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Effect of Operations Capabilities on Financial Performance of Firms with Moderating Role of Supply Chain Management Capabilities: A case of Indonesian Pharmaceutical Firms

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ABSTRACT
Operational capabilities and competences not only generate value for business itself but also for its customers and suppliers. This study intended to investigate the effect of operational capabilities on financial performance of Indonesian pharmaceutical firms with moderating role of supply chain management practices. The data was collected from managing directors, managers of supply chain, planning managers and operational managers of pharmaceutical firms in Indonesia by using survey questionnaire method. Collected data was analysed by PLS statistical software in two steps. In first step, reliability and validity was inspected and in second step proposed relationship between constructs was investigated. This study found that new product design, just-in-time and total quality management have significant and positivity association with financial performance of pharmaceutical firms in Indonesia. Furthermore, supply chain management practices significantly moderate the relationship of just-in-time and total quality management with financial performance of pharmaceutical firms in Indonesia. However, supply chain management practices have no moderating role on the relationship of new product design with financial performance of firms. Findings of this study provide guideline to managers of pharmaceutical firms in Indonesia regarding the role of operational capabilities and supply chain management practices.

Keywords: Operational capabilities, Supply chain management practices, financial Performance.

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INTRODUCTION

Supply chain management (SCM) mainly focus on the continuous integration of activities associated with value-generation within and outside the organizational context. It helps businesses in reducing waste, control collaborations and gaining better competitive position in the highly globalized business settings. In the same way, paying more emphasis on the supply chain advancement indicate a higher-level management activity of integration regarding value generation with respect to both practical and structural limitations. Businesses adopt particular strategies depending upon the factor linked with the industry, product kind and integration extent. Though in general, the core purpose is to advance and establish internal and external relations with regard to supply chain which help members to enhance capabilities by coordinating activities. Globally, struggles of business organization to implement supply chain have not achieved significant success. Numerous attempts have been failed in spite of investing appropriate resources on them. The failure may be the result of a lack of understanding of relations of SCM practices and other components of business portfolio of business competences. The resource based view (RBV) of the organizations recommend that attaining and sustain completive edge is an outcome of key resources and competences that are the result of supply chain partners in a particular context (Mata, Fuerst, & Barney, 1995). These indicate the main foundation of a business achievement. Various empirical research studies found the evidence that firms that have diverse kinds of resources enjoy differentiation that ultimately results in the business competitive edge (Sukati et al., 2012).

In contemporary competitive settings, firms are supposed to offer products and services at lesser prices with excellent quality that demand coordination of various operational competences of various supply chain participants. In the creation of competitive benefit, businesses must apply and develop their key resources and abilities in the way that it will be difficult to copy for competitors (Molina-Castillo, Jimenez-Jimenez, & Munuera-Aleman, 2011). Studies concluded that organization in the same context and market with similar operational abilities may produce different levels of outputs and performance (Eng, Chew, & Lee, 2014; Galleli & Hourneaux Junior, 2019). Furthermore, operational capability and competence not only generate value for business itself but also for its customers and suppliers. In the literature, operations capability with regard to the firm have been widely investigated by the researchers but there are limited and inconclusive studies that have incorporated the influence of SCM practices on operating competences and performance of the business. This study is being conducted by the researcher with the aim to address the prevailing literature gap by investigating the relation of operations competence and SCM practice with regard to organizational performance. By studying the extensive literature, it is concluded that operations capability is the driving force for SCM practices and these practices have influential relation with the operational competence and performance of the business (Sangari & Razmi, 2015).

With regard to the operations strategy, generally managers have purpose of operational innovation and their investments regarding that to generate new methods or competences that have the overall objective of gaining competitive benefit for a firm. Investment cantered

emphasis for implementing and developing operational practices may possibly improve performance significantly (Ward & Zhou, 2006). However, other focus on improving operational capabilities that results in the operations management system resolve issues with the perspective of business and customer (Flynn* & Flynn, 2005).

According to the RBV, excellent performance of business is the outcome of appropriate implementation of business resources and capabilities (Bozarth et al., 2009). Business capabilities are generally defined as "complex bundles of skills and accumulated knowledge that enable firms to coordinate activities and make use of their assets" (Day & Day, 1990). In the literature, researchers of the supply chain have acknowledged business capabilities as a driving force for the operational efficiency of business and competitive outcomes (Y. Lin & Wu, 2014). SCM has widely regarded as the core competency that results in the emerging of particular capabilities that include the competence to shape strategic relations with clients and contractors, exchange of information among supply chain contributors and quick response to the market requirements and variations (Yu, Ramanathan, & Nath, 2014). As per RBV viewpoint, SC competences are regarded as intangible resource of the business (Gunasekaran et al., 2017). It is concluded by researchers that business costs are reduced continuously with the help of SC and generate competitive benefits through developed operational efficiency and effectiveness of supply chain. In spite of acknowledged significance of SC capabilities regarding organizational achievement, some of the mangers remained fail to get advantage of it.

In the literature of supply chain, various theories and theoretical contributions have been drawn. Specifically, the RBV is regarded as an appropriate conceptual model for investigating the implications of performance with regard to the supply chain practices (Sinkovics et al., 2011). By considering the evolutionary process and research of (Penrose, 1959), the RBV supplements "conservative industrial organizational theory" (Business construction and market place shape performance) and recognise the competitive worth of resources/competences, and how they integrate and affect plans followed by a business. A unique combination of resources and plans results in the competitive positioning of a business (Pitelis, 2007). Firm control heterogeneous resources that generally include overall assets, competences, operations, and information. Resources guide businesses to shape and apply strategies that enhance effectiveness of a business. On the other hand, strategies deal with the relations of outside environment in a business context (Teece, 2010). Managerial choices and actions based upon these strategies that decide the sustained performance of business. According to a supply chain, resources and strategies are included that represent the firm level activities. Therefore, researcher recommends that operational competences and analogous SCM practices contribute significantly in the financial outcomes of a business. Furthermore, operational competences is regarded as the originator of these SCM practices, and contextualizing association of operational competence and SCM practice can develop better understanding of association of operational capability and business performance. Numerous researchers have the opinion that attainment of firm level operational competences are the key indicator for operational distinction in the business (Hayes, 2006). Conclusively, it can be claimed that once a business has attained firm level operational capabilities and structure, it can better develop relationships with external supply chain partners. Despite, there is an extensive debate in the literature with regard to the integrated, inter-firm expansion of supply chain competences. Factually, businesses generally develop internal competencies before external relations. However, implication is that in what ways a business will deal its supply chain simultaneously.

LITERATURE REVIEW

Operational competencies have been widely studied with the perspective of performance. Previous researchers have incorporated capabilities with regard to performance outcomes that include price, excellence, reliability, rapidness and flexibility (Flynn* & Flynn, 2005). This insight indicates the association of operational competences and organizational goals. However, it has lack of support that how to accomplish better competences. Accordingly, Qian et al. (2010) acknowledged the drawback of this performance method with the help of extensive literature and concluded that day to day operations are the key cause for the competences. This is in line with the research of the Swink and Harvey Hegarty (1998) were they have the opinion that operational competences should be considered as the resources to an outcome, rather than as outcome itself. In this research, researcher incorporates this wider process perspective and considers operational competences as an outcome of business capabilities attained in the result of better operations management system. Likewise, components of organizational competences are considered to define operational competences. Additionally, Jinhui Wu, Melnyk, and Swink (2012) have the opinion those organizational competences a have its basis in the socially complex procedures that decide the effectiveness by which businesses physically convert inputs into outputs. This explanation regarded as the basic point for the understanding of operational abilities that ultimately will guide to develop our own definition of the concept. It focuses on the two basic components of competence that are organizational competences that found in the environment and processes of a business. Other is the corporate environment and relations of workers at firm level. Hence, competences found in the unique behavioural arrangements having complexity in nature and involve firm level and industry level operations (Schreyögg & Kliesch-Eberl, 2007).

Organizational competences are involved social procedures that are affected by the components like business history, executives behaviour in decision making towards persons, group, and business (Rothaermel & Hess, 2007) and learning procedure of a business (Schreyögg & Kliesch-Eberl, 2007). Illustratively, Kim, Eisenberger, and Baik (2016) have the opinion that attainment of absorptive aptitude (an organizational competence) is history or path-cantered and widely a function of a business level of pervious-linked information. Accordingly, capabilities overcome the limits of procedures and technologies that describe practices regarding operations, and results in the institutionalized. Similarly, capabilities are particularly

associated with specific organization while practice is not. Moreover, organizational competencies are associated with the conversion of materials into outputs. However, capabilities are merely associated with the organizational operations that have emphasis on the integration, learning and conversion (Harreld, O'Reilly III, & Tushman, 2007). They help in understanding the business culture appropriately (Schreyögg & Kliesch-Eberl, 2007) and guide decision makers in problem solving at the time of uncertainty and discrepancies. Likewise, capabilities guide individuals or teams to overcome the uncertain and ill-mannered jobs (Schreyögg & Kliesch-Eberl, 2007). Illustratively, "resource reconfiguration" Mount (2006) is regarded as a business capability that consisting of the procedure of financing or separating resources that are appropriate in the varying culture. Moreover, Kohli and Grover (2008) recommended that capabilities empower business to achieve transformational efficiency and these advantages are not limited but cover much more that general efficiency. It creates new value for clients and users by producing and enhancing greater approachability or improvements. Therefore, organizational competences consisting of the attributes that include business-centred, appear progressively, implicit, path reliant on, and may be authenticated with the implementation of solutions of problems confronted by business. By keeping in view these attributes, RBV indicate that organizational competences appropriately develop and sustain competitive benefit of a business (Helfat & Peteraf, 2003). In a nutshell, operational capabilities are subordinate outcome of organizational competences.

Operational competence termed as the activities and tasks where firm have extraordinary performance in line with the business goals (Safizadeh, Ritzman, & Mallick, 2000). In the literature, researchers often failed to differentiate among the competence and competitive priorities or production capability. Impliedly it can be understood that capabilities represent that in what ways business operations results in the value generation for a business. Competitive priorities are operational dimensions that business supposed to be significant for achievement (Boyer & Lewis, 2002). Production capabilities refer that to what extent production supports business goals (Carrillo & Franza, 2006). In the prior literature, researchers have mainly focused the dimensions of capability that include its nature, its key perspectives and dimensions likewise excellence, cost, flexibility and distribution associated with developed competitiveness (Barrett et al., 2007). However, the researches that have incorporated the content of capability have their focus on the process development components that include just-in-time, quality controlling, product expansion combined with the information and technological competences (Kannan & Tan, 2005). Consequently, operations capability is defined with the perspective of this study in terms of new product design and growth, just-in-time, and TQM competences. However, other proposed perspectives of capability are based on the operations perspective as discussed by the researchers (Banker et al., 2006). So, key dimensions of Operations capability are (1) New product design & growth (2) just-in-time (3) TQM (4) SCM practices and Firm performance

Operations' capability and firm financial performance

New product design and development competence and firm performance

"New product design and development" competence has been witnessed to achieve various benefits that include operations interactions, economies of scale, unique resource generation, efficient transformation of key capabilities and economic synergies (Chuang, Morgan, & Robson, 2015). Moreover, Mishra and Shah (2009) argued that business attain advantages from product improvement practices likewise part standardization that ultimately develop performance regarding inventory, price, and excellence. Greater customer satisfaction is also the outcome of the activities associated with new product design and growth (Horváth, 2006). In the recent studies, researchers have concluded that advanced organization have transformed their focus from depending upon the quality examination to design products with superior quality (Haon, Gotteland, & Fornerino, 2009). Designing products with superior quality identifies that these efforts yield advantages with respect to the production, total quality expenditures and improving business outcomes. Correspondingly, it may attain competitive advantage when it is implemented combined with other strategic practices. However, there are limited studies available that found the evidence of association between new product development competence and business economic performance. Hence, prior research and anecdotal confirmation of industry recommend that that new product design and growth competence will have positive impact on financial performance of a business. Therefore, we hypothesize it:

H_1: New product design is significantly and positively influences financial performance of business.

Just-in-time capability and firm performance

According to Olhager (2002), supply chain efficiency is dependent upon the extent of relation among supply chain partners. He examined the SCM with regard to the just-in-time concept, having emphasis on the relationship of supply partners combined with the collaborative effectiveness. It was concluded that lead-time assurance greatly influence the lead-time performance of business than considering time equivalency. Moreover, Yang and Pan (2004) recommended collaborative stock management method to control just-in-time inventory in the culture where chain affiliates generate strategic alliances with the aim of income sharing. Similarly, Kannan and Tan (2005) incorporated the fast distribution of products combined with the just-in-time inventory method relevant to the SCM practices. They argued that competition among the firms with regard to the customs will alternatively be substituted by the idea of supply chain rivalry for consumers. There are number of cases where business just-in-time competence has impact on the financial outcomes of business. Just-in-time method have focus on the delivering of material or its associated small manufacturing parts frequently and directly to the production site that remove the requirement of incoming scrutiny, its storing and transportation of material (Yusuf et al., 2004). However, there should be an assurance on the part of the producer that material which is being delivered for production is of appropriate quality and quantity with

in time delivery of material. For the purpose, various firms extend their relations with other firms for exchanging confidential knowledge and expertise. They rely on the process of strategic supplies instead of facing inspection process. Business that has developed just-in-time method will significantly focus on the operational competences (Hsu et al., 2009).

In the research, appropriate evidence found that indicate the significance of just-in-time method with regard to the performance of a business. It depends upon the basic assumption that more simplified and less variant production reduces waste, cost and lead times and enhances quality. Resultantly, it enhances the performance of the business (Lu et al., 2013). Additionally, Aksoy and Öztürk (2011) indicate that appropriate just-in-time methods are equally and financially beneficial for both of the stakeholders such as buyers and suppliers. Numerous practices associated with the just-in-time practices include reduction in the operations time, standardization of process, protective maintenance and interval deliveries of small material lots, development attempts continuously and top level manager's contribution have been observed in the production industry (Guertin, Zappe, & Kim, 2007). However, the competence and limit of just-in-time application vary from firm to firm, industry to industry and environment to environment (H.-F. Lin, 2017). Firms that are more progressive in their competences are supposed to apply resources more effectively and gain more benefits. In line with the literature, we theorize:

H_2: Just-in-time competence positively and significantly influences business financial performance.

Total quality management and firm performance

Romano (2002) concluded in his research that quality is essential for firms to survive in the competitive market and it is regarded as strategic variable that is required to be acknowledged and managed in the whole business process. Moreover, González-Benito and González-Benito (2006) highlighted the association of customer and supplier with regard to the quality assurance practices in the context of automotive parts providers. They concluded and highlighted the significance of promise to quality assurance by all partners of the supply network. Forevermore, Gunasekaran and McGaughey (2003) studied the relation of TQM and SCM with regard to the operational flexibility and performance evaluation. Various areas of research are significantly recommended for further research that includes TQM and SCM. In the similar way, Habtoor (2016) examined the linkage of TQM and business performance and found that failure to recognize the influence of TQM guide in describing the insufficiencies of prevailing frameworks of SCM. Similarly, Kannan and Tan (2005) focused on the implied association of quality management and SCM practices. The justification for the association of business TQM competence and its SCM practices is obvious. Illustratively, the business that has progressive quality management competence is possibly opt suppliers having likewise capability. In contrast, business that has less proficiency is questionable to be demanded other businesses because of its weak ability and credibility in the eyes of other firms.

There is a well-established association of TQM and business performance in the literature (Tortorella et al., 2019). However, in the recent research works, researchers have examined the relation with the various perspectives. Illustratively, RBV of the business recommended that association is the outcome of the exclusive set of resources and capabilities developed by the application of TQM (Bou-Llusar, Camisón-Zornoza, & Escrig-Tena, 2001). Moreover, Tena, Llusar, and Puig (2001) applied the neoclassical viewpoint of the effect of competitive situation in forming a comprehensive theoretical model of TQM. They concluded that appropriate investments in excellence are essential to attain greater customs gratification in the context of greater competitive settings. Moreover, Habtoor (2016) regarded the behavioural viewpoint and concluded that operational outcomes can appropriately evaluated by the leadership, management and client emphasis. However, Chang (2006) concluded that integration in the strategy of business, quality extents, and competence is crucial for the economic performance of a business with regard to the product development, profits and turnovers. In line with the literature, we theorize:

H_3: TQM competence has significant positive impact on financial performance of business.

Moderating role of Supply chain management practices

Mellat-Parast (2013) studied the association of operational quality practices, SCM practices, and business performance. In their research, they found that quality management and SCM tools must have integrated application for greater monetary and organizational performance. Moreover, Stevenson et al. (2003) examined the performance outcomes of a collaborative SCM approach. They recommended that there are positive direct and indirect association prevailed among supply chain integration and financial outcomes of business. Accordingly, Green et al. (2019) investigated with regard to the management concerns and concluded SCM practices are positively associated with business performance. Wisner (2003) established an empirical model with regard to the supplier and client management and found positive association of the variables of SCM and business performance. In the literature, numerous examples prevailed where business reduced their focus from key competencies and paid their attention for the development of supplier capability to attain competitive benefit (Phan et al., 2019). Businesses pay their focus on the development of effective relations with the supply chain members (Shamsuddoha, 2015). Supplier capability advancement produce results in the form of reduced production time, extraordinary quality and fast collaboration of innovative technology (Hamister, 2012). In short, increased outsourcing operations enable businesses to depend upon their member partners. Therefore, firms must pay focus on the development of relations. Hence, we theorize:

H_4: SCM practices have significant moderating role on the relationship of operational capabilities with financial performance of firm.

Research Framework and Hypotheses

This section presents the proposed research framework of the study

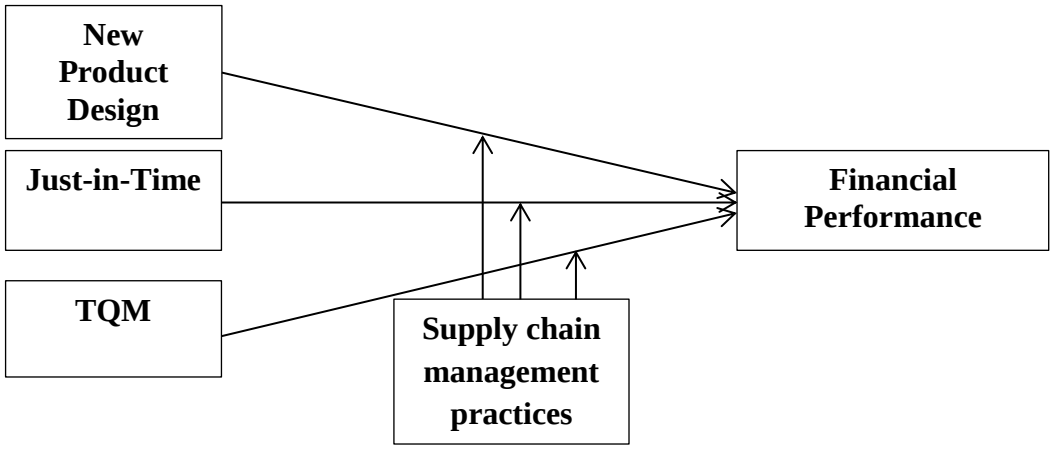

Figure 1: Proposed research framework

METHODOLOGY

The study was employed quantitative method in testing objective theories (e.g., theoretical framework of the present study) by examining the relationship among variables (Creswell & Zhang, 2009). The intent of this study is to investigate the association of operational capabilities on financial performance with moderating role of SCM practices of Indonesian pharmaceutical firms. This study employed a quantitative research design in conducting the research, the instrument was survey questionnaires. This study focused on pharmaceutical companies in Indonesia. The data was collected from the managing directors, managers of supply chain, planning managers and operational managers of pharmaceutical firms in Indonesia. Survey questionnaire method applied for this study. In a survey questionnaire, respondents are inquired closed-ended questions. Five-point scales were applied in the survey questionnaire of this study. Five-point Likert scale is familiar and frequently used in most of the survey questionnaire to obtain participant's preferences, the degree of agreement, and the extent of agreement. Various methods can be used to collect the data. For this study, data obtained from primary sources, which is individual represent an organization to participate and response through survey questionnaires (Sekaran & Bougie, 2010).

ANALYSIS AND DISCUSSION

In recent decades, "structural equation modeling (SEM)" is regarded as the most appropriate statistical analysis tool with respect to the social sciences (Henseler et al., 2014). Methods are appropriate for the studies that are required to estimate unobserved latent variables indirectly (Carmines et al., 1981). Basically, there are several techniques in SEM analytical methods. Thus, the selections of suitable analytical techniques were presented after the discussion of pros and cons of respective technique. SEM has some requirement for the evaluation of a measurement framework. Before applying structure model, measurement model was assessed to investigate the reliability and validity.

Assessment of Measurement Model

The reliability and validity of the model tested through the measurement model. The construct validity is measured by the confirmatory factor analysis whereby the SEM program will compute the factor scores of each respondent and the relationship between constructs will be automatically corrected for the error in variance of the construct measures. Therefore, the construct validity provides confidence of measurement from the sample taken representing the actual score that exists in the population (Hair et al., 2012). Reliability can be seen from alpha and composite reliability. Hair et al. (2012) proposed a criterion of minimum values for alpha and CR should be 0.7. Validity is the extent to which scores on a particular instrument are correlating with scores on the other instruments supposed to measure same construct.

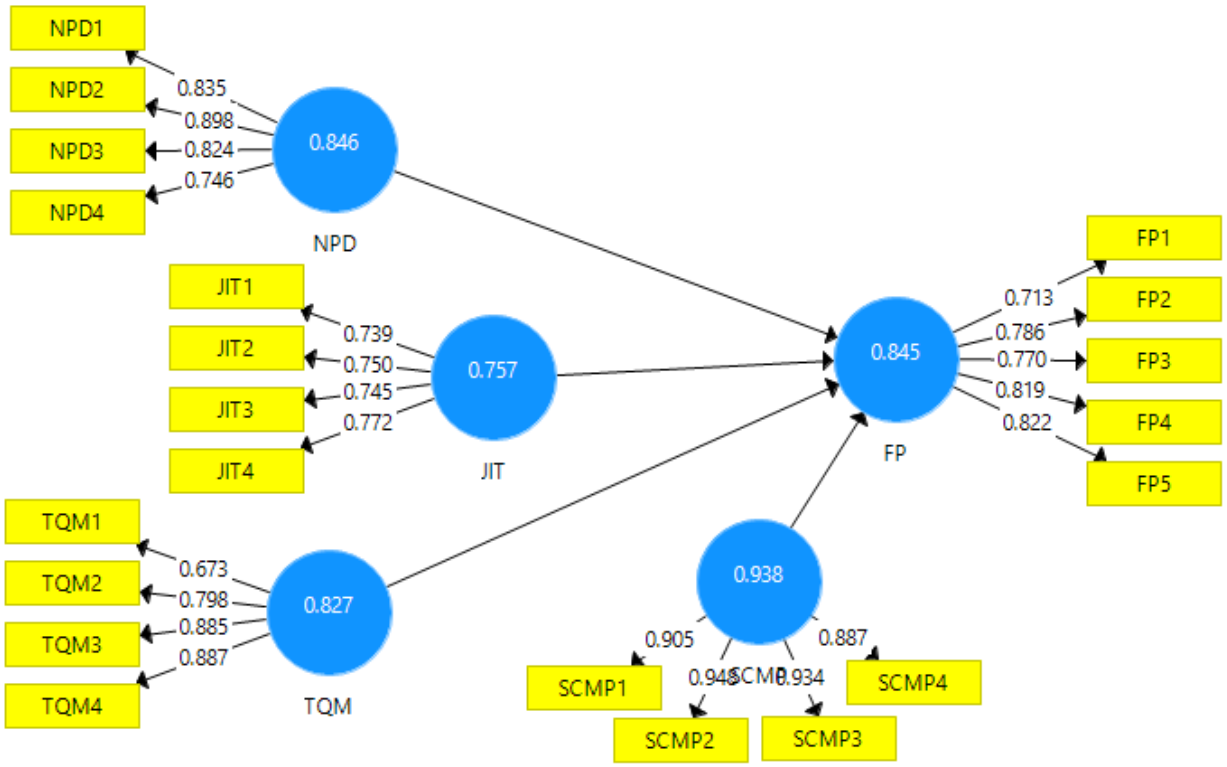

Figure 2. Measurement Model Assessment

TABLE 1. Values of alpha, CR and AVE

Sr#	Constructs	alpha	CR	AVE
1	FP	0.845	0.888	0.614
2	JIT	0.757	0.839	0.565
3	NPD	0.846	0.896	0.685
4	SCMP	0.938	0.956	0.844
5	TQM	0.827	0.887	0.665

Table 2 presents that the "square root of AVE" for the investigation of Validity of constructs.

TABLE 2. Discriminant Validity

Sr#	Constructs	1	2	3	4	5
1	FP	0.783				
2	JIT	0.625	0.752			
3	NPD	0.519	0.394	0.828		
4	SCMP	0.484	0.479	0.490	0.919	
5	TQM	0.612	0.691	0.368	0.384	0.816

Structural Model

This section will discuss the hypothesized structural model and will proceed with the hypotheses testing based on the generated structural model.

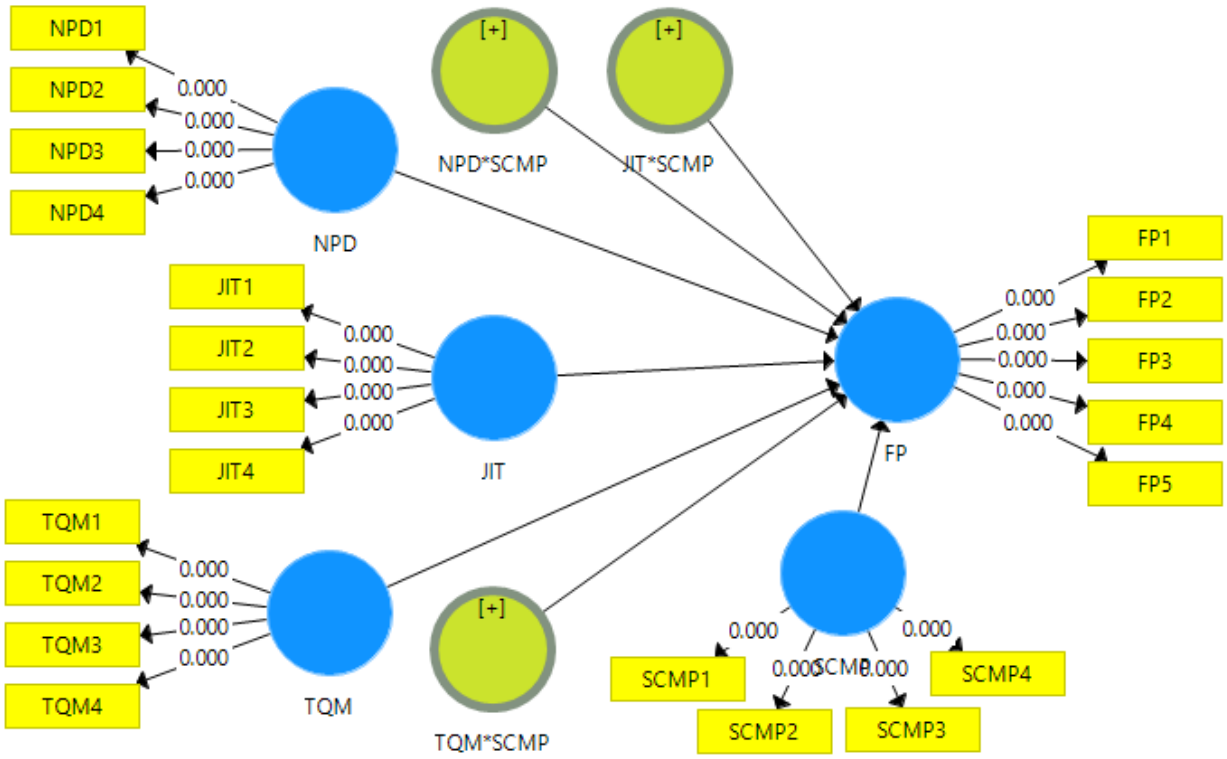

Figure 3. Structural Model Assessment

TABLE 3. Structural Model Assessment (Direct Results)

	(β)	(STDEV)	T Statistics	P Values
NDP-> FP	0.215	0.058	3.670	0.000
JIT -> FP	0.360	0.086	4.171	0.000
TQM -> FP	0.173	0.086	1.990	0.049

The aim of this study is to investigate the relationship of Operations' capabilities (New product design, Just-in-time and Total quality management) with financial performance of pharmaceutical firms in Indonesia. Structure model was carried out to hypothesize the proposed relationship between constructs. Results of this study found that new product design has significant and positive relationship with financial performance of pharmaceutical firms in Indonesia. The t-value 3.670 indicated that H1 is accepted at 1% level of significance. This study also found significant influence to financial performance of pharmaceutical firms in Indonesia. H2 is also accepted on statistical grounds because t-value is 4.171 that is grater then the threshold value 1.96. Study also found that total quality management practices have positive effect on financial performance of Indonesian pharmaceutical firms. The t-value 1.99 and p-value 0.049 are according to the standard values and H3 is also accepted on statistical grounds. These findings are similar with the findings of (Kamboj, Goyal, & Rahman, 2015). These findings show that operations' capabilities play important role in enhancing financial performance of pharmaceutical firms.

TABLE 4. Structural Model Assessment (Moderation)

	(β)	(STDEV)	T Statistics	P Values
NPD*SCMP -> FP	-0.052	0.058	0.904	0.366
JIT*SCMP -> FP	0.179	0.085	2.114	0.005
TQM*SCMP -> FP	0.191	0.087	2.204	0.008

This study also intended to investigate the moderating effect of supply chain management practices on the relationship of operations' capability with financial performance of pharmaceutical firms in Indonesia. This study found that supply chain management practices do not moderate the relationship of new product design with financial performance of pharmaceutical firms in Indonesia. Moreover, supply chain management practices have moderating role on the relationship of Just-in-time and Total quality management with financial performance of pharmaceutical firms in Indonesia.

CONCLUSION

The purpose of this study was to examine the relationship of Operations' capabilities (New product design, Just-in-time and Total quality management) with financial performance of pharmaceutical firms in Indonesia. Moreover, the second objective of this study was to check the moderating effect of supply chain management practices. The data was collected by using survey questionnaire with cross sectional method and then PLS was adopted for data analyses. The data was analysed by using two step analysis approach. In first step, assessed the reliability and validity of data and in second step proposed relationship among variable was estimated. Results of this study concluded that operations capabilities have strong influence on financial performance of Indonesian Pharmaceutical firms. Moreover, findings indicated that supply chain management practices have moderating role on the relationship of Just-in-time and Total quality management with financial performance but these do not moderate the relationship of new product design with financial performance. This study provides fresh insight on financial performance of pharmaceutical firms especially with regard to operations' capabilities and supply chain management practices.

REFERNCES

1. Aksoy, A., & Öztürk, N. (2011). Supplier selection and performance evaluation in just-in-time production environments. *Expert systems with applications, 38*(5), 6351-6359.
2. Banker, R. D., Bardhan, I. R., Chang, H., & Lin, S. (2006). Plant information systems, manufacturing capabilities, and plant performance. *MIS quarterly*, 315-337.
3. Barrett, E., Ross, R., Fitzgerald, G., & Stanton, C. (2007). Rapid screening method for analyzing the conjugated linoleic acid production capabilities of bacterial cultures. *Appl. Environ. Microbiol., 73*(7), 2333-2337.
4. Bou-Llusar, J. C., Camisón-Zornoza, C., & Escrig-Tena, A. B. (2001). Measuring the relationship between firm perceived quality and customer satisfaction and its influence on purchase intentions. *Total quality management, 12*(6), 719-734.
5. Boyer, K. K., & Lewis, M. W. (2002). Competitive priorities: investigating the need for trade-offs in operations strategy. *Production and operations management, 11*(1), 9-20.
6. Bozarth, C. C., Warsing, D. P., Flynn, B. B., & Flynn, E. J. (2009). The impact of supply chain complexity on manufacturing plant performance. *Journal of Operations Management, 27*(1), 78-93.
7. Carmines, E. G., McIver, J. P., Bohrnstedt, G. W., & Borgatta, E. F. (1981). Social measurement: Current issues. *Analyzing models with unobserved variables: Analysis of covariance structures, 80*, 65-115.
8. Carrillo, J. E., & Franza, R. M. (2006). Investing in product development and production capabilities: The crucial linkage between time-to-market and ramp-up time. *European Journal of Operational Research, 171*(2), 536-556.
9. Chang, H. H. (2006). An empirical evaluation of performance measurement systems for total quality management. *Total Quality Management, 17*(8), 1093-1109.
10. Chuang, F. M., Morgan, R. E., & Robson, M. J. (2015). Customer and competitor insights, new product development competence, and new product creativity: differential, integrative, and substitution effects. *Journal of product innovation management, 32*(2), 175-182.
11. Creswell, J. W., & Zhang, W. (2009). The application of mixed methods designs to trauma research. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies, 22*(6), 612-621.
12. Day, G. S., & Day, G. S. (1990). *Market driven strategy: Processes for creating value*: Free Press New York.
13. Eng, S. W. L., Chew, E. P., & Lee, L. H. (2014). Impacts of supplier knowledge sharing competences and production capacities on radical innovative product sourcing. *European Journal of Operational Research, 232*(1), 41-51.
14. Flynn*, B., & Flynn, E. (2005). Synergies between supply chain management and quality management: emerging implications. *International Journal of Production Research, 43*(16), 3421-3436.
15. Galleli, B., & Hourneaux Junior, F. (2019). Human competences for sustainable strategic management: evidence from Brazil. *Benchmarking: An International Journal*.
16. González-Benito, J., & González-Benito, Ó. (2006). The role of stakeholder pressure and managerial values in the implementation of environmental logistics practices. *International Journal of Production Research, 44*(7), 1353-1373.
17. Green, K. W., Inman, R. A., Sower, V. E., & Zelbst, P. J. (2019). Impact of JIT, TQM and green supply chain practices on environmental sustainability. *Journal of Manufacturing Technology Management, 30*(1), 26-47.
18. Guertin, L. A., Zappe, S. E., & Kim, H. (2007). Just-in-time teaching exercises to engage students in an introductory-level dinosaur course. *Journal of Science Education and Technology, 16*(6), 507-514.
19. Gunasekaran, A., & McGaughey, R. E. (2003). TQM is suppy chain management. *The TQM Magazine, 15*(6), 361-363.
20. Gunasekaran, A., Papadopoulos, T., Dubey, R., Wamba, S. F., Childe, S. J., Hazen, B., & Akter, S. (2017). Big data and predictive analytics for supply

chain and organizational performance. *Journal of Business Research, 70*, 308-317.
21. Habtoor, N. (2016). Influence of human factors on organisational performance: quality improvement practices as a mediator variable. *International Journal of Productivity and Performance Management, 65*(4), 460-484.
22. Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the academy of marketing science, 40*(3), 414-433.
23. Hamister, J. W. (2012). Supply chain management practices in small retailers. *International Journal of Retail & Distribution Management, 40*(6), 427-450.
24. Haon, C., Gotteland, D., & Fornerino, M. (2009). Familiarity and competence diversity in new product development teams: Effects on new product performance. *Marketing Letters, 20*(1), 75-89.
25. Harreld, J. B., O'Reilly III, C. A., & Tushman, M. L. (2007). Dynamic capabilities at IBM: Driving strategy into action. *California management review, 49*(4), 21-43.
26. Hayes, R. (2006). Operations, strategy, and technology: pursuing the competitive edge. *Strategic Direction, 22*(9).
27. Helfat, C. E., & Peteraf, M. A. (2003). The dynamic resource-based view: Capability lifecycles. *Strategic management journal, 24*(10), 997-1010.
28. Henseler, J., Dijkstra, T. K., Sarstedt, M., Ringle, C. M., Diamantopoulos, A., Straub, D. W., . . . Calantone, R. J. (2014). Common beliefs and reality about PLS: Comments on Rönkkö and Evermann (2013). *Organizational research methods, 17*(2), 182-209.
29. Horváth, I. (2006). *Design competence development in an academic virtual enterprise.* Paper presented at the ASME 2006 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference.
30. Hsu, C.-C., Tan, K.-C., Kannan, V. R., & Keong Leong, G. (2009). Supply chain management practices as a mediator of the relationship between operations capability and firm performance. *International Journal of Production Research, 47*(3), 835-855.
31. Jinhui Wu, S., Melnyk, S. A., & Swink, M. (2012). An empirical investigation of the combinatorial nature of operational practices and operational capabilities: compensatory or additive? *International Journal of Operations & Production Management, 32*(2), 121-155.
32. Kamboj, S., Goyal, P., & Rahman, Z. (2015). A resource-based view on marketing capability, operations capability and financial performance: An empirical examination of mediating role. *Procedia-Social and Behavioral Sciences, 189*, 406-415.
33. Kannan, V. R., & Tan, K. C. (2005). Just in time, total quality management, and supply chain management: understanding their linkages and impact on business performance. *Omega, 33*(2), 153-162.
34. Kim, K. Y., Eisenberger, R., & Baik, K. (2016). Perceived organizational support and affective organizational commitment: Moderating influence of perceived organizational competence. *Journal of Organizational Behavior, 37*(4), 558-583.
35. Kohli, R., & Grover, V. (2008). Business value of IT: An essay on expanding research directions to keep up with the times. *Journal of the association for information systems, 9*(1), 1.
36. Lin, H.-F. (2017). Antecedents and consequences of electronic supply chain management diffusion: The moderating effect of knowledge sharing. *The International Journal of Logistics Management, 28*(2), 699-718.
37. Lin, Y., & Wu, L.-Y. (2014). Exploring the role of dynamic capabilities in firm performance under the resource-based view framework. *Journal of business research, 67*(3), 407-413.
38. Lu, S., Zheng, S., Tang, X., & Song, B. (2013). Adaptive speed control based on just-in-time learning technique for permanent magnet synchronous linear motor. *Journal of Process Control, 23*(10), 1455-1464.
39. Mata, F. J., Fuerst, W. L., & Barney, J. B. (1995). Information technology and sustained competitive advantage: A resource-based analysis. *MIS quarterly*, 487-505.
40. Mellat-Parast, M. (2013). Supply chain quality management: An inter-organizational learning perspective. *International Journal of Quality & Reliability Management, 30*(5), 511-529.
41. Mishra, A. A., & Shah, R. (2009). In union lies strength: Collaborative competence in new product development and its performance effects. *Journal of Operations Management, 27*(4), 324-338.
42. Molina-Castillo, F.-J., Jimenez-Jimenez, D., & Munuera-Aleman, J.-L. (2011). Product competence exploitation and exploration strategies: The impact on new product performance through quality and innovativeness. *Industrial Marketing Management, 40*(7), 1172-1182.
43. Mount, G. (2006). The role of emotional intelligence in developing international business capability: EI provides traction. *Linking emotional intelligence and performance at work: Current research evidence with individuals and groups*, 97-124.
44. Olhager, J. (2002). Supply chain management: a just-in-time perspective. *Production planning & control, 13*(8), 681-687.
45. Penrose, R. (1959). Proc. Cambridge Phil. Soc.
46. Phan, A. C., Nguyen, H. A., Trieu, P. D., Nguyen, H. T., & Matsui, Y. (2019). Impact of supply chain quality management practices on operational performance: empirical evidence from manufacturing companies in Vietnam. *Supply Chain Management: An International Journal*.
47. Pitelis, C. N. (2007). A behavioral resource-based view of the firm: The synergy of Cyert and March (1963) and Penrose (1959). *Organization Science, 18*(3), 478-490.
48. Qian, G., Khoury, T. A., Peng, M. W., & Qian, Z. (2010). The performance implications of intra-and

inter-regional geographic diversification. *Strategic management journal, 31*(9), 1018-1030.
49. Romano, P. (2002). Impact of supply chain sensitivity to quality certification on quality management practices and performances. *Total Quality Management, 13*(7), 981-1000.
50. Rothaermel, F. T., & Hess, A. M. (2007). Building dynamic capabilities: Innovation driven by individual-, firm-, and network-level effects. *Organization science, 18*(6), 898-921.
51. Safizadeh, M. H., Ritzman, L. P., & Mallick, D. (2000). Revisiting alternative theoretical paradigms in manufacturing strategy. *Production and Operations Management, 9*(2), 111-126.
52. Sangari, M. S., & Razmi, J. (2015). Business intelligence competence, agile capabilities, and agile performance in supply chain: An empirical study. *The International Journal of Logistics Management, 26*(2), 356-380.
53. Schreyögg, G., & Kliesch-Eberl, M. (2007). How dynamic can organizational capabilities be? Towards a dual-process model of capability dynamization. *Strategic management journal, 28*(9), 913-933.
54. Sekaran, U., & Bougie, R. (2010). Theoretical framework in theoretical framework and hypothesis development. *Research methods for business: A skill building approach, 80*.
55. Shamsuddoha, M. (2015). Integrated supply chain model for sustainable manufacturing: A System Dynamics approach *Sustaining Competitive Advantage Via Business Intelligence, Knowledge Management, and System Dynamics* (pp. 155-399): Emerald Group Publishing Limited.
56. Sinkovics, R. R., Jean, R.-J. B., Roath, A. S., & Cavusgil, S. T. (2011). Does IT integration really enhance supplier responsiveness in global supply chains? *Management International Review, 51*(2), 193.
57. Stevenson, M. R., Rimajova, M., Edgecombe, D., & Vickery, K. (2003). Childhood drowning: barriers surrounding private swimming pools. *Pediatrics, 111*(2), e115-e119.
58. Sukati, I., Hamid, A. B. A., Baharun, R., Alifiah, M. N., & Anuar, M. A. (2012). Competitive advantage through supply chain responsiveness and supply chain integration. *International Journal of Business and Commerce, 1*(7), 1-11.
59. Swink, M., & Harvey Hegarty, W. (1998). Core manufacturing capabilities and their links to product differentiation. *International Journal of Operations & Production Management, 18*(4), 374-396.
60. Teece, D. J. (2010). Business models, business strategy and innovation. *Long range planning, 43*(2-3), 172-194.
61. Tena, A. B. E., Llusar, J. C. B., & Puig, V. R. (2001). Measuring the relationship between total quality management and sustainable competitive advantage: A resource-based view. *Total quality management, 12*(7-8), 932-938.
62. Tortorella, G., Giglio, R., Fogliatto, F. S., & Sawhney, R. (2019). Mediating role of learning organization on the relationship between total quality management and operational performance in Brazilian manufacturers. *Journal of Manufacturing Technology Management*.
63. Ward, P., & Zhou, H. (2006). Impact of information technology integration and lean/just-in-time practices on lead-time performance. *Decision Sciences, 37*(2), 177-203.
64. Wisner, J. D. (2003). A structural equation model of supply chain management strategies and firm performance. *Journal of Business logistics, 24*(1), 1-26.
65. Yang, J.-S., & Pan, J. C.-H. (2004). Just-in-time purchasing: an integrated inventory model involving deterministic variable lead time and quality improvement investment. *International Journal of Production Research, 42*(5), 853-863.
66. Yu, W., Ramanathan, R., & Nath, P. (2014). The impacts of marketing and operations capabilities on financial performance in the UK retail sector: A resource-based perspective. *Industrial Marketing Management, 43*(1), 25-31.
67. Yusuf, Y. Y., Gunasekaran, A., Adeleye, E., & Sivayoganathan, K. (2004). Agile supply chain capabilities: Determinants of competitive objectives. *European Journal of Operational Research, 159*(2), 379-392.