

Uncertain Supply Chain Management

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The role of management accounting techniques in determining the relationship between purchasing and supplier management: A case study of retail firms in Kazakhstan

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ABSTRACT

The main concern of the current empirical research is to examine the role of management accounting techniques in determining the relationship between purchasing and supplier management in the retail sector of Kazakhstan, which during the last four years, has grown significantly. This study is based on the premise that managerial accounting is aligned with many factors such as quality, reliability, and price along with make-or-buy analysis, supplier certifications, value analysis, and certification as well. Besides, planning and sharing of information and holding ethical standards can also be aligned with managerial accounting. Employing a survey-based methodology, the SEM-PLS technique is used as a statistical tool to test the hypothesized relationships and answer the research questions of this study. The findings of the study provide support to the theoretical framework and a ground to examine the hypotheses of the current study. The results reveal that the cost of purchased goods did not represent only the purchasing element but also such factors like quantity and quality of goods and delivery time that can significantly influence any organizational operations. The study reiterates that the basic purpose of managerial accounting with reference to purchasing is the formulation and execution of a purchasing plan for goods with the supporting operation strategies. These findings will be helpful for policymakers and practitioners to understand the issues related to management accounting techniques and determine the relationship between purchasing and supplier management in the retail sector.

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1. Introduction

In purchasing, suppliers are selected and relationships are established for mutual benefits. For this reason, supplier management and purchasing have become an important concern for organizations. There is a need for superior purchasing techniques and authentic goods suppliers for surviving in the marketplace. From product designing to product development, purchasing is involved in every aspect. By involving key suppliers in designing and development of products through purchasing, the quality of product can be improved by reducing manufacturing costs and innovating new products for consumers. The implementation of e-commerce systems also involves purchasing (MacDonald, 2017).

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In business organizations, managerial accounting is concerned with the purchasing function which has become highly crucial because of outsourcing in supply chain management. Moreover, efforts are made for improving quality, reducing price and high-speed delivery of products. The factors such as quality, reliability, and price are supported with managerial accounting along with make-or-buy analysis, supplier certifications, value analysis, and certification. The planning and sharing of information can also be supported with managerial accounting as well as maintenance of ethical standards.

A network of entities for flow of materials, information, and money is referred to as supply chain (Sweeney et al., 2018). It involves producers, manufacturers, suppliers, retailers and consumers (Yunitarini & Santoso, 2018). The management of supply chain is related to strategic and systematic coordination of traditional functions of business in an organization. The relations are established across the organizational supply chain for improving long-term performance of supply chain (Borghoff, 2014). Inter and intra organizational processes delivering products and services at fair prices are involved in supply chain management (Ralston et al., 2015). The effective flow of information, finances, and materials across the network partners determines the superior supply chain performance. Supply chain capabilities can also be supported with information systems-enabled supply chain management for an effective flow of products from primary producers to consumers and flow of information from consumers to manufacturers (Lai et al., 2015). The ability of an organization for exploring, employing, and assimilating the internal and external resources as well as information across the supply chain is referred to as supply chain capability.

The increasing consumer purchasing power of Kazakhstani people is raising their standard of living and consequently changing the purchase habits. The local retail sector of Kazakhstan is facing an intense pressure from the international players. The most challenging among them is the installation of new technologies and being more innovative in reaching the customer. The supply chain of the retail sector is different from the manufacturing sector. The retail sector normally acts in the middle of supply chain receives the processed or finished goods and delivers them to the end users. The purchasing and delivering seem to be the main functions of the retail sector (Urbinati et al., 2017).

In Kazakhstan during the course of last four years, the retail sector has witnessed a tremendous growth. The growth is visible from the facts presented in Table 1, according to which the retail sector has grown approximately 125 percent in year 2017, and 2018. There are over 100 international retail brands in Kazakhstan. At the same time, there is still a need for brands targeted at mass market consumers, for example, H&M, Marks & Spencer, C&A, New Look, FG4 and Quiz. Retailers' interest to Kazakhstan and further expansion of international brands will increase in coming years due to the presence of such well-known brands as Zara, Bershka, Monsoon, Accessorize and New Yorker. The entrance of new international players to Kazakhstan will also depend on development of the new high quality shopping centers which will correspond to world standards (Stadtler, 2015)..

Table 1

The contribution of retail sector in GDP

Year	Percentage of GDP
2016	-9
2017	4
2018	10
2019	7

To give a more detailed insight we have mapped this change in percentage and shown in Fig. 1.

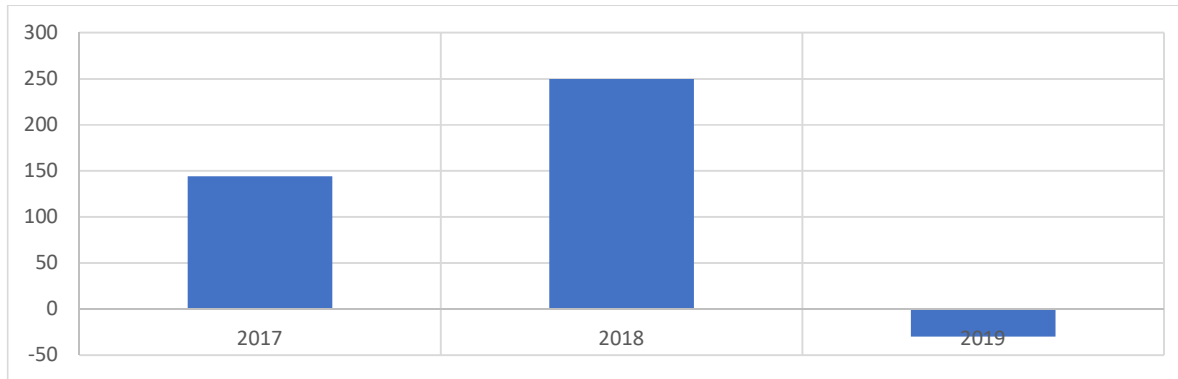


Fig. 1. Percentage change in the contribution of retail sector in GDP

Previous research studies have categorized the capabilities of supply chain into efficacy and efficiency related capabilities (Leuschner et al., 2013). Organization can achieve low cost logistics performance through efficiency-related capabilities (Chen et al., 2009) and maintain relations with supply chain partners as well as fulfill consumer requirements through efficacy related capabilities (Chen et al., 2009; Hendayani & Alviyan, 2019; Mahrinasari et al. 2019). According to Morash and Lynch (2002), supply chain capabilities are regarded as capabilities related to customer service and logistics. The supply chain capabilities have been conceptualized as a second order construct, which include supply chain relations, logistics performance, and supply chain agility (Chen et al., 2009; Ibrahim et al., 2015).

The study is aimed to investigate the relationship between purchasing and supplier management, between managerial accounting techniques such as relevant costing and supplier management and the study has also examined the effect of managerial accounting techniques on the relationship between purchasing and supplier management. Purchasing in this study is defined as a function of acquiring any product of service from one of the suppliers and it has divided into two subcategories namely interface purchasing and purchase cycle (Monczka et al., 2015). The managerial accounting in the current study is conceptualized in three categories namely the a) value costing; the true value analysis of supply chain activities which leads us to decision of cost reduction and performance improvisation, b) Relevance costing: identification the most relevant actions and calculating the cost , c) the true costing of purchase item that leads us to the most competitive price. Lately, the supplier management is operationalized into two dimensions; namely supplier selection and a supplier partner. Generally the study is interested in answering the following questions (Busse et al., 2017).

- How the purchasing affect the supplier management in the retail sector of Kazakhstan?
- Does the managerial accounting have any effect on the supplier management in the retail sector of Kazakhstan?
- Does the managerial accounting technique have any effect on the relationship between purchasing and supplier management in the retail sector of Kazakhstan?

The next section presents a critical review of literature carried out to answer the above-mentioned questionnaire.

2. Literature review

2.1. Purchasing

Purchasing is a term used for acquiring materials, parts, inputs, suppliers and other services for the production of a product or service. By considering that 60% cost of finished products is accounted by the purchased input materials, the importance of purchasing can be understood. For wholesale and retail companies, this percentage is higher as purchased inventories may even exceed 90 percent. However, the cost of purchased goods does not just represent the purchasing but several other factors like quantity and quality of goods and delivery time that can significantly influence the organizational operations.

The basic purpose of managerial accounting with reference to purchasing therefore is the formulation and execution of purchasing plan for goods supporting operation strategies (Baumgartner & Rauter, 2017).

Interfacing purchasing

There are interfaces between purchasing and managerial accounting with several functional areas including the outside suppliers. An organization is connected with its suppliers through managerial accounting as it supports the information sharing with these functional areas and suppliers (Parwati et al., 2016). For fulfilling the requirements of functions like timely delivery, quality, and quantity, there is a need for constituting the main source for purchasing input materials and coordination of these units with purchasing. For instance, immediate communication should be done in case of order cancellations, changes in requirements pertaining to quality, quantity, or specifications in order to ensure effective purchasing.

Moreover, managerial accounting is also an important factor in channeling the legal process. The legal support is required by the purchasing and accounting department for negotiations in contracts and making big specifications for purchases other than routine. Moreover, legal department can help in explaining the legislation regarding liability of a product, pricing, suppliers' contracts, and any disputes related to payments made to suppliers after the receiving goods. The accounting department also handles processing of data in a number of activities such as managing inventory records, preparing invoices and monitoring performance (Feng et al., 2014). Material specifications are however prepared by design and engineering departments but are communicated to purchasing through use of accounting information system. Information regarding the development of new materials and products is shared with the design personnel through purchasing and accounting in first place. A close collaboration may occur between purchasing and the design, and accounting people for identifying strategies such as reduction in cost through changes in specifications of needs, materials, and design.

In the case of incoming shipments of purchased goods, the receiving department evaluates the shipment in terms of quality, quantity, and time of receiving and storing goods. In case of late shipment, a notification was issued to purchasing department so that payments are made accordingly and vendor evaluation is done. Hence, the work is done in collaboration between suppliers and accounting and purchasing personnel for better learning about the specifications regarding quality, quantity, and time. Purchasing is thus supported by accounting department for evaluating suppliers based on the cost factor, quality, and reliability. When suppliers provide good information related to the improvement of product or materials and manage with the rush orders as well as changes, good relations are established (Apiyo & Kiarie, 2018).

Purchasing cycle

There are different phases of a purchasing cycle. It starts when a request is made within the organization for the purchase of equipment or other material from suppliers. The cycle ends when the shipment of required material is received with satisfying specifications. However, at every phase of the purchasing cycle, managerial accounting is involved in an active manner. The following are the main steps of purchasing cycle.

- The material to be purchased and its description
- The required quality and quantity
- The required time of delivery
- The information about the supplier of the purchased goods

The suppliers should be identified by the *purchasing department* based on the ability of supplying the goods required. If no suppliers is found suitable from an existing list, new ones should be identified. An evaluation or rating of vendors should be executed while making a choice for purchasing. The rating information can be communicated to the vendor for expected increase in the performance. When a large

order is made in terms of investment, suppliers are asked for bidding the required material. In this way, negotiations can be made with the vendor. Blank purchase orders can cover orders of large volume and can be used for long-term use. This includes the price negotiations for year-long deliveries. Blank purchase orders can also be made for moderate volume, but they must be dealt with individually. Small volume purchases can also be directly handled by the operating unit requesting for the required item. However, purchasing department should have some control over these purchases as well (Slack & Brandon-Jones, 2018).

2.2. Managerial accounting techniques for monitoring an order

The purchasing department projects the delays and communicates this information to the operating units through a routine follow-up on all orders. Any changes in delivery and quantity requirements are also communicated by the purchasing department to the suppliers for allowing them time to plan the change. The incoming shipments are also checked for the quantity and quality aspects after receiving them. In case of satisfied purchased material, the accounting, purchasing and operating unit are notified; however, if the goods are not satisfactory, these are sent back to the suppliers for inspection.

Value analysis

The evaluation of the functioning for the purchased materials in terms of reducing the cost and improving performance is referred to as value analysis. The evaluation can be made by comparing it with any other cheaper material with similar functioning, if available. The analysis can be made by posing several questions related to the use of a single part for two or more parts, simplification of a part, relaxing the product specifications and expected reduction in the price. The investigation cannot be done by the purchasing or managerial accounting every time. However, value analysis can be done periodically. Purchasing and managerial accounting do not have the authority to execute changes. However, suggestions can be made by them in the supply chain comprising purchasing and accounting, designers, suppliers, and operating units for improving performance through cost reduction. (Leonidou et al., 2017). A different perspective can also be offered by the purchasing and accounting department to conduct a cost analysis. The purchasing personnel and accountants have enough knowledge about negotiations because of their relation with suppliers. However, for evaluating a part or material, technical knowledge is required. In this case, a team composed of representatives from operations and design can be formed to do a technical analysis.

Relevant costs

Not all the resources are owned by business organizations nor can they provide all the activities required for the production of a good or service (Padoa-Schioppa & Conen, 2017). It may become expensive to if all the actions are performed on its own. Several organizations keep their focus on a specific part of the production process and outsource other functions. This results in expertise and efficient delivery of goods and services. This act of purchasing goods or services from outside the organization rather than producing them is known as outsourcing. Some companies prefer to do most of the production functions by themselves and do very little outsourcing while some are involved in extensive outsourcing. For instance, a company manufacturing personal computers outsources most of its parts and assembles them. Outsourcing of services can also be done such as outsourcing of data processing, maintenance, payroll and related benefits, food services, etc. There are various reasons behind taking outsourcing decision by a company. The most important reason is cost effectiveness. In other words, the company may find it expensive to produce some parts by itself while these are available at cheaper rates from an outside source. A large-scale producer of a product or service can offer it at a low price because of large volumes of scale. Knowledge and expertise is another reason for taking the outsourcing decision since a supplier may possess a patent for a part or material which necessitates outsourcing (Waters & Rinsler, 2014).

A company becomes flexible because of outsourcing. Similarly, when a company downsizes, it increases outsourcing because of its focus on some key activities. There are benefits as well as risks of outsourcing. The benefits are many as discussed above like low cost, ease of maintenance, and accessing knowledge and expertise of the suppliers. The risks include dependency on the suppliers, loss of control and inability to perform in-house activities.

The following factors are considered by an organization while making a decision for outsourcing.

- The cost for in-house production (Startup costs) vs. outsource cost
- Seasonal Demand
- Quality factor
- Idle capacity within the organization
- Lead times
- Patent rights and expertise
- Technological stability
- Strategic considerations, etc.

Every make or buy decision does not have strategic implications. However, it is important to assign make-or-buy decisions into tactical, operational, and strategic categories and for treating them accordingly. The decision for outsourcing can be based on such expertise. An organization can outsource some of tasks while handling specific parts of production to maintain its expertise. This offers flexibility and evades the loss of a subcontractor. It also acts as a bargaining tool in negotiations with the supplier as well as a head start for conducting the entire operation by the firm (Busse, 2016).

Price determination

The prices are determined by organizations in three different ways, viz. negotiation, published lists of prices, competitive bidding (Anand et al., 2017; Ray & Gramlich, 2015). Products and services are always bought by organizations with pre-determined prices. This is the case for standard items, which are purchased in small quantities and infrequently. In case of large orders, prices are determined through competitive bidding. A request is sent by the purchasing department to potential suppliers. They are asked to quote their price for the required quality and quantity of the items. Competitive bidding is preferably done for standard goods and services in the government sector. In case of special purchasing, when the specifications are not clear or customized products are required, negotiated purchasing can be used. Some myths have been identified by Tersine (1994) related to negotiated purchasing such as it is a win-lose confrontation, the purpose is to get lowest possible price and every negotiation is done independently. Moreover, a reasonable profit is required by the suppliers and contractors for survival. This win-lose approach which is based on weakness of the other party can sometimes have detrimental effects and do not promise any long-term benefits.

2.3. Management of suppliers

For efficient supply chain management, there is a need to find trustworthy and reliable suppliers who can make deliveries on time and with superior quality. In order to ensure effective supplier operations, purchasing and accounting managers can coordinate and act as external operations manager. The important aspects of management of suppliers are selection of suppliers and partnership with them.

Selection of Suppliers

Several factors are considered while selecting a supplier before making a big purchase. Different factors are involved including quality, price, and reputation of suppliers, previous experience and after sale services. Suppliers provide detail specifications of the required goods and materials rather than depending on shelf purchase. This makes a difference for organizations in terms of standard and requirements. The company takes into consideration factors like price, location, flexibility, financial stability, on-time delivery, and lead-time. These factors are crucial with respect to circumstances. The

importance of each factor is determined by the purchasing department with the help of operations. After getting convinced of all factors of suppliers' selection, the potential suppliers are rated according to their expected performance. This is referred to as vendor analysis, in which suppliers are evaluated before selecting for purchasing (Hashemi et al., 2015). The process of vendor analysis is periodically conducted or when there is a change in the weightage assigned to selection factors.

The suppliers can also be evaluated by auditing their production capabilities, delivery services, quality, and other performance criteria. When problem areas are revealed in an audit, the solution can be found by the buyer without allowing any more serious issues. Other aspects like quality assurance, management style, management of materials, and process of designing, improvement policies, corrective procedures, and actions along with follow ups are involved in supplier audit. In the certification of suppliers, the first step is to conduct supplier audits. In the process of certification of suppliers, the policies and capabilities of a supplier are also examined in detail.

Partnership with Suppliers

Many organizations aim at establishing partnership with suppliers and vendors across the supply chain. Long-term relationships are sought with suppliers through cooperation and information sharing over issues such as sales data, and forecasts. The expected benefits include improvement in delivery time, quality, reliability, low level of inventories, high profits and low costs as well as improved operations (Lemon & Verhoef, 2016). Good supplier relations can also be built by organization by taking the chance of working with these ideas and offering valuable inputs to the suppliers. The partnerships with suppliers yield best results only when savings in inventories are envisaged along with planning and stabilization of operations.

There are also several obstacles in building supplier partnerships if benefits are received by the buyer and the supplier is still uncertain about establishing a partnership. The cash flow can also be strained when suppliers make more investment on the equipment with less profit. The difference in the culture of buyer and supplier can also lead to issues. When strategic partnerships are made, this should result in strategic benefits for both parties involved. A good example is of computer industry in which companies including Dell does not have the resources for designing and building computers and depend on strategic partnership with suppliers. The start-up companies also take advantage of resources and expertise by building a partnership with bigger companies. Benefits are also gained by companies through locking in buyers, which support their business growth (Hahn et al., 2018).

2.4. Hypothesis Development

Luzzini et al. (2015) examined the relationship between purchasing and supplier management. The sample of 498 firms were chosen from around the world. They findings of the study argued that the Interfacing purchasing helps a firm in strengthening the supplier relationship. Recently, Maestrini et al. (2018), argued that the supplier and buyer collaboration in an interfacing purchasing function helps firm in improving the performance. Bag (2016) claimed the purchasing as an antecedent of supplier relationship, the findings of the Bag (2016) are consistent with the findings, as they claimed the purchasing as a determinant of supplier management. Based on the literature review and the findings discussed we have developed the following hypothesis explaining the relationship between interfacing purchase and supplier management

- H₁: Interfacing purchase has significant positive impact on the partnership with supplier.
 H₂: Interfacing purchase has significant positive impact on the selection of supplier.

The purchase cycle has significant impact on the supplier management as the supply chain management. According to the Christopher et al. (2013), the supplier first should be identified by the purchase department to ensure that either they will be fit in the purchase cycle of the company. Similarly, the Liu et al. (2015) argued that the in case of any large order, which as the significant impact purchase cycle is significantly affected by the supplier management. Many prior studies (Christopher

et al., 2013; Monczka et al., 2015; Nair et al., 2015) argued that the purchase cycle has significant impact on the supplier relationship. Based on the literature reviewed, the study has hypothesized the following relationships between purchase cycle and the supplier management.

H₃: Purchase cycle has significant positive impact on the partnership with supplier.

H₄: Purchase cycle has significant positive impact on the selection of supplier.

Many prior studies have suggested that the supply chain comprising purchasing and accounting, designers, suppliers, and operating units for improving performance through cost reduction (Grötsch et al., 2013; Hopwood et al., 2010; Maskell et al., 2017). A different perspective can also be offered by the purchasing and accounting department to conduct a cost analysis (Maskell et al., 2017). The purchasing personnel and accountants have enough knowledge about negotiations because of their relationship with suppliers, therefore true value costing is required, and it has significant impact on the supplier management. (Romano & Formentini, 2012). According to Tukker (2015), the relevance costing results in expertise and efficient delivery of goods and services. They continued and argued that the act of purchasing goods or services from outside the organization rather than producing them is known as outsourcing. According to Grötsch et al. (2013) many companies prefer to do most of the production functions by themselves and do very little outsourcing while some are involved in extensive outsourcing. For instance, a company manufacturing personal computers outsources most of its parts and assembles them. Supply chain management is all about outsourcing of services can also be done such as outsourcing of data processing, maintenance, payroll and related benefits, food services, etc. There are various reasons behind taking outsourcing decision by a company. In any outsourcing decision the valuation, cost relevancy, and price determination have significant impact so the study has hypothesized the following relationships,

H₅: Relevant cost has significant positive impact on the partnership with supplier.

H₆: Relevant cost has significant positive impact on the selection of supplier.

H₇: Value analysis has significant positive impact on the partnership with supplier.

H₈: Value analysis has significant positive impact on the selection of supplier.

H₉: Price determination has significant positive impact on the partnership with supplier.

H₁₀: Price determination has significant positive impact on the selection of supplier.

Based on the literature reviewed and the findings discussed the study broached an argument that the managerial accounting techniques moderates the relationship between purchasing cycle and supplier management and based on the literature reviewed the study has drawn the following hypothesis

H₁₁: Relevance cost moderates the relationship between Purchase cycle and partnership with supplier.

H₁₂: Value analysis moderates the relationship between Purchase cycle and partnership with supplier.

H₁₃: Price determination moderates the relationship between Purchase cycle and partnership with supplier.

H₁₄: Relevance cost moderates the relationship between Purchase cycle and selection of supplier.

H₁₅: Value analysis moderates the relationship between Purchase cycle and selection of supplier.

H₁₆: Price determination moderates the relationship between Purchase cycle and selection of supplier.

3. Methodology

This research was formulated based on hypothetic-deductive approach, which is a scientific method. It consists of seven steps including problem identification, problem statement, and hypotheses formulation, establishing measures, gathering data, data analysis and interpretation of findings. The main constituent is the deductive approach, which involves formulation and application of a general theoretical framework for a certain practical case. Using previous researches, a theoretical foundation was designed. In addition, a quantitative survey approach was also employed. In this approach, it is required to determine the research objectives, develop a research design, determine a valid and reliable

instrument of research, conduct a survey, collect data and analyze and interpret the findings. The nature of present study is cross-sectional i.e. the research took place at a specific time period, since it is convenient for the academicians. An email-questionnaire survey was also developed for data collection, which was then further used for statistical testing to assess the formulated hypotheses. This method was chosen because it requires less time and cost and covers wide geographical area (Snyder et al., 2016).

In addition, the survey research method involved collecting data from the people for a particular case. Since the current study is a field study conducted under a natural setting, a correlational study was an ideal fit which is usually carried out in an environment where researchers do not interfere and let the events happen in a normal setting. The survey conduction was done for generalizing outcomes. The population already had high validity since the items of the questionnaires were quite relevant and direct to address the items of a dimension (Hair Jr et al., 2016).

The Likert scale 1-5 was used as a measurement scale, where 1 represented Strongly Disagree, 2 for Disagree, 3 for Neutral, 4 for Agree, and 5 for Strongly Agree. The Accounts and operational managers from Retail firms of Kazakhstan were selected as final respondents or sample of the study. The cluster sampling was used for the survey research. A Five-technique approach was adopted for sample size calculation (Gay & Diehl, 1992). While estimating sample size, firstly the total population and population sample size was calculated, the present study determined both of these using a (Krejcie & Morgan, 1970) table. Therefore, a sample size of 310 was obtained. In a field of social sciences, researchers mostly employ SEM, since it is a powerful tool for testing multiple associations, simultaneously (Hair et al., 2016). Previously, several researchers have argued to use a co-variance approach, i.e. AMOS, but PLS-SEM has unique features making it a potential replacement for CB-SEM approach the response rate of the study was 63.2 percent.

4. SEM-PLS Analysis

For several reasons, PLS-SEM is a popular and a robust approach which has gained considerable attention among researchers and scholars. Urbach and Ahlemann (2010) observed arguments by researchers in favor of this approach. In addition, Hair et al. (2016) also suggests that PLS is beneficial when it is adopted solely for the explanation and predictive relevance of constructs. Thus, this paper employed PLS-SEM due to its flexibility, less restriction about the sample size, and proper handling of multiple regressions. Furthermore, the PLS-SEM consisted of formative and reflective constructs.

The SEM-PLS analysis involves outer and inner model estimation. The outer model includes measuring of its elements or components, assessing the degree of indicators with their theoretical loadings and correlating with the corresponding constructs. Putting differently, the outer model analysis verifies whether the survey items are measuring the constructs as they are expected. Thus, confirming the validity and reliability of the model, which are the two commonly used criteria under -PLS-SEM for analyzing the measurement model (Hulland, 1999; Ramayah et al., 2011). The outcome regarding the relation between constructs is determined through the measures of validity and reliability. The measurement model's suitability is analyzed by; 1) observing the convergent validity for the measures of indicators, using average variance extracted, 2) discriminant validity by following the outer loadings and Fornell and Larcker (1981) criterion, and 3) individual reliabilities of items, such as internal consistency reliability and indicator reliability by estimating composite reliability.

Whereas, the relation among the latent and observed variables is exhibited in the measurement model, changes in items of the model can also occur while estimating the measurement model. To confirm its validity, the confirmatory factor analysis was employed by taking first and second order constructs. Through the formative, structural, and reflective modeling, each element of the measurement model was estimated separately.

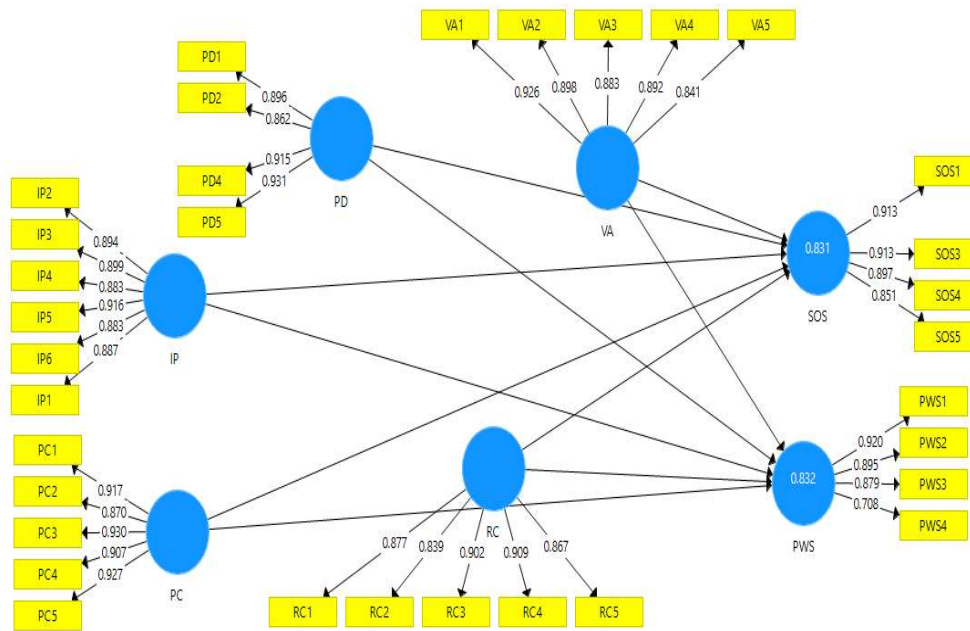


Fig. 2. Measurement Model

Internal consistency of a model determines the result consistency among the same test items. Hair Jr et al. (2013) suggest to measure internal consistency when similar scores are obtained by the construct measuring items. Therefore, composite reliability (CR) was examined to assess the reliability or internal consistency of the model. CR does not take into account constructs' equal indicator loading (Hair Jr et al., 2013). The range of composite reliability should be 0-1, where 0.60 is the threshold level (Henseler et al., 2009), but the most desirable level is 0.7 or above. If the value of CR lies between 0.6-0.7, it represents average internal consistency, whereas an adequate level of internal consistency occurs between 0.7-0.9 (Nunnally & Bernstein, 1994). Hence, to comply with this, the convergent validity for the study was also examined, which is the degree to which same construct measures, and are theoretically related to each other (Henseler et al., 2009). Thus, convergent validity reflects the extent of correlation between the same construct measures (Hair Jr et al., 2013). While considering the convergent element of measurement construct, average value extracted (AVE) was employed, having 0.50 or above as the threshold value (Henseler et al., 2009). The 0.5 value shows an adequate level of convergent validity. Therefore, according to B. Hair Jr et al. (2013) half of the indicators' variance is explained by the latent construct and it also determines the adequate convergent validity.

Table 2
Reliability

	Cronbach's Alpha	rho A	Composite Reliability	Average Variance Extracted (AVE)
IP	0.950	0.952	0.960	0.799
PC	0.948	0.951	0.960	0.829
PD	0.923	0.925	0.945	0.813
PWS	0.874	0.896	0.915	0.730
RC	0.926	0.928	0.944	0.773
SOS	0.916	0.920	0.941	0.799
VA	0.933	0.934	0.949	0.789

In empirical researches, a Fornell and Larcker (1981) criterion has been widely used and an effective measure is used to assess the discriminant validity. Whereas, the discriminant validity shows whether the reflective variables are related to their constructs. Thus, Fornell and Larcker (1981) criterion was used as a threshold. Therefore, the Reliability index must exhibit value equal or higher than 0.70. The

outer and cross-loadings exhibited same values. The cross loadings in a study determines any correlation existing between the constructs. The values of discriminant validity are presented in Table 2.

Table 3
Discriminant Validity

	IP	PC	PD	PWS	RC	SOS	VA
IP	0.894						
PC	0.892	0.911					
PD	0.674	0.671	0.901				
PWS	0.686	0.664	0.900	0.855			
RC	0.911	0.916	0.725	0.731	0.879		
SOS	0.670	0.691	0.892	0.884	0.710	0.894	
VA	0.691	0.649	0.920	0.867	0.695	0.876	0.888

In the end, outer loadings were examined for observing the contribution of each indicator in each construct. The value for outer loadings must be equal to or above 0.50 threshold level (Hair et al., 2010). Hair Jr et al. (2013) suggest to carefully examine the outer loadings, i.e. if they are above 0.40 but not above 0.70 then it is recommended to be omitted if it causes increase in the values of AVE and CR.

Table 4
Outer loadings

	IP	PC	PD	PWS	RC	SOS	VA
IP2	0.894						
IP3	0.899						
IP4	0.883						
IP5	0.916						
IP6	0.883						
PC1		0.917					
PC2		0.870					
PC3		0.930					
PC4		0.907					
PC5		0.927					
PD1			0.896				
PD2			0.862				
PD4			0.915				
PD5			0.931				
PWS1				0.920			
PWS2				0.895			
PWS3				0.879			
PWS4				0.708			
RC1					0.877		
RC2					0.839		
RC3					0.902		
RC4					0.909		
RC5					0.867		
SOS1						0.913	
SOS3						0.913	
SOS4						0.897	
SOS5						0.851	
VA1							0.926
VA2							0.898
VA3							0.883
VA4							0.892
VA5							0.841
IP1	0.887						

In structural modelling, coefficient of determination or R^2 explains the predictive power of endogenous variables. Closer to 0 value for path coefficients indicates insignificance of coefficients. Value for R^2 also lies between 0-1, value closer to 1 indicates greater predictive accuracy and vice versa. The value of 0.75 indicates substantial predictive power, 0.50 indicates moderate predictive power, while 0.25 indicates weak predictive power.

Table 5

R-square

	R Square
PWS	0.832
SOS	0.831

After checking and reconfirming absence for collinearity problem, the next step was to assess the structural model. According to Hair Jr et al. (2013), the key criteria for assessing the structural model in PLS-SEM are the significance of the path coefficients, and coefficient determination (R^2),

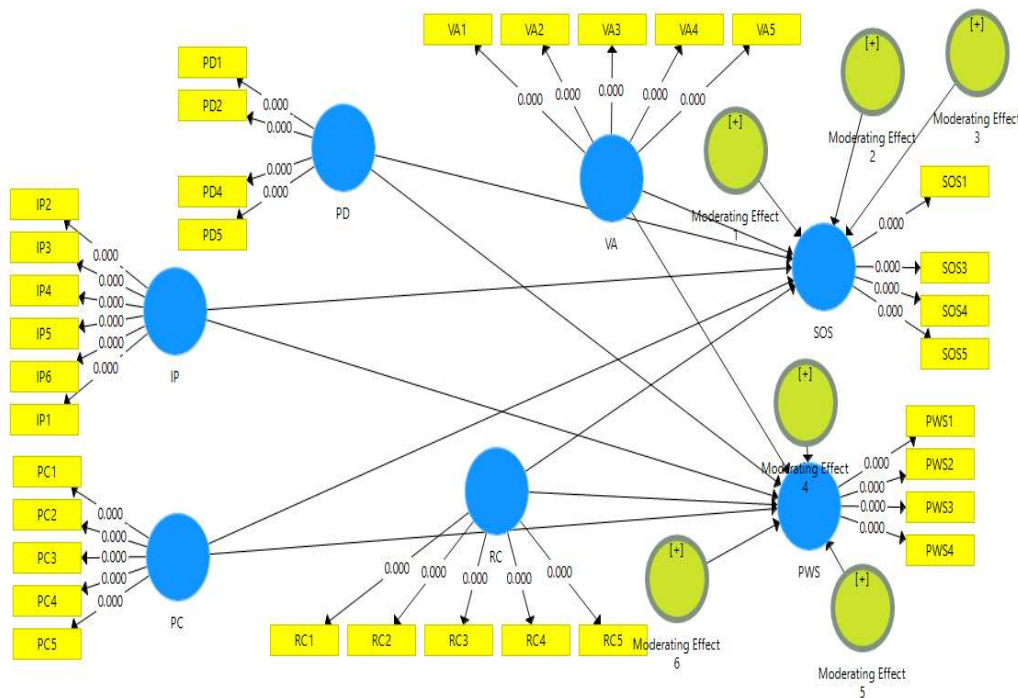


Fig. 3. Structural Equation

The bootstrapping procedure was also employed to check the level of moderation and to assess the role of moderator or indirect impact of variable. The bootstrap method is recommended for a sample size up to 1000 for analyzing the significance of a relationship. Except for H_2 , all other hypotheses exhibited less than 0.05 p-value which is the threshold level for hypotheses acceptance. The results of moderation explained that t and p values were significant for all hypotheses. The t and p values for H_{11} to H_{16} were above 1.96 and less than 0.05, respectively, thus satisfying the threshold level, and resulted in the acceptance of the hypotheses.

Table 6
SEM results

	Original Sample (O)	Sample Mean (M)	Standard Deviation	T Statistics	P Values
IP → PWS	0.096	0.100	0.087	3.105	0.000
IP → SOS	0.093	0.084	0.107	4.875	0.000
Moderating Effect 1 → SOS	0.035	0.039	0.055	3.642	0.000
Moderating Effect 2 → SOS	0.051	0.041	0.077	5.657	0.000
Moderating Effect 3 → SOS	0.049	-0.041	0.083	4.591	0.000
Moderating Effect 4 → PWS	0.021	0.023	0.039	3.538	0.000
Moderating Effect 5 → PWS	0.145	0.143	0.052	3.793	0.005
Moderating Effect 6 → PWS	0.081	0.081	0.047	3.733	0.000
PC → PWS	0.164	0.162	0.086	4.917	0.000
PC → SOS	0.218	0.217	0.096	3.268	0.023
PD → PWS	0.513	0.502	0.100	5.150	0.000
PD → SOS	0.439	0.431	0.095	4.602	0.000
RC → PWS	0.388	0.393	0.123	3.161	0.002
RC → SOS	0.036	0.050	0.120	4.298	0.000
VA → PWS	0.162	0.161	0.118	6.375	0.000
VA → SOS	0.390	0.374	0.098	3.998	0.000

5. Summary and conclusions

Purchasing function is gaining importance in business organizations. The reasons behind the ever rising importance is the increase in outsourcing activities, use of Internet and high emphasis on supply chain management. Moreover, efforts are being made to lower the cost and improve quality through outsourcing. The important variables in this regard include quality, price, reliability, and speed of delivery. Suppliers are selected by past purchasing experiences, contracts are made with negotiations, and personal relationships are established with suppliers. This is included in the process of vendor analysis, value analysis, audits of suppliers, and their certification. Several organizations aim at reduction of the number of suppliers to establish long-term relations only with a few. Partnership with suppliers may include cooperation, which results in planning and sharing of information in the process of product designing and manufacturing (Vanpoucke et al., 2017).

The findings of this study suggest that one of the duties of purchasing is to identify supply sources, to make contracts through negotiation, and to maintain suppliers' database, obtaining goods and services, which fulfill the requirement of operations with cost and time efficiency. Therefore, suppliers are selected, contracts are negotiated, and alliances are established in purchasing. The concept of purchasing has become of increased importance with the increased emphasis of management accounting on supply chain management, lean production, quality improvement, and outsourcing (Porter & Millar, 1985). Moreover, changes are occurring in business-to-business buying. A major share of buying relationships is accounted by the traditional relations but reductions are expected in the mid of decade. Meanwhile, it is expected that relationships of web-based auctions and managed inventory are likely to increase. Further, purchasing will be influenced due to the increased globalization.

The study is of the view that that there are many factors that affect the supplier management and these factors include quantity and quality of goods and delivery time that can significantly influence the organizational operations. The basic purpose of managerial accounting with reference to purchasing is the formulation and execution of purchasing plan for goods supporting operation strategies.

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