



Risk Management Mediates the Relationship Between Outsourcing and Profitability of Manufacturing Firms

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Abstract

Over decades, manufacturing firms are struggling to remain competitive in an intense manufacturing industry. The struggle is due to increasing manufacturing companies dealing in similar or related products. Given the competitive dynamics in the manufacturing industry, firms are proactively searching for viable strategies to ensure profitability and survival. Scholars and management have jointly conducted studies to find amicable strategies influencing firms' profitability. Whereas various studies have been conducted on profitability, majority of these studies were concerned with strategies directly influencing profitability with little attention on the mediating role of other strategies. Specifically, little is known on mediation studies in manufacturing industry. Despite strategies directly influencing profitability being established, firms' are in receivership with several kicked out of business indefinitely. This study bridges the gap by considering the mediating role of risk management on outsourcing and profitability of manufacturing firms. A cross-sectional research design was adopted. Specifically, a partial mediation approach was adopted following Baron and Kenny mediation guidelines. Results from Med-Graph and Sobel tests proved that risk management significantly mediated the relationship between outsourcing and profitability (Sobel Z-value = 3.441, p = 0.002). Hence, firms are encouraged to embrace mediation strategies in ensuring profitability and survival in the competitive environment.

Keywords

Outsourcing; risk management; profitability; mediation; manufacturing firms.



1. Introduction

Survival for the fittest is a way to go for manufacturing firms operating in an intense competitive industry. This slogan has forced management of manufacturing firms to be more innovative to adopt strategies that are superior to encounter their business rivals and survive economic meltdown. Researchers have established that outsourcing and risk management directly influence profitability of many companies [1], [2], [63], [20], [11], [38], [23]. Profitability is a key measurement indicator for firms' financial performance that many scholars are arguing manufacturing firms to pay attention to it [41], [5], [2], [14], [55]. Despite numerous efforts to safeguard firms' financial performance, little attention has been paid to the mediating role of risk management on firm's profitability that this study addressed herein. Mediation studies are increasingly important in various research fields and are crucial in understanding the interplay of factors to enhance goal achievement [46], [12], [36], [10].

2. Literature and Hypothesis

With realities of competition amongst manufacturing firms, financial performance is important to translate firms into successful performers [32], [40], [42], [43], [55], [60]. Accordingly, scholars and management continuously look for viable strategies to sustain their profits. Outsourcing is mentioned as one way to save company costs that are translated into improved profits capable of financing firms' operations [25], [3]. Despite such recommendations, reports based on findings from selected manufacturing firms showed that outsourcing insignificantly influences profitability [37]. Such contradictions leave management with mixed feeling about its application. However, other scholars propose risk management as a key strategy to influence profitability of manufacturing firms [41], [57], [47], [18], [38], [48], [29]. With these direct strategies determining firms' profitability performance, lays a ground to slot in interactive effect among these strategies to see if profitability can be achieved through mediation since mediation studies pays vital role [6], [62], [4], [8], [1].

Reports show that firm's motivation to outsource plays a crucial role in financial performance of manufacturing firms [53], [39], [24], [19]. It adds that intense competition and declining profits facing manufacturing firms have forced these firms to explore multiple strategies to overcome pressures. Outsourcing is found to be viable strategy enhancing firms' capabilities to overcome competitive pressure. This strategy has seen firms devoting their resources to more value adding activities supporting their survival [23], [15]. However, as firms rush for such innovative strategies, management needs to define which activities are core in order to commit their resources for profitable reaping [15]. Despite increasing adoption of outsourcing strategies to boost profitability, manufacturing firms are persistently experiencing financial challenges [49]. This is where management need to carefully decide which activities should be outsourced while weighing economic returns as compared to when previously managed in-house. This comparison is about cost reduction that qualifies why companies should outsource based on transaction costs [7], [56]. Besides cost reduction motive of outsourcing, manufacturing firms are able to acquire skillful manpower and avail their products to near markets altogether contributing significantly to improved profitability [56].

Whereas outsourcing is commonly evidenced in manufacturing firms, reports show that risk management strategies are inevitable in influencing firms' profitability performance [59], [57]. Relatedly, risk planning helps firms to devise means of reducing adverse effects on firms' operations through forecasting [17], [35], [48]. Particular reports show that successful financial institutions attribute their success to risk management strategies involving planning, forecasting and ranking risks [26]. This notion is supported since risk management enables firms to measure and quantify risks detrimental to their financial performance [31], [50], [61]. This approach is equally useful for manufacturing firms since managing risks would enable them to breakeven and hence profitability [38]. The discussion above demonstrates use of multiple strategies to directly enhance profitability of firms without considering mediation effects among established strategies. This leads to the proposed hypothesis. H. Risk management mediates the relationship between outsourcing and profitability of manufacturing firms.

3. Methodology

A deductive approach involving quantitative techniques was used in this study. This approach was selected because its quantitative techniques are good in providing accurate estimates, reliable results, and objective recommendations [51]. A self-administered questionnaire was physically distributed to 164 respondents in 82 manufacturing firms in Uganda. These firms were selected from a population of 100 firms based on Krejcie and Morgan (1970) sampling tables. Two respondents were purposively selected from each organization based on management and supervisory roles. The decision for purposive sampling was due to the level of knowledge on company performance from the two positions. Repeated visits and reminders through phone calls were made resulting to 161 valid responses representing a 98.2% response rate. Measurement indicators were adopted and modified from previous studies. The questionnaire was tested for reliability and validity using Cronbach Alpha and Content validity index respectively and the results are reported in Table 1. Data screening was performed to check on completeness, accuracy, normality, outliers, reliability and validity. Mediation test was performed in five systematic steps including the first three steps of correlation, fourth step of hierarchical regression and the fifth step covering Sobel test. All these steps were necessary as a requirement for partial mediation [52], [22], [34], [45], [33], [9]. Data analysis was conducted using SPSS software and Med-Graph excel programme. SPSS was used for correlations and regressions while Med-Graph based on Sobel tests was used to determine mediation effect following [27], [9]. The Sobel test results are presented in Table 2 with corresponding mediation Figure 1.

4. Results and Discussion

The first three steps of mediation test covering correlations show that outsourcing, risk management and profitability variables are significantly related to each other as depicted by beta coefficients (Outsourcing and risk management: $\beta = 0.660$, $p = 0.000$; Risk management and Profitability: $\beta = 0.598$, $p = 0.000$ and Outsourcing and Profitability: $\beta = 0.521$, $p = 0.000$). Additionally, hierarchical regression results showed that both outsourcing and risk management are significantly related to profitability ($\beta = 0.451$, $p = 0.000$). Finally, Sobel test proved that risk management significantly mediated the relationship between outsourcing and profitability of manufacturing firms as depicted from Sobel Z-value (Sobel Z-value = 3.44119, $p = 0.000579$). This implies that there is a partial mediation since outsourcing predicted profitability directly ($\beta = 0.223$) and indirectly through risk management ($\beta = 0.297$) totalling to 0.521 beta coefficient. Hence, hypothesis is significantly supported. The results enable management understanding of how these strategies interact to enhance profitability of manufacturing firms [44], [33], [58], [45]. Furthermore, the mediating role of risk management would play a significant role in supporting policy formulation in the manufacturing sector [28], [13], [54]. Management should emphasize on deploying these two strategies together in order to promote profitability and successfully survive competitive pressure facing manufacturing industry.

Table 1. Reliability and Validity results

Variable	Cronbach Alpha	Content Validity Index
Outsourcing	0.835	0.813
Risk Management	0.819	0.810
Profitability	0.830	0.714

Table 2. Sobel test results

Type of mediation: Significant

Sobel z-value = 3.44119, p = 0.000579		
95% Symmetrical Confidence interval		
Lower	0.08263	
Higher	0.30132	
Unstandardized indirect effect		
a*b	0.19198	
se	0.05579	
Effective Size measures		
Standardised Coefficients		R ² Measures (Variance)
Total:	0.521	0.271
Direct:	0.223	0.028
Indirect:	0.297	0.242
Indirect to Total ratio	0.571	0.895

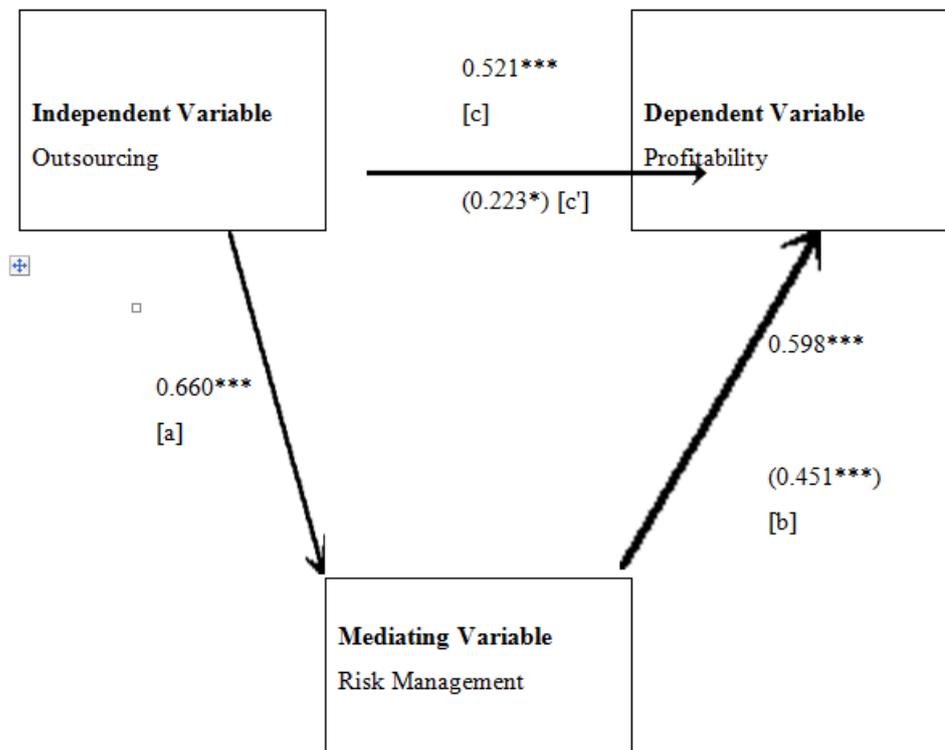


Figure 1. Risk management mediating Outsourcing and Profitability

5. Conclusion, Recommendations and Limitations

Cost transaction theory advocates for cost reductions amongst firms to manage their operations in order to survive the

competition wave. Accordingly, management should explore an array of strategies to cope up with such competitive pressures. This has seen rising numbers of firms adopting a hybrid management style comprising of more than one strategy to excel in dynamic environment. The Sobel results of this study demonstrates this hybrid mechanism that management of manufacturing firms could employ through interactive effects of risk management and outsourcing to successfully achieve profit maximization. Hence, manufacturing firms are advised to adopt simultaneous application of risk management strategies and outsourcing practices to stimulate financial performance in order to remain competitive in the dynamic environment. This study was limited to a cross-sectional research design focusing on the role of risk management on outsourcing and profitability of manufacturing firms. Accordingly, future researchers are encouraged to adopt a longitudinal study and considering more factors to in ensuring profitability in manufacturing firms and beyond.

6. Data availability statement

This manuscript is prepared based on the statistical results determined using SPSS and Med-Graph excel programme based on Barron and Kenny mediation approach as reflected in the methodology and results sections above. The dataset for the analysis is available and can be submitted on request.

Reference

- [1]. M. Acquah, & A. Agyapong, "Dynamic tensions from Management Control Systems and performance in a Sub-Saharan African Economy: Mediating effects of competitive strategy," *Africa Journal of Management*, vol.2, pp.395-421, 2016.
- [2]. I. Adeleye, Y. A. Debrah, & L. Nachum, L. 2019. Management of financial institutions in Africa: Emerging themes and future research agenda, *Africa Journal of Management*, vol.5, pp.215-230, 2019.
- [3]. A. Agigi, K. Mocke, I. Carrim, et al., "Managing the dependency of focal firms on innovative suppliers: A qualitative study of automotive manufacturers in South Africa," *Africa Journal of Management*, pp.31-57, 2021.
- [4]. Z. Ali, B. Gongbing, A. Mehreen, et al., Predicting firm performance through supply chain finance: a moderated and mediated model link," *International Journal of Logistics Research and Applications*, vol.23, pp.121-138, 2020.
- [5]. U. Amakom & F. I. Amagwu, "Informal Sources of Microfinance and Profitability of Micro and Small Enterprises Clusters in South-East Nigeria," *Business Perspectives and Research*, vol.8, pp.173-185, 2020.
- [6]. K. A. Gyampah, M. Acquah, E. Adaku, et al., "Social capital and project management success in a developing country environment: Mediating role of knowledge management," *Africa Journal of Management*, pp.1-36, 2021.
- [7]. E. K. Anin, N. Boso, D. Asamoah, "Moderating effect of supply chain complexity in governance mechanisms and operational performance relationship: Evidence from a sub-Saharan African market," *Africa Journal of Management*, pp.1-23, 2021.
- [8]. S. Aryee, F. O. Walumbwa, H. Gachunga, et al., "Workplace family resources and service performance: The mediating role of work engagement," *Africa Journal of Management*, vol.2, pp.138-165, 2016.
- [9]. R. M. Baron, & D. A. Kenny, "The moderator–mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations," *Journal of personality and social psychology*, vol.51, no.6, 1173-1182, 1986.
- [10]. A. Bazzoli, & M. Curcuruto, "Safety leadership and safety voices: exploring the mediation role of proactive motivations," *Journal of Risk Research*, pp.1368-1387, 2020.
- [11]. A. C. Cagliano, S. Grimaldi, C. Rafele, "Choosing project risk management techniques. A theoretical framework," *Journal of risk research*, vol.18, pp.232-248, 2015.
- [12]. C. A. Chavadi, M. Sirothiya, V. Mr, "Mediating Role of Job Satisfaction on Turnover Intentions and Job Mismatch Among Millennial Employees in Bengaluru," *Business Perspectives and Research*, vol.10, no.1, 2021.
- [13]. D. Choi, "The impact of media use on policy support on fine dust problem in South Korea's atmosphere: the mediating role of attribution of responsibility and perceived risk," *Journal of Risk Research*, pp.1101-1112, 2020.
- [14]. D. West, O. Iheanachor, I. O. Umukoro, "Mobile money as a frugal innovation for the bottom of the pyramid–Cases of selected African countries," *Africa Journal of Management*, vol.5, pp.274-302, 2019.
- [15]. D. J. B. Quinn, *Outsourcing Innovation: The New Engine Of Growth*. Sloan Management, 2000.



- [16]. K. Dhar, U. Khandelwal, "Impact of Goods and Services Tax on Supply Chain Management," *Business Perspectives and Research*, 2021.
- [17]. B. Ding, M. Stevenson, & J. S. Busby, "The relationship between risk control imperative and perceived causation: the case of product counterfeiting in China," *Journal of Risk Research*, vol.20, pp.800-826, 2017.
- [18]. A. E. Ellinger, H. Chen, Y. Tian, et al., "Learning orientation, integration, and supply chain risk management in Chinese manufacturing firms," *International Journal of Logistics Research and Applications*, vol.18, 476-493, 2015.
- [19]. A. Fredriksson, & E. Johansson, "Integrating logistics into the outsourcing process," *International Journal of Logistics Research and Applications*, vol.12, pp.281-298, 2009.
- [20]. T. Gadhoke, "Multi-sector approach ensures Mukwano Group thrives despite tough climate," *Africa Journal of Management*, vol.1, pp.440-445, 2015.
- [21]. M. W. Hansen, "Toward a strategic management perspective on local content in African extractives: MNC procurement strategies between local responsiveness and global integration," *Africa Journal of Management*, vol.6, pp.24-42, 2020.
- [22]. A. F. Hayes, "Beyond Baron and Kenny Statistical mediation analysis in the new millennium," *Communication monographs*, vol.76, pp.408-420, 2009.
- [23]. T. R. Holcomb & M. A. Hitt, "Toward a model of strategic outsourcing," *Journal of operations management*, vol.25, pp.464-481, 2007.
- [24]. E. Hong, B. G. Son & D. Menachof, "Exploring the link between IT systems and the outsourcing of logistics activities: a transaction cost perspective," *International Journal of Logistics Research and Applications*, vol.13, pp.41-57, 2010.
- [25]. J. K. Cho, J. Ozment & H. Sink, "Logistics capability, logistics outsourcing and firm performance in an e-commerce market," *International Journal of Physical Distribution & Logistics Management*, vol.38, pp.336-359, 2008.
- [26]. P. Jorion, "Value at risk," Third Edition McGraw Hill, pp.1-24, 2000.
- [27]. P. E. Jose, "MedGraph I A programme to graphically depict mediation among three variables," Victoria University of Wellington New Zealand, 2013.
- [28]. A. Joshi, "Motivating sustainable behaviors by framing biodiversity loss as a public health risk," *Journal of Risk Research*, vol.25, no.2, pp.156-175, 2021.
- [29]. U. Jüttner, H. Peck & M. Christopher, "Supply chain risk management outlining an agenda for future research," *International Journal of Logistics Research and Applications*, vol.6, no.4, pp.197-210, 2003.
- [30]. R. V. Krejcie & D. W. Morgan, "Table for determining sample size from a given population," *Educational and Psychological Measurement*, vol.30, pp.607-610, 1970.
- [31]. M. Leaver & T. W. Reader, "Non technical skills for managing risk and performance in financial trading," *Journal of Risk Research*, vol.19, no.6, pp.687-721, 2016.
- [32]. T. A. Liedong & T. Rajwani, "Managerial ties and access to finance in weak institutional contexts Does CEO duality matter," *Africa Journal of Management*, vol.8, no.2, pp.143-170, 2021.
- [33]. D. P. Mackinnon, C. M. Lockwood, J. M. Hoffman, et al., "A comparison of methods to test mediation and other intervening variable effects," *Psychological methods*, vol.7, no.1, pp.83-104, 2002.
- [34]. J. E. Mathieu & S. R. Taylor, "Clarifying conditions and decision points for mediational type inferences in organizational behavior," *Journal of Organizational Behavior*, vol.27, pp.1031-1056, 2006.
- [35]. B. J. Meacham, "Risk-informed performance-based approach to building regulation," *Journal of Risk Research*, vol.13, no.7, pp.877-893, 2010.
- [36]. P. Muppudathi & V. R. Krishnan, "Transformational Leadership and Follower's Perceived Group Cohesiveness Mediating Role of Follower's Karma-yoga," *Business Perspectives and Research*, vol.9, no.2, pp.269-285, 2021.
- [37]. N. Mwelu, M. Moya, M. Muhwezi, et al., "Outsourcing practices and profitability levels of manufacturing firms in Uganda," *Industrial Engineering Letters*, 2014.
- [38]. N. Mwelu, D. M. Rulangaranga, S. Watundu, et al., "Risk management and profitability of manufacturing firms in Uganda," *Industrial Engineering Letters*, vol.4, no.2, pp.49-54, 2014.
- [39]. R. Narasimhan, S. Narayanan & R. Srinivasan, "Explicating the mediating role of integrative supply management practices in strategic outsourcing a case study analysis," *International Journal of Production Research*, vol.48, pp.379-404, 2010.
- [40]. O. I. Ichakpa, E. Cleeve, C. Amadi, Et Al., "A business case argument for corporate social responsibility disclosure in Nigeria," *Africa Journal of Management*, vol.6, no.4, pp.407-418, 2020.
- [41]. A. K. Panda, S. Nanda & P. Panda, "Working Capital Management Macroeconomic Impacts and Firm Profitability: Evidence from Indian SMEs," *Business Perspectives and Research*, vol.9, no.1, pp.144-158, 2021.

- [42]. F.H. Pandya, "Study about Awareness and Availing of Various Direct and Indirect Fiscal Incentives and its Impact on Financial and Strategic Decisions of MSMEs," *Business Perspectives and Research*, vol.5, no.1, pp.36-68, 2017.
- [43]. R. J. Patil, "Due date management to improve customer satisfaction and profitability," *International Journal of Logistics Research and Applications*, vol.13, no.4, pp.273-289, 2010.
- [44]. B. Patnaik & M. K. Shukla, "Diversity and Equality Management System and Perceived Organisational Performance: A Mediating Role of Organisational Citizenship Behaviour," *Business Perspectives and Research*, vol.9, no.2, pp.215-234, 2021.
- [45]. K. J. Preacher & A. F. Hayes, "SPSS and SAS procedures for estimating indirect effects in simple mediation models," *Behavior research methods*, vol.36, pp.717-731, 2004.
- [46]. H. Qiu, S. Weng & M. S. Wu, "The mediation of news framing between public trust and nuclear risk reactions in post-Fukushima China: A case study," *Journal of Risk Research*, vol.24, no.2, pp.167-182, 2021.
- [47]. H. Rogers, M. Srivastava, K. S. Pawar, et al., "Supply chain risk management in India practical insights," *International Journal of Logistics Research and Applications*, vol.19, pp.278-299, 2016.
- [48]. S. Salomo, J. Weise & H. G. Gemünden, "NPD planning activities and innovation performance: the mediating role of process management and the moderating effect of product innovativeness," *Journal of product innovation management*, vol.24, no.6, pp.285-302, 2007.
- [49]. L. Scardino, K. Potter, A. Young, et al., "Gartner on Outsourcing," *Gartner Research*, vol.2, pp.1-48, 2006.
- [50]. F. Schiller & G. Prpich, "Learning to organise risk management in organisations: what future for enterprise risk management," *Journal of Risk Research*, vol.17, pp.999-1017, 2014.
- [51]. U. Sekaran & R. Bougie, "Research methods for business: A skill building approach," ISBN: 978-1-119-26684-6, Wiley, pp.1-448, 2010.
- [52]. S. Sengupta, S. Sharma & A. Singh, "Authentic leadership fostering creativity in start-ups: Mediating role of work engagement and employee task proactivity," *Business Perspectives and Research*, vol.9, no.8, pp.235-251, 2021.
- [53]. B. Sheehan, F. Murphy, A. N. Kia, et al., "A quantitative bow-tie cyber risk classification and assessment framework," *Journal of Risk Research*, vol.24, no.12, pp.1619-1638, 2010.
- [54]. E. Stark, A. S. Baldwin, A. W. Hertel, et al., "Understanding the framing effect: Do affective responses to decision options mediate the influence of frame on choice," *Journal of Risk Research*, vol.20, no.12, pp.1585-1597, 2017.
- [55]. W. A. V. D. Stede, C. W. Chow, & T.W. Lin, "Strategy choice of performance measures, and performance," *Behavioral research in accounting*, vol.18, pp.185-205, 2006.
- [56]. A. Stringfellow, M. B. Teagarden & W. Nie, "Invisible costs in offshoring services work," *Journal of Operations Management*, vol.26, no.2, pp.164-179, 2008.
- [57]. N. Syahirah, "Firm Risk and Performance of Consumer Industry: Nestle Malaysia," 2017.
- [58]. I. P. Vlachos, "Reverse logistics capabilities and firm performance: the mediating role of business strategy," *International Journal of Logistics Research and Applications*, vol.19, no.5, pp.424-442, 2016.
- [59]. W. Waemustafa & S. Sukri, "Systematic and unsystematic risk determinants of liquidity risk between Islamic and conventional banks, vol.6, no.4, pp.1321-1327, 2016.
- [60]. R. D. Warburton & R. Stratton, "The optimal quantity of quick response manufacturing for an onshore and offshore sourcing model," *International Journal of Logistics: Research and Applications*, vol.8, no.2, pp.125-141, 2005.
- [61]. E. Wipplinger & P. Jorion, "Value at Risk-The New Benchmark for Managing Financial Risk. *Financial Markets and Portfolio Management*, vol.21, no.397, 2007.
- [62]. X. Wu, Q. Wang, L. Wang, et al., "Customer integration and the performance of third-party logistics firms: a moderated mediation model," *International Journal of Logistics Research and Applications*, vol.26, no.3, pp.615-632, 2021.
- [63]. Q. Yang, Q. Wang & X. Zhao, "A taxonomy of transaction-specific investments and its effects on cooperation in logistics outsourcing relationships," *International Journal of Logistics Research and Applications*, vol.22, no.6, pp.557-575, 2019.

