0.03	0.03	1.06	0.29	Not supported
EP -> SP -> FP	H3e	0.01	0.02	0.70	0.49	Not supported
EP -> SP -> MP	H3f	0.07	0.03	2.62	0.01	Supported
GLMPS -> MP-> FP	H4b	0.04	0.03	1.19	0.24	Not supported
EP -> MP -> FP	H4c	0.10	0.03	3.01	0.00	Supported
SP -> MP -> FP	H4d	0.07	0.03	2.71	0.01	Supported

the adoption of GLMPs enhances the image of firms.

Further, the results of H1d (shown in Table 7) suggested that GLMPs did not significantly influence MP. This means that the mere adoption of environmental certificate and environmental training policies without practically implementing the policies does not improve the loyalty of existing customers and attract a significant number of new customers (Tumpa et al., 2019). This may stunt market share and sales growth of the firm. For instance, the adoption of cleaner production without practical implementation may not have a substantial positive influence on the lives of the society, which will not create a competitive advantage in the market to improve sales and increase market share.

Nonetheless, the results suggested that GLMPs had a positive and significant influence on EP, which supported H1b (shown in Table 7). This result was supported by the findings of Feng et al. (2017) and Longoni et al. (2018), which investigated the relationship between green practices and EP in manufacturing firms in Europe (Italy-developed country) and Asia (China-upper middle income) respectively. This is an indication that environmental practices show a significant positive influence on EP regardless of the geography and the type of the economy since Ghana is a lower-middle-income economy in Africa. Besides, the adoption of GLMPs enhances cleaner production through waste reduction, remanufacturing, reuse and repair of products, which reduces firms' adverse impact on the environment (Zaman and Shamsuddin, 2017).

Besides the findings of the analysis shown in Table 8 depicted that EP had a positive and significant direct influence on FP ($\beta = 0.54$, $T = 9.43$, $P = 0.00$), SP ($\beta = 0.27$, $T = 3.42$, $P = 0.00$) and MP ($\beta = 0.37$, $T = 4.61$, $P = 0.01$) which supported the hypotheses H2a, H2b, and H2c. Firms that can reduce the adverse effect of their activities on the environment and society through reduced emission of hazardous gases and proper management of waste improve the safety of the society and employees. This may attract environmentally conscious customers to the firm and lead to increased sales and profitability (Baah et al., 2019). The continuous recycling, reuse, repair and remanufacturing of products may serve as immediate input for firms, which builds the material capacity of firms to meet the immediate needs of customers in times of resource scarcity. The ability of firms to satisfy the needs of their customers creates positive perception about the firms among customers leading to customer's loyalty and increased sales, which reflects in the financial position of the firm (Chhabra et al., 2017).

Finally, the results indicated that SP had a significant and positive influence on MP ($\beta = 0.27$, $T = 4.69$, $P = 0.00$), while SP had an insignificant positive influence on FP ($\beta = 0.04$, $T = 0.75$, $P = 0.45$). Besides, MP had a positive and significant influence on FP ($\beta = 0.28$, $T = 3.99$, $P = 0.00$). The findings supported the hypotheses H4a, and H5 while hypothesis H3a was not supported. This means that ensuring the welfare of the society and employees does not substantially influence the financial position of a firm. However, it may lead to improved MP, which will reflect in FP in the end (Suganthi, 2019).

In order to be convinced with the established connection between GLMPs, EP, SP, MP and FP, we conducted a bivariate correlation analysis using the Pearson coefficient correlation method. The results obtained from the analysis indicated that GLMPs had strong relationships with EP ($r = 0.690$), MP (0.480) and FP (0.630)

while GLMPs had a moderate connection with SP (0.310). This is an indication that the improvement of GLMPs may bring about substantial reduction in environmental pollution, waste generation, energy usage and improvement in the sales, market growth, market size, attract potential customers and advance profitability of firms (Lii and Kuo, 2016; Baah et al., 2019). This could be ascribed to the fact that environmental friendliness could be a source of competitive advantage to advance the performance of firms (Li et al., 2016). Despite GLMPs having moderate connection with SP, the infusion of cleaner production processes that may effectively eliminate the impact of firms' activities on the environment and improve the safety and welfare of employees and community members within which they operate may advance their SP, which may help improve their FP since customers are receptive towards environmentally conscious firms. Further, it was discovered there was a very strong relationship between EP and FP ($r = 0.750$), which indicates that firms are likely to achieve high profitability and recoup their investment whiles ensuring environmental sustainability. Baah et al. (2019) suggested environmental reputation, which emanates from EP has strong correlation with FP. The correlation between the constructs are shown in appendix one (1).

5.1.2. The mediation (indirect effect)

After the assessment of the direct relationships between the GLMPs, EP, SP, MP, and FP, the mediating impact of EP, SP and MP were examined. The mediating effect was assessed by paralleling the specific indirect paths with their direct paths (Zhao et al., 2010; Baah et al., 2019; Zaid et al., 2018). The results detailed in Table 8 indicated that EP provided both complete and partial mediation between the links GLMPs and FP ($\beta = 0.37$, $T = 9.82$, $P = 0.00$), GLMPs and SP ($\beta = 0.19$, $T = 3.30$, $P = 0.00$), and GLMPs and MP ($\beta = 0.26$, $T = 4.49$, $P = 0.00$). The results supported H2d, H2e, and H2f, shown in Table 8. EP provided full mediating influence between GLMPs and FP since the direct link between GLMPs and FP was insignificant while the indirect specific link GLMP-EP- FP was significant. This evidences that the adoption of GLMPs such as green reward schemes and compensation motivate workers to work hard to achieve environmental goals such as energy conservation, reduced waste, and proper management of resources to enhance the process of greener production and reduce production cost, which leads to improved FP(Iqbal et al., 2020).

Further, the complementary partial mediating effect of EP between GLMPs and SP showed that the proper and practical implementation of green practices such as green training and audit, green product design, and sustainable transport reduce the adverse effect of firms' activities on the environment through reduced gas emission, reduced environmental accidents and improved energy conservation (Khan, 2020) while green information process and dissemination help track the environmental footprints of the firms product to help improve EP and disclose the environmental practices of the firm to stakeholders to project the image of the firm.

Again, EP served as a complementary partial mediator between GLMPs, and MP. Green practices are said to attract environmentally conscious customers and maintain the existing ones (Green et al 2012, 2019; Cantor et al., 2012). Green practices such as cleaner production involving the use of clean energy and technology for manufacturing, optimization of space, and keeping of low inventory levels reduce the cost of manufacturing, which lower the prices of products leading to customer satisfaction and increased market share, customer loyalty, and sales. The low production cost lead to the creation of a competitive advantage through low cost leadership (Argyres et al., 2019; Porter, 1985).

The results further indicate that SP failed to provide mediation effect between GLMPs and FP ($\beta = 0.01$, $T = 0.41$, $P = 0.68$), MP ($\beta = 0.03$, $T = 1.06$, $P = 0.29$), and the link between EP and FP ($\beta = 0.01$, $T = 0.70$, $P = 0.49$). However, SP provided a complementary partial mediation effect between the link EP and MP ($\beta = 0.07$, $T = 2.62$, $P = 0.03$). The results supported the hypothesis H3f but did not support the hypotheses H3c, H3d, and H3e. Finally, MP failed to mediate the link between GLMPs and FP ($\beta = 0.04$, $T = 1.19$, $P = 0.24$), while EP played a mediating role between EP and FP ($\beta = 0.19$, $T = 3.30$, $P = 0.00$). The result of the analysis was in support of hypothesis H4c while it did not support hypothesis H4b. This suggested that firms enhance EP through reduction of emission of greenhouse gas and reduction of waste leading to improved FP (Khan et al., 2016).

The results of the control variables suggested that firm size and industry type influence the implementation of GLMPs, which help improve EP. These variables were controlled to justify the influence of how industry-specific environmental-related regulations and firm size may play a role to influence the adoption and practical implementation of GLMPs in specific firms, even in a similar national setting. The reality that GLMPs still explained EP amid the controlling firm size and industry gives more credence to our findings. This indicates that GLMPs can be used to advance EP, MP, and FP regardless of industry-specific regulation and firm size.

5.2. Implications for practice and theory on sustainability

The study contributes to literature by developing and testing a proposed conceptual framework that explores the relationships between GLMPs, EP, SP, MP and FP from the perspective of emerging country from Africa, which strikes a balance between literatures. Moreover, the study is among the few studies if not the first that has simultaneously explored both the direct and indirect influence of GLMPs on EP, SP, MP, and FP. in addition, the findings of the study suggested that the introduction of green practices into firms' production and supply chain activities serves as a source of competitive advantage in today's market environment (Laari et al., 2018). The implementation of GLMPs may be relevant in ensuring environmental sustainability through the reduction in waste and energy consumption. The reduction in energy consumption and waste may result in cost savings leading to efficient production (Baah et al., 2019). This engenders low prices of goods and services leading to the attraction of new customers and satisfaction of existing customers, which may advance market size, sales, profit margin and return on investment. Besides, the implementation of GLMPs may enhance cleaner production, which may eliminate the cost associated with fines, legal battle, waste management and reputational damage. The results evidenced that GLMPs had positive influence on environmental, social, market, and financial performance. However, influence of GLMPs on ensuring employee and societal safety and welfare was insignificant which requires firms to consider other green logistics practices that may enhance cleaner production to reduce emission of greenhouse gases and waste (Iqbal et al., 2020). Besides, the results revealed that GLMPs is potent at reducing environmental pollution, waste, energy consumption, and environmental mishap. This suggests that firms may adopt GLMPs to achieve their environmental sustainability objectives. Moreover, supply chain managers could use this study as a clear evidence to negotiate for the implementation of GLMPs, which may effectively address the environmental needs of the society and help fight against global warming and climate change to save the ecology of the earth and ensure its sustainability. The country's environmental policies can be developed to completely support and facilitate the creation of competitive advantage for companies which have adopted sustainable supply chain practices such as GLMPs. Again, the government may subsidize the prices of green products and provide tax rebate on green supply chain projects to entice more firms to adopt green culture (Khan et al., 2019)

to reduce emission. Policies could be made to force all firms to incorporate GLMPs into the operations to help safeguard the environment. In addition, governmental organizations, NGOs, and other institutions that are mandated to ensure the protection of the environment and the sustainability of the earth may also adopt green training, recycling, sustainable transportation, green warehousing and proper management of waste to reduce waste, energy consumption and greenhouse gas emission.

6. Conclusion

The fundamental supposition of this research is that a significant duty of an organization towards stakeholders is the tradeoff between EP, SP, and economic performance (MP and FP). This paper deploys a conceptual model to examine the connection between GLMPs EP, SP, MP, and FP. The results of the analysis indicated that EP and MP played complementary partial mediation role between the connection GLMPs-FP, while SP failed to mediate GLMPs and FP, GLMPs and MP, and EP and FP. Further, we established an insignificant positive influence of GLMPs on FP, MP, and SP but found a significant positive influence of GLMPs on EP. Consequently, MP and EP were found to have significant influence on FP, while SP had insignificant influence on FP. In addition, SP and EP were found to positively and significantly influence FP. Considering the totality of the results, there is the need for firms to adopt further GLMPs that have a strong bearing on the environmental needs of stakeholders to enhance EP leading to improved MP and FP. Again, firms need to commit more resources to GLMPs such as sustainable energy, recycling, sustainable transportation and distribution, sustainable warehousing and green product packaging to achieve environmental goals, which may result in increased financial and market performances of firms. The findings of this paper expands literature by extending the appreciation of the application of GLMPs from a global perspective since the study provides insight from the manufacturing, logistics and entertainment sector, and an emerging middle lower income country from Africa. Despite that the study was conducted in emerging economy, the model could be applied in other economies considering its complexity and relevance to green supply chain management.

6.1. Research limitation and future research direction

The study has limitations despite its substantial contribution to literature and practice. The scope of the study did not allow the adoption of all the indicators for GLMPs, which may limit the strength of the findings. Again, the study used relatively a small sample size, which may affect the results. Future studies may adopt a larger sample size and more measuring items for the constructs since literature suggests that larger sample size affect findings (Mahapatra, 1984). Besides, GLMPs was modelled as a composite construct. Future studies may explore the influence of individual components of GLMPs on EP, SP, MP and FP. A future study may be conducted to test the model in other economies to confirm the validity of the model and the findings in this study. Despite our numerous effort to eliminate common method bias, the study may still suffer from common method bias since it is inherent with survey study (Green et al., 2019), future study may employ other methods to test common method bias. Moreover, the study used PLS-SEM to test the model; future study may use other suitable technique to explore the model in the other economies.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRediT authorship contribution statement

Yaw Agyabeng-Mensah: Conceptualization, Methodology, Software, Data curation, Writing - original draft.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jclepro.2020.120613.

Appendix 1

Correlation Table

Constructs	EP	FP	GLMPs	MP	SP
Environmental Performance	1.00				
Financial Performance	**0.750****	1.00			
Green Logistics Management Practices	**0.690****	**0.580****	1.00		
Market Performance	**0.560****	**0.630****	**0.480****	1.00	
Social Performance	**0.360****	**0.370****	**0.310****	**0.450****	1.00
****Correlation is significant at the 0.01 level (2-tailed).**					

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