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Turning suppliers into sustainable agents of the firm

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Pressures to achieve sustainability for firms has led them to work in three dimensions of social, environmental and economic ones. Organizations have also realized that sustainable practices cannot be achieved in isolation and needs to be integrated with their key partners in a comprehensive effort. This paper attempts to use the perspective of agency theory to study sustainable efforts by manufacturing firms in turning their suppliers into their sustainable agents. The three dimensions of social, environmental and economic sustainability are investigated in order to study the triple bottom line (TBL) effect. Social dimension is represented by the lack of unethical buying practices of the firm, environmental dimension is represented by the environmental assessment of suppliers and the economic dimension is covered by the purchase performance of the firm. Quality of information sharing is studied as an antecedent of these dimensions since the quality of information is a key component that acts as a starting point in avoiding deceptive behavior of principal while applying agency theory. Data is collected through a self-administered survey conducted through 108 manufacturing firms operating in Pakistan. Data is analyzed through structural equation modelling software of SmartPls version 3.2.8. The results are very promising and demonstrate that when firms exchange high quality of information with their suppliers, the firms achieve TBL effect of sustainability and enables them to turn their suppliers into sustainable agents of their principal firms. This paper strongly contributes by extending the applicability of agency theory in sustainable development of firms by integrating the theory with TBL framework. It also provides meaningful insights to managers in understanding the interplay of relationship and functionality with their suppliers.

Keywords: Sustainability, Agents, Social, Economic, Environmental, Manufacturing, Triple bottom line, sustainable practices

INTRODUCTION

Global pressures to achieve sustainability has led firms to rethink their business practices and to take strong measures in attaining sustainable millennium goals. Advancement in sustainability has included two additional dimensions of social and economic ones on top of the initially identified environmental one (Elkington, 1998). These pressures are felt more by the firms operating in the manufacturing sector as they are perceived to have a stronger impact on social and environmental dimensions (Gualandris & Kalchschmidt, 2016). These impacts can only be managed by the manufacturing firms if they undertake sustainable supply chain management (SSCM). Advocates of SSCM claim that this new archetype will improve profitability of firms without compromising on social and natural systems.

In order to attain SSCM, which involves that entire supply chain of the firm, a prerequisite of SSCM is attainment of sustainable supply management (SSM). SSM aims to consider social and environmental assessment and collaboration with the suppliers of the firms along economic considerations. These dimensions need to be integrated in organizational practices and aligned with the suppliers of the firm who act as primary agents of the firm.

Despite the recognition and advocacy of sustainability measures, the pace at which manufacturing firms are improving their sustainability is not at par as required by the natural and social systems. Hansen, Grosse-Dunker, and Reichwald (2009) argue that manufacturing firms should reduce their environmental and social harm by 50 times if true sustainability is desired. This shows a clear message that manufacturing firms need to improve their understanding in improving their sustainability performance. Specifically, the issues relating to collaborations and strategic partnership of the manufacturing firms need to be sorted out.

Manufacturing firms are deeply interested in finding ways to sustain a more ethical and environmentally conscious relationship with their suppliers that would also be economically viable. These motives are challenged by the human and organizational tendencies of self-interest, bounded rationality, risk aversion and goal conflict according to the agency theory lens (Eisenhardt, 1989). An important area to probe out of this complexity in the form of how firms can set their first foot in the right direction with their suppliers in achieving their sustainability efforts. Since information asymmetry is one of the basic assumptions according to agency theory which means that lack of true information sharing could be the root cause of strategic partnerships, this leads to the following important research question:

RQ1: Can high quality of information sharing with suppliers (agent) by the buyer firms (principal) lead to a more sustainable principal-agent partnership that would achieve a more honest behavior of the buying firm and a stronger environmental assessment of suppliers?

Honest behavior of the firm represents the social side of the partnership, whereas environmental assessment reflects the environmental dimension. In order to determine the TBL effect of sustainability, these two dimensions need to be linked with the economic dimension of this partnership which is represented by purchase performance of this relationship. These relationships are addressed in the following research question:

RQ2: Does high quality of information sharing, coupled with a more honest behavior of the buying firm and a sound environmental assessment of suppliers lead to a better purchase performance of this relationship?

This paper aims to answer these two research questions by considering quality of information sharing as an antecedent of reduction in unethical behavior of buying firms with their suppliers and of environmental assessment of the suppliers which would lead to a better purchase performance. In addressing these two research questions we aim to make a strong theoretical and practical contribution by attaining a better understanding how manufacturing firms can enact a more meaningful partnership with their suppliers and achieve TBL effect of sustainability.

This paper attempts to make the above contribution by first conducting a literature review leading to hypotheses development and theoretical framework with the perspective of agency theory. The next section of the paper seeks to create methodological transparency which sets the foundation for analysis and testing of hypotheses. This paper concludes by discussing theoretical and managerial implications of the study and outlines the short comings that could be addressed in directions for the future research.

LITERATURE REVIEW

Sustainable supply management (SSM)

Sustainability has become a buzzword at this point of and it is retaining a large amount of importance from firms and researchers alike. The most frequently cited definition of sustainability is " development that meets the need of the present without compromising the ability of future generations to meet their needs" (WCED, 1987). Although this definition has a broad appeal, it poses several challenges in translating into the requirements at the firm level.

Organizations have realized that achieving sustainability holistically means to achieve it across its entire supply chain and thus the need for SSCM has emerged. Supply chains can further be narrowed down to its upstream and downstream activities and partners. A growing number of researchers have pointed out the strategic importance of upstream partners and more specifically the suppliers of the firm. SSM refers to integrating the three dimensions of sustainability in relation to its suppliers. The three sustainability dimensions include the environmental, social and the economic dimensions. Achieving all three of them creates a TBL effect (Elkington, 1998).

The environmental dimension of SSM includes the activities related to supplier environmental assessment and collaboration. These activities include a formal evaluation procedure of suppliers; urging the suppliers to take environmental measures while processing; sending auditors to visit the suppliers.

Social dimension of SSM may include five aspects according to Zorzini, Hendry, Huq, and Stevenson (2015). These include human rights, community, diversity, safety and ethics. We have chosen ethics for this paper as it appears to be an appropriate choice. Within ethics, this study is analyzing the subtle buying behavior of firms. Subtle buying behavior falls at the edge of morality and is a very close to bluffing. Most of the suppliers may never be able to figure out whether the buying firm is totally fair with them or not.

Finally the third dimension is the economic dimension and in which the most suitable criteria seems to be the purchase performance (Chao, Scheuing, Dubas, & Mummalaneni, 1993) resulting in the shape of receipt of timely, accurate and in the desired quantity the supplies from your suppliers.

Agency Theory

There is still a lack of organizational theory when we look at the empirical research from the standpoint of SSCM. The buyer-supplier relationship and adoption of sustainable practices could benefit by the adoption of agency theory perspective. Agency theory discusses the relationship of two transacting parties: the principal and the agent (Jensen & Meckling, 1976). Agency theory has already been employed to examine franchise relationships, employee-employer relationships and buyer-supplier relationships. This theory is applicable in buyer-supplier relationship since the buyer is responsible for the firm's behavior and the supplier acts as the agent of the buyer and performs on the buying firm's behalf (Whipple & Roh, 2010).

Agency theory focuses on contracting problems and the unit of analysis in this theory is the contract between the buyer and the supplier firm. This theory seeks to determine the most appropriate contract type that will govern the relationship in question (Bergen, Dutta, & Walker Jr, 1992). The root cause of contractual problem arises due to goal conflict and information asymmetry. Contractual problem may arise in the form of hidden action by the agent, shirking or as a moral hazard due to potential opportunism. In order to avoid the agency problem, the principal should either reduce goal conflict or reduce information asymmetry.

Considering the above-mentioned remedy, this study uses quality of information sharing as a starting point of the contractual setting between the buyer and the supplier. This premises have enough theoretical stance to justify the first three hypotheses, however additional empirical studies are also included to justify the formation of the following hypotheses of this study.

D. R. Krause (1999) has identified inter-firm communication to be an important prerequisite for supplier development. In this paper we posit that quality of information sharing is required for supplier environmental assessment and hence leading to the following hypothesis:

H1: Quality of information sharing has a positive effect on supplier environmental assessment

Information sharing is significantly related to business performance (Lee & Kim, 1999). Purchase performance is a measure of business performance; hence we propose the following hypothesis:

H2: Quality of information sharing has a positive effect on purchase performance.

Ethical behavior in buying is influenced by the firm's willingness to share honest and open information with its key partners. Firms will have a lesser tendency to use unethical buying practices if is honest and open with its agents. Exchange of information sharing between partners signals "good faith" and

creates a hindrance to behave unethically. Eckerd and Hill (2012) has demonstrated a negative relationship between buyer-supplier information exchange and buying firm unethical behavior. Considering this argument, we suggest the following hypothesis:
H3: Quality of information sharing has a negative effect on subtle buying practices

Prior studies have established a relationship between supplier assessment activities and purchase performance of the firm. Martínez Sánchez and Pérez Pérez (2005) have discussed the positive and direct relationship of supplier development activities with purchase performance. Similar results have been found by Rudolf O Large and Thomsen (2011). In light of the above discussion we propose:
H4: Supplier environmental assessment has a positive effect on purchase performance.
These hypotheses are reflected in the proposed theoretical model in figure1.

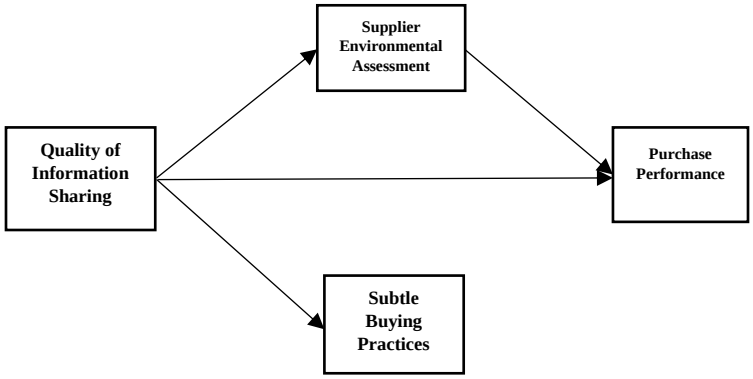

Figure 1: *Theoretical Model*

METHODOLOGY

Quantitative approach is employed for this study and it is suitable since an established theory (Agency Theory) is tested through a survey by investigating the relationships between various established constructs as reflected in the theoretical framework (figure 1). The study is cross-sectional in nature since the paper aims to get insights into the state of manufacturing firms in Pakistan at this point of time. The study is based upon a survey questionnaire with responses to be answered on a five-point likert scale. The reflective items are identified and selected from previously published papers and table 1 provides the relevant details of the items and the four constructs.

Manufacturing firms of Pakistan are selected for the survey since the manufacturing industry is generally held accountable for negative impacts on natural and social systems. Data is collected by directly contacting the firms and mostly conducted at site from the top representatives or important managers of the firms. These firms were either visited at their head offices or were contacted during industrial exhibitions held at local expo center. Since the firms were personally engaged, there was not a problem of non-response or missing data and 108 firms responded in this survey.

Table 1: Construct names and sources

Constructs	Derived from	Measures
Subtle Buying Practices	C. R. Carter and Jennings (2004), Craig R Carter (2000)	accepts meals from a supplier even if it is not possible to reciprocate writes specifications that favor a supplier shows favoritism when selecting suppliers/ gives preference to suppliers preferred by their top management
Quality of Information Sharing	Brandon-Jones, Squire, Autry, and Petersen (2014); Shibin et al. (2017)	**Our firm exchanges** Relevant information with our supplier Timely information with our supplier Accurate information with our supplier Confidential information with our supplier
Supplier Environmental Assessment	D. Krause, Scannell, and Calantone (2000), Gimenez and Sierra (2013),	**Our organization** Assesses our supplier's performance through formal evaluation, using established guidelines and procedures. Informs suppliers about the benefits of cleaner production and technologies Urges suppliers to take environmental actions Sends internal auditors to appraise environmental performance of suppliers
Purchase Performance	Chao et al. (1993) Martínez Sánchez and Pérez Pérez (2005), R.O. Large and Gimenez (2011)	**In our organization** Most raw materials and parts are received in conformance with specifications All raw materials and parts arrive within the delivery date Purchasing meets its material's target cost the quantity of materials purchased fit to the planned quantities

ANALYSIS AND RESULTS

SmartPls 3.2.8 software was employed to perform partial least square (PLS) analysis and to test the conceptual framework. 108 is an adequate sample size for testing our conceptual framework. As a rule of thumb, the sample size should be greater than ten times the maximum number of independent variable acting on a dependent variable (Chin & Newsted, 1999). In this case the maximum number is two (QIS and SEA on PP) and multiplying it with ten translates into a minimum requirement of 20 responding firms.

Table 2: Reliability analysis and convergent validity results

Construct Name	Item labeling	Loadings	AVE	CR
Purchase Performance	PP-1	0.861	0.716	0.910
	PP-2	0.814		
	PP-3	0.851		
	PP-4	0.859		
Quality of Information Sharing	QIS-1	0.868	0.622	0.889
	QIS-2	0.865		
	QIS-3	0.858		
	QIS-4	0.775		
	QIS-5	0.522		
Subtle Buying Practices	SBP-1	0.900	0.711	0.880
	SBP-2	0.848		
	SBP-3	0.777		
Supplier Environmental Assessment	SEA-1	0.872	0.782	0.935
	SEA-2	0.914		
	SEA-3	0.892		
	SEA-4	0.858		

PLS analysis is conducted in two stages. In the first stage measurement model, also referred to as the outer model, is estimated. It discusses the construct validity and reliability of measures. The second stage is the structural model, also known as the inner model. Structural model discusses the findings related to the relationships of the constructs with each other.

Measurement model results

The results of outer loadings, average variance extracted (AVE) and composite reliability (CR) are compiled in table 2. A threshold value of 0.7 is suggested for outer loadings. All items

values are greater than 0.7 except QIS-5 which has a value of 0.522. This item is retained since the AVE of its construct is above 0.5, following the recommendations provided by Hair Jr, Hult, Ringle, and Sarstedt (2016). All construct values of AVE are higher than 0.5 and of CR greater than 0.70, demonstrating adequate reliability.

Discriminant reliability of the measurement model is assessed by recommendation in recent literature (Henseler, Ringle, & Sarstedt, 2015) to use heterotrait-monotrait ratio (HTMT). The table 3 provides the results of this parameter and fulfills the criterion of 0.85 and hence justifies the requirements of discriminate validity for the measurement model.

Table 3: Discriminant validity (heterotrait-monotrait ratio)

	PP	SBP	QIS	SEA
PP				
SBP	0.347			
QIS	0.764	0.39		
SEA	0.727	0.484	0.582	

Structural model results

The results of the structural model are compiled in table 4. All the four hypotheses are supported by the results. All the exogenous variables can explain 58.2 % of variance with purchase performance as the endogenous variable reflected by the R^2 value, a measure of predictive validity.

Table 4: Structural model path analysis

	β	S.E.	t-value	p-value	Decision	R^2
H1: QIS -> SEA	0.527	0.07	7.526	0	Supported	0.582
H2: QIS -> SBP	-0.337	0.09	3.744	0	Supported	
H3: QIS -> PP	0.472	0.077	6.166	0	Supported	
H4: SEA -> PP	0.4	0.069	5.785	0	Supported	

Theoretical and managerial implications

This paper provides strong theoretical contribution by integrating agency theory and TBL effect of sustainability. Elkington (1998) has suggested that firms focus on three areas of sustainability (environmental, social and economic) by creating a TBL effect. Our results support the proposed TBL framework of sustainability. The paper also attempts to investigate the main assumption of agency theory that there is information asymmetry between the principal and the agent (Eisenhardt, 1989). The results show that if buyers, as a starting point, share high quality of information with their suppliers, the buying firm behaves less deceptively with their suppliers and can perform a sound environmental assessment of their suppliers. These results mean that the theoretical assumption of agency theory is valid in this case as proposed by earlier studies (Eisenhardt, 1989; Jensen & Meckling, 1976). The main reason for firms to deceive and the misalignment of their goals starts by not sharing honest, open and accurate information with their agents as already suggested by studies of Eckerd and Hill (2012). As we can see from the results that if the quality information sharing becomes higher, the buyer firm becomes less deceptive by reducing subtle buying behavior. Similarly, as the quality of information sharing becomes higher, the buyer firm can conduct a better environmental assessment of their suppliers meaning a better goal alignment of environmental consciousness. This behavior is in line with the results of prior

Secondly, the results suggest an integration of agency theory and TBL effect of sustainability since all their dimensions of sustainability are achieved in this case. The social side of this contract is reflected by the subtle buying behavior of the buying firm, the environmental side is reflected by the supplier environmental assessment and the economic side is reflected by the purchase performance, which comes as a result of supplier environmental assessment and high quality of information sharing.

These theoretical contributions lead to sound managerial implications. A general perception of a tradeoff between environmental and economic dimensions is overruled by this study. Firms can achieve all three dimensions of TBL simultaneously and in fact the environmental dimension can also lead to the economic benefits. However, this case clearly single outs an antecedent for this effect and that is sharing of high quality of information with the suppliers. The foundation for a sound partnership starts with an honest, accurate and complete sharing of information.

Limitations and future directions

Limitations of this study are related to the nature of data collection. In future studies, survey may also fill out by the suppliers of the firm. It would reinforce the views provided by the buying firm and the difference between the responses of the buyers and suppliers would strengthen the quality of results.

Secondly, this was a cross sectional study which was conducted at one specific point in time. Cross sectional studies have limitations in assessing the cause and effect relationships that are dynamic in nature. Future studies may be conducted by employing a longitudinal design to overcome this limitation

Finally, this study was conducted in a society that is collectivist in nature. Studies that involve constructs which might be influenced by cultural dimensions like buyer-supplier relationships, should be studied in opposing cultural dimensions for verification. A similar study could be conducted in an individualistic society in order to verify whether our findings could be generalized.

REFERENCES

Bergen, M., Dutta, S., & Walker Jr, O. C. (1992). Agency relationships in marketing: A review of the implications and applications of agency and related theories. *Journal of Marketing, 56*(3), 1-24.

Brandon-Jones, E., Squire, B., Autry, C. W., & Petersen, K. J. (2014). A contingent resource-based perspective of supply chain resilience and robustness. *Journal of Supply Chain Management, 50*(3), 55-73.

Carter, C. R. (2000). Ethical issues in international buyer–supplier relationships: a dyadic examination. *Journal of Operations Management, 18*(2), 191-208.

Carter, C. R., & Jennings, M. M. (2004). The Role of Purchasing in Corporate Social Responsibility: A Structural Equation Analysis. *Journal of Business Ethics*, 145-186.

Chao, C.-n., Scheuing, E. E., Dubas, K. M., & Mummalaneni, V. (1993). An Assessment of Supplier Selection: Chinese Purchasing Managers′ Criteria and Their Implications for Western Marketers. *International journal of physical distribution & logistics management, 23*(8), 31-37.

Chin, W. W., & Newsted, P. R. (1999). Structural equation modeling analysis with small samples using partial least

squares. *Statistical strategies for small sample research*, *1*(1), 307-341.

Eckerd, S., & Hill, J. A. (2012). The buyer-supplier social contract: information sharing as a deterrent to unethical behaviors. *International Journal of Operations & Production Management*.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of management review*, *14*(1), 57-74.

Elkington, J. (1998). Partnerships from cannibals with forks: The triple bottom line of 21st-century business. *Environmental Quality Management*, *8*(1), 37-51.

Gimenez, C., & Sierra, V. (2013). Sustainable supply chains: Governance mechanisms to greening suppliers. *Journal of Business Ethics*, *116*(1), 189-203.

Gualandris, J., & Kalchschmidt, M. (2016). Developing environmental and social performance: the role of suppliers' sustainability and buyer–supplier trust. *International Journal of Production Research*, *54*(8), 2470-2486.

Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*: Sage Publications.

Hansen, E. G., Grosse-Dunker, F., & Reichwald, R. (2009). Sustainability innovation cube—a framework to evaluate sustainability-oriented innovations. *International Journal of Innovation Management*, *13*(04), 683-713.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, *43*(1), 115-135.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, *3*(4), 305-360.

Krause, D., Scannell, T., & Calantone, R. (2000). A Structural Analysis of the Effectiveness of Buying Frims' Strategies to Improve Supplier Performance. *Decision Sciences*, 33-55.

Krause, D. R. (1999). The antecedents of buying firms' efforts to improve suppliers. *Journal of Operations Management*, *17*(2), 205-224.

Large, R. O., & Gimenez, T. (2011). Drivers of Green Supply Management Performance: Evidence from Germany. *Journal of Purchasing and Supply Management*, 176-184.

Large, R. O., & Thomsen, C. G. (2011). Drivers of green supply management performance: Evidence from Germany. *Journal of Purchasing and Supply Management*, *17*(3), 176-184.

Lee, J.-N., & Kim, Y.-G. (1999). Effect of partnership quality on IS outsourcing success: conceptual framework and empirical validation. *Journal of Management information systems*, *15*(4), 29-61.

Martínez Sánchez, A., & Pérez Pérez, M. (2005). Supply chain flexibility and firm performance: a conceptual model and empirical study in the automotive industry. *International Journal of Operations & Production Management*, *25*(7), 681-700.

Shibin, K., Dubey, R., Gunasekaran, A., Hazen, B., Roubaud, D., Gupta, S., & Foropon, C. (2017). Examining sustainable supply chain management of SMEs using resource based view and institutional theory. *Annals of Operations Research*, 1-26.

WCED, S. W. S. (1987). World Commission on Environment and Development: Oxford University Press London.

Whipple, J. M., & Roh, J. (2010). Agency theory and quality fade in buyer-supplier relationships. *The International Journal of Logistics Management*, *21*(3), 338-352.

Zorzini, M., Hendry, L. C., Huq, F. A., & Stevenson, M. (2015). Socially responsible sourcing: reviewing the literature and its use of theory. *International Journal of Operations & Production Management*, *35*(1), 60-109.