

The impact of market orientation and delivery capability: a multi-group analysis

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Abstract

The paper investigates the impact of market orientation on delivery and tests the moderating effect of firm size on the relationship between market orientation and delivery. The samples were drawn from Thailand's automotive industry and a multi-group analysis in structural equation modeling was used to analyze the proposed model.

Keywords: Market orientation, Delivery capability, Automotive Industry, Multi-group analysis

Introduction

Research on the relationship between market orientation and business performance has been well documented. Knowledge about market orientation that has a positive association on performance and drives business profitability (Narver & Slater, 1990) exists; however, scholars (Gonzalez-Benito & Gonzalez-Benito, 2005) argue that findings on the effects of market orientation and organizational performance are inconsistent. The same authors add that many studies find a positive relationship whereas others report a negative relationship. In addition, interest in providing empirical evidence is relatively recent (Gonzalez-Benito & Gonzalez-Benito, 2005).

The relationship between market orientation—as the adoption of marketing concepts as business philosophy guiding the competitive strategies of the organization (Gonzalez-Benito & Gonzalez-Benito, 2005)—and organizational performance has been widely tested in marketing for several decades. However, in operations management, the relationship between market orientation and performance, including manufacturing capabilities, is still relatively unknown. Thus, this provides a research opportunity to understand how manufacturing firms that become more market orientated can improve their competitive capabilities.

Delivery is one important competitive capability, and this research deals with delivery capability alone. This is because if firms are not ready for delivery or unable to have a product available for delivery, many negative consequences (i.e., cut production capacity, dismissed the sales staff and employees, etc.) occur (Marques et al., 2014). Also, the same authors point out that the issues of meeting deadlines and delivery quantities can be the main cause of conflict between the areas of marketing and operations.

Moreover, literature suggests that studies focusing on firm size differences have almost exclusively included SMEs versus large firms (Bourlakis et al., 2014). Thus, the focus of this study is on the moderating effect of firm size because researchers (Arend & Wisner, 2005) point out that previous studies have overlooked the moderating effect of firm size. The same researchers found that SMEs have adopted supply chain management practices differently than large firms. Consequently, differences in supply chain implementation provide a significant association with SME performance. Furthermore, it is unclear whether different firm sizes can adopt different degrees of market orientation, and this would associate with delivery capability differently. Therefore, this offers a research gap to examine the role of firm size, moderating the relationship between market orientation and delivery performance.

This paper aims at investigating the impact of market orientation and delivery capability and examining the moderation effect of firm size. This paper is structured as follows: the next section reviews literature, provides theoretical background and develops a research model with hypotheses. The next section outlines research methods, including measures and data collection. Following is a section on hypothesis testing and the results of multi-group analysis. Finally, there is a discussion of the findings, implications, limitations and future research and conclusions.

Literature review, theoretical background and hypotheses

Defining the Constructs

Market orientation

According to Narver and Slater (1990), market orientation is defined as “the organization culture that most effectively and efficiently creates the necessary behaviors for the creation of superior value for buyers and, thus, continuous superior performance for the business”. The same authors propose that the market orientation comprising with three elements: 1) customer orientation, 2) competitor orientation, and 3) inter-functional coordination. Based on the behavioral perspective, market orientation involves activities, relating to the generation and dissemination of and responsiveness to market intelligence (Kohli & Jaworski, 1990). Market orientation is used to identify and satisfy customer needs more effectively than the competitor (Day, 1994). If a firm is able to have better customer satisfaction than their competitors, its firm performance should be positive. Therefore, most previous studies suggest that market orientation has a positive influence on performance (Narver and Slater, 1990).

Delivery

Kristal et al. (2010) define delivery speed as the capabilities of manufacturers to delivery product in a short time. Their measure items include fast-response deliveries from order to end customer, order fulfillment time and delivery lead time. Delivery capability such as short delivery cycles and dependable delivery promises is a source of competitiveness for manufacturing companies and it also helps to increase the company position in the market place Sarmiento et al. (2007). The same authors add that delivery reliability is dealing with the ability to meet quoted (make-to-order environment) and/or anticipated (make-to-stock environment) dates and quantities. Delivery reliability falls under the dimensions of competence and competitiveness that manufacturing companies are recommend to pursue (Corbett & Wassenhove, 1993; Sarmiento et al., 2007). Delivery capability of the manufacturing firm can be an order-qualifier in some cases (Hill, 2000), but in some situations, delivery capability is a minimum requisite for suppliers (Sarmiento et al., 2007). The same authors suggest that delivery reliability rates are associated with inventory levels on the side of the customer. Thus, the delivery reliability of a supplier plays

a significant role in various manufacturing performance affecting the customer's side. Thus, delivery is strategic capability. Customers also always demand or need high delivery capability or better delivery.

Theoretical background and hypotheses development

Market orientation and delivery capability

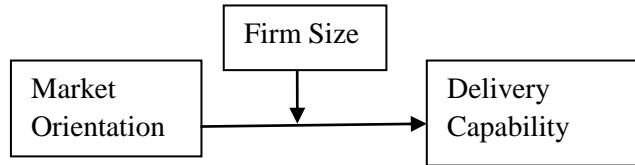


Figure 1- Research model

Figure 1 demonstrates the relationship between market orientation and performance, and this research model is developed through the resource-based view of the firm (RBV) (Baryney, 1991). Scholars (Ellinger et al., 2008) point that the RBV holds assets or capabilities that can create value and at least a temporary competitive advantage. If competing firms are unable to obtain alternate resources to imitate or to perform the same function, the competitive advantage still exists (Ellinger et al., 2008). Researchers claim that market orientation is considered valuable and necessary for firms because it can influence a variety of outcomes (Hult & Ketchen, 2001). In addition, market orientation can be considered rare for some firms to possess advantages over rival firms (Ellinger et al., 2008). The same authors add the example of Toyota to show that competitive advantage can be achieved through corporate belief systems that are considered inimitable. Thus, according to the RBV, market orientation, a set of beliefs, should not rule out the possibility that beliefs influence outcomes (Ellinger et al., 2008). Additionally, market orientation is considered a specific firm-level resource that could enable firms to sense marketplace requirements and to leverage the value of other capabilities, connecting firms to external networks (Liu et al., 2013).

Market orientation including customer orientation can help firms understand and satisfy the demand of their target customers, and when changes in customer demand occur, the customer orientation practices also can help the firm to collect, analyze and disseminate sufficient information about its customers (Liu et al., 2013). Marketing and operations should be aligned for competitive advantage. This is because marketing has a crucial role in affecting operations strategy and capabilities (Yu et al., 2014). The same authors add that knowledge about customer needs and past experience in forecasting and responding to these needs help to generate operations capabilities in terms of quality, delivery, flexibility and cost. Gonzalez-Benito and Gonzalez-Benito (2005) examine the relationship between market orientation and operational performance, and their findings show that market orientation can enhance flexibility, time to market and quality.

This research borrows the notion of the RBV to apply to market orientation. Thus, market orientation should help firms to create superior customer value and generate at least temporary competitive advantages. Based on the literature and the RBV, this allows the following hypotheses:

H1: Customer orientation is associated with delivery capability.

H2: Internal cross is associated with delivery capability.

H3: Competitor orientation is associated with delivery capability.

The moderating effect

Knowledge about the relationship between market and performance exists; however, few studies examine how the impact of market orientation on delivery capability is moderated by firm size. The literature suggests that firm size, particular a large firm, is endowed with resources that a smaller firm is unable to obtain (Acs & Audretsch, 1988). Cao and Zhang (2011) investigate the moderating effect of firm size, indicating that a large firm is more effective in jointly creating value with its supply chain partners. However, the same authors argue that smaller firms can gain more returns relative to their size than larger firms. Similarly, Arend and Wisner (2005) found that large firms have implemented supply chain management more deeply than SMEs. This may imply that large firms have more resources than small firms.

Consistent with the literature, large firms are able to obtain the resources and technical budgets to develop and deploy sophisticated performance measurement systems (Bourlakis et al., 2014). Bourlakis et al. (2014) also claim that different-sized firms, namely micro, small and medium, gain different sustainable performance. Prior studies also point out that different-sized firms have different managerial approaches and responsible behavior (Arend & Wisner, 2005). The researchers found that these small firms pay less attention to strategic focus areas including new product development, quality and customer service. This may imply that small firms may have different resources than large firm. Meanwhile, other researchers (Islam & Karim, 2011) point out that small firms have a better focus on customer satisfaction and leadership in developing a quality culture. The authors emphasize that small firms stay ahead of large firms in terms of quality and reliability practices and awareness of customer requirements. The inconclusive nature of whether size can moderate the market orientation–performance relationship leads to the need to re-investigate in a different industry and country. Based on the above argument and the previous literature, therefore, this research suggests the following hypotheses:

- H4a: The relationship between customer orientation and delivery capability will be moderated by firm size.
- H4b: The relationship between internal coordination and delivery capability will be moderated by firm size.
- H4c: The relationship between competitor orientation and delivery capability will be moderated by firm size.

Research methods

Measures and data collection

The list of members of the Thailand Automotive Industry 2011, consisting of 1,858 companies, was used as the sample frame. Key informants are managerial level managers who understand the adoption of market orientation and delivery capability. Unrelated business operators, invalid addresses and unwilling participant firms were excluded from the survey. This resulted in 698 firms participating in the survey. Complete responses were received from 261 firms, and the response rate was 37.39%. Table 1 provides respondent profile and Table 2 presents company profile.

An extensive literature review was carried out and all established measures in this research were adapted from existing scales, including market orientation developed by Narver and Slater (1990) and delivery capability developed by Kristal et al. (2010). These instruments are considered to have good psychometric properties. A Likert-type response format with a range from 1 (strong disagree) to 7 (strongly agree) was used. Also, interviews were conducted to ensure that these items were used to measure the market orientation practices and delivery capability. A small scale pilot was conducted and an analysis of pilot data was carried out by factor analysis.

Table 1- Respondent profile

Job Title	Frequency	Percentage
President/CEO	22	8.43
Vice president/Director	21	8.05
General manager	35	13.41
Manager (plant manager, supply chain, logistics, purchasing/procurement and operations)	118	45.21
Others (engineering, manufacturing/ production, project, sales and marketing)	65	24.90
Total	261	100

Table 2- Company profile

Characteristics of firms	Frequency	%	Characteristics of firms	Frequency	%
No. of employees			Ownership		
Less than 200	62	23.75	100% Thai owned	78	29.89
200-499	70	26.82	Joint-venture	90	34.48
500-999	66	25.29	Wholly foreign owned	93	35.63
More than 1,000	63	24.14	Total	261	100.00
Total	261	100.00			
Annual sales(in millions Baht			Company position		
Below 200	49	18.77	Supplier tier 1	196	75.10
201-499	40	15.33	Supplier tier 2	65	24.90
500-999	35	13.41	Total	261	100.00
1,000-2,999	74	28.35			
Above 3,000	63	24.14			
Total	261	100.00			

Assessment of reliability and construct validity

To assess scale validity, first, the internal reliability (Cronbach's α) was checked (Nunnally, 1978). The resulting Cronbach alpha (α) of all constructs exceeded the recommended threshold of 0.7 (Nually, 1978). The resulting measures of reliability are reasonable for all constructs: customer orientation (Cronbach $\alpha = 0.84$), inter-functional coordination (Cronbach $\alpha = 0.76$), competitor orientation (Cronbach $\alpha = 0.87$) and delivery (Cronbach $\alpha = 0.89$). Second, a confirmatory factory analysis (CFA) was performed. Unidimensionality was assessed by the fit indices and convergent validity was assessed by the significance of t-value of each measurement indicator. The fit indices, including the comparative fit index (CFI), normed fit index (NFI), root

mean square error of approximation (RMSEA) and normed chi square were used to assess the overall model fit (Byrne, 2010) In addition, average variance extracted (AVE) and a composite reliability (CR) (Hair et al. 1998) were assessed. The results are presented in Table 3 and Table 4.

Table 3- Assessment of reliability and construct validity

Items	Factor loading	t-value	Cronbach's Alpha
CS: Customer Orientation (CR =0.76, AVE =0.54) Our business objectives are driven primarily by customer satisfaction. Our strategy for competitive advantage is based on our understanding of customer's needs. We measure customer satisfaction systematically and frequently. We often look for measurements to increase customer value or decrease product costs. We give close attention to after-sales service	0.774 0.734 0.726 0.744 0.696	1.00 11.039 10.927 9.856 10.517	0.84
IC: Inter-functional Coordination (CR=0.60, AVE=0.46) We freely communicate information about our successful and unsuccessful customer experience across all business function. All of our business function (e.g. marketing/sales, manufacturing, purchasing, finance, etc.) are integrated in serving the needs of our target market Our top managers understand how everyone in our business can contribute to creating customer value. Marketing as guiding philosophy for the new product development project	0.671 0.838 0.618 0.534	1.00 9.069 8.206 7.254	0.76
CO: Competitor Orientation (CR = 0.74, AVE =0.56) Top management in this firm regularly shares information about current and future competitors within the company. We rapidly respond to competitors' actions that threaten us. We regularly collect and integrate information about the advantage and strategies of our competitors. Compared with competitors, we have higher advantage in target markets	0.673 0.883 0.828 0.551	1.00 11.381 11.204 7.951	0.87
DC: Delivery Capability (CR =0.85, AVE=0.68) Ability to reduce production lead time Ability to fast delivery Ability to provide fast-response deliveries from order to end customer Ability to provide on time delivery	0.749 0.910 0.912 0.708	1.00 15.083 15.107 11.521	0.89

Table 4- Mean, standard deviations, and correlations of the construct

Variable	Mean	SD	CS	IC	CO	DL
CS	5.88	0.96	0.73			
IC	5.62	0.91	0.570**	0.68		
CO	5.25	0.98	0.472**	0.543**	0.75	
DL	5.91	0.87	0.447	0.461**	0.340**	0.82

**Correlation is significant at the 0.01 level (2-tailed). Note: CS = Customer orientation; IC = Inter-functional coordination, DL= Delivery. The square root of average variance extracted is given along the diagonal

Hypotheses testing results

Structural equation modeling (AMOS) was used to assess the model fit with the data. The path diagram and the loadings for the hypothesized model are presented in Figure 2. The overall fit, chi-square statistics is 169.15, with df = 100, and the ratio of chi-square to degrees of freedom is 1.69, indicating a good fit. The model fit indices NFI = 0.92, CFI = 0.97 and RMSEA = 0.04 are good. According to the results in Figure 2, H1 and H2 are supported, whereas H3 is not supported. The path coefficient of H1 is 0.38 ($t = 2.71$), which is statistically significant at the level of 0.01. The path coefficient of H2 is 0.33 ($t = 2.60$), which is statistically significant at the level of 0.01. The path coefficient of H3 is -0.10 ($t = -0.97$), which is statistically non-significant at the level of 0.05. Figure 2 shows the hypotheses testing results.

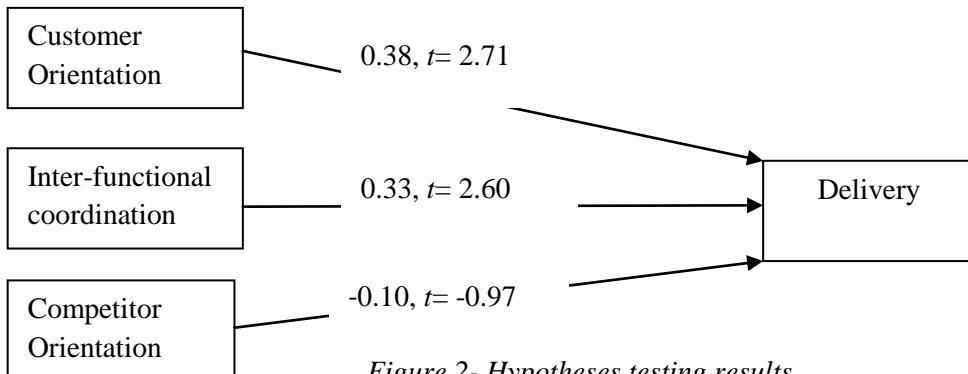


Figure 2- Hypotheses testing results.

Multi-group analysis

To test the moderating effect of firm size, a multi-group analysis of structural invariance across firm size was performed. Firms with less than 200, between 201 and 500, and greater than 500 employees are respectively classified as small ($n = 63$), medium ($n = 69$) and large ($n = 129$).

Table 5: Path coefficients and t-values by firm size

Firm Size	Path: CS→DL	Path: IC→DL	Path: CO→DL
Small (N = 63)	0.37**, $t = 2.73$	0.32**, $t = 2.62$	-0.09, $t = -0.89$
Medium (N = 69)	0.40**, $t = 2.85$	0.29*, $t = 2.28$	-0.08, $t = -0.84$
Large (N = 129)	0.41**, $t = 2.82$	0.28*, $t = 2.22$	-0.08, $t = -0.87$

Note: Value is a standardized structural coefficient.

** path is significant at the level of 0.01

* path is significant at the level of 0.05.

Table 5 presents the analysis of the moderation effects of firm size across the three groups: the standardized structural path coefficients for CS→DL, IC→DL and CO→DL across small,

medium and large firms. For small firms, the path coefficient for CS→DL is significant at the level of 0.01 (path coefficient = 0.37, $t = 2.73$), the path coefficient for IC→DL is significant at the level of 0.01 (path coefficient = 0.32, $t = 2.62$), and the path coefficient for CO→DL is insignificant at the level of 0.05 (path coefficient = -0.09, $t = -0.89$). For medium firms, the path coefficient for CS→DL is significant at the level of 0.01 (path coefficient = 0.40, $t = 2.85$), the path coefficient for IC→DL is significant at the level of 0.05 (path coefficient = 0.29, $t = 2.28$), and the path coefficient for CO→DL is insignificant at the level of 0.05 (path coefficient = -0.08, $t = -0.84$). For large firms, the path coefficient for CS→DL is significant at the level of 0.01 (path coefficient = 0.41, $t = 2.82$), the path coefficient for IC→DL is significant at the level of 0.05 (path coefficient = 0.28, $t = 2.22$), and the path coefficient for CO→DL is insignificant at the level of 0.05 (path coefficient = 0.32, $t = 2.62$).

Discussion and implications

This research contributes to the literature in the area of marketing and operations management interface. The study contributes to the recent research on market orientation and delivery capability and focuses on the role of firm size acting as a moderator affecting the relationship between individual dimensions of the market orientation construct. Unlike other studies, including the work of Laforet (2008), that find that only medium-sized manufacturing firms moderate the links between having strong market orientation and innovative performance, the findings of this study demonstrate that the customer orientation-delivery link and inter-functional coordination-delivery link are moderated by firm size.

H1 and H2 indicate that firms with a strong degree of customer orientation and firms with a strong degree of inter-functional coordination have better delivery capability, whereas H3 indicates that firms with a strong degree of competitor orientation have a reverse effect on delivery capability. The results reinforce and add to the literature acknowledging the impact of adopting market orientation. Firms that adopt too strong a degree of competitor orientation in monitoring a competitor's activities can have a negative impact on delivery capability. Therefore, managers should reduce or balance their firm's competitor orientation practices.

The highlight of the findings shows that large firms can perform better in improving delivery capability. In terms of the link between customer orientation and delivery, the link between inter-functional coordination and delivery, large firms outperform in developing their delivery capability. This is possibly because large manufacturing firms are able to invest in new technologies and equipment, provide world-class skills and training to their workforces and win new markets that differ from small firms (Laforet, 2008).

Based on H4a, H4b and H4c, interestingly, the findings show that the link between customer orientation and delivery and the link between inter-functional coordination and delivery are moderated by all firm sizes—namely, small, medium and large. However, differences in firm size moderate the delivery capability differently. In term of the path from CS→DL, the large firms have the highest path coefficient followed by the medium and small firms, respectively. This implies that large firms may have more resources to collect data on customers and market factors to satisfy and create value for their customers. It also can imply that large firms can work effectively to deal with external sources. The findings support the others studies (Cao & Zhang, 2011; Bourlakis et al., 2014) that differences among firm sizes have different outcomes. Cao and Zhang (2011) found that large firms were more effective in jointly creating value with their

supply chain partners than small and medium ones. Based on the RBV, the findings also strengthen the market orientation and performance link.

However, in term of the link from IC→DL, small firms have the highest path coefficient value, followed by medium and large firms, respectively. This indicates that small firms are able to share information and coordinate functions within the firm well. Large firms have the lowest path coefficient value among the three groups. This is possibly because organizations that are too large and complex are ineffective in communication and integration within the firms compared to the smaller ones.

Moreover, the results demonstrate that the link from CS→DL, IC→DL and CO→DL are not significant. This indicates that too much emphasis on competitor orientation results in poor delivery performance. If firms want to improve their delivery capability, managers may have to reduce the excessive monitoring of competitors' orientation practices. Finally, the results provide useful insights and guidelines for managers to implement their market orientation practices in order to improve delivery capability.

Limitations and future research

This research uses data from a single industry that may be limited in generalizability. Thus, future research should include data from across industries and other countries. In addition, ownership types and age of plant should be included. The research model should also examine the relationship between sub-dimensions of market orientation. Also, the model should include other competitive capabilities and business performance. The analysis would provide more interesting and useful results if it included multiple respondents.

Conclusion

This research aims at examining the impact of the individual dimensions of market orientation, contributing to developing delivery capability and also investigating the role of firm size, moderating the individual dimension of market orientation–performance links in the automotive industry. The results reveal supporting evidence that market orientation practices can enhance delivery capability. The findings also support the RBV that market orientation can improve performance. In terms of the customer orientation and delivery link and the inter-functional orientation–delivery link, large firms can perform better than small- and medium-sized manufacturing firms. The relationship between competitor orientation and delivery is not positively associated. Base on the findings, the author suggests and encourages other researchers to extend and improve the research model by adding other contextual factors.

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