



CUSTOMER-BASED PERFORMANCE ON CUSTOMER RELATIONSHIP MANAGEMENT : THE ROLE OF CUSTOMER RELATIONAL INFORMATION PROCESS

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ABSTRACT

***Purpose:** Customer relationship management (CRM) is an important tool to achieve marketing strategy for firms. This study investigated the influence of completeness of CRM relational information processes on customer-based performance. Besides, interaction orientation and CRM system readiness were adopted as moderators on the relationship between CRM relational information processes and customer-based performance.*

***Design/methodology/approach:** Both qualitative and quantitative approaches were applied in this study.*

***Findings:** The results revealed that completeness of CRM relational information processes indirectly and positively affects customer-based profit performance through customer-based relational performance. The implication and suggestion for managers were also discussed.*

***Originality/value:** This study showed that well-built information processes strengthen customer-based relational performance. Moreover, managers should thoroughly strengthen customer-based relational performance to promote the customer-based profit performance. Finally, managers should build appropriate CRM technology systems and create complete rules, rewards and mechanisms to meet the developmental level of the CRM relational information processes and further promote customer-based performance*



INTRODUCTION

In the past, Customer Relationship management (CRM) performance was mostly measured by the financial outcome. Estimating customer loyalty through customer behavior is one of the methods that has been used to measure customer value. In order to measure customer value precisely, CRM performance must be evaluated by different evaluation metrics. In other words, a firm that has adopted a customer-centric philosophy must have different evaluation criteria than product-centric organizations (Sheth, Sisodia, & Sharma 2000). Therefore, this study adopts customer-based performance, which has rarely been used in the past to evaluate CRM performance. Further, in customer-based performance metrics, this study not only investigates customer-based relational performance, which focuses on the behavioral dimension, but also employs customer-based profit performance, which focuses on the attitude dimension to more comprehensively evaluate customer-based performance.

In addition, this study is intended to lead to an understanding of whether there are influencing factors on the relationship between CRM relational information processes and customer-based performance. Therefore, the trend of individual marketing, this study puts the concept of interaction orientation into a research model. Nowadays, customers require more specific offerings to meet their heterogeneous demands. Firms collect and analyze customer data at the individual level in order to recognize each customer's individual needs. For firms, the method of interaction orientation can facilitate the collection of data through communicating with each customer. Ramani and Kumar (2008) considered the idea that interaction orientation reflects a firm's ability to interact with its individual customers and to take advantage of information obtained from them through successive interactions to achieve profitable customer relationships. Thus, interaction orientation assists in the accomplishment of CRM relational information processes more smoothly and further, cooperatively promotes customer-based performance.

Moreover, the implementation of a CRM system induces huge changes in processes, technology, and the people in firms. Reinartz, Karfft, and Hoyer (2004) suggested that CRM-compatible organizational alignment and CRM technology positively moderate relationships between CRM processes and economic performance. CRM system is a technology-oriented business strategy. The key point is that CRM technology plays a critical role in the context of leveraging CRM-related activities and thus contributes to improved organizational performance in the market (Reinartz et al., 2004). CRM system readiness is a facilitator of information processes that leads to better firm performance. Although prior scholars have suggested many factors that may affect CRM implementation, there is little



research specifying these factors as constructs. Thus, this study combines these factors into a single construct labeled as CRM system readiness.

Based on the discussion above, this study presents a framework with which to explore how a CRM information system is manipulated and how the performance of a CRM informational system is affected in a service industry. The purpose of this study investigates (1) to evaluate whether well-built information processes have a positive influence on customer-based performance, and (2) to assess the moderating effect of interaction orientation and CRM system readiness on information processes leading toward customer-based performance.

THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

1. CRM Relational Information Processes

The definition of relevant information processes in this study is the process of segmenting customers and tailoring relevant offerings for them to create value for a firm (Day, 2003). This study defines CRM relational information processes as a procedure of data collecting. Firms can have contact with their customers and gather relevant data at the same time through various channels. The data then is stored in database that can be analyzed and transformed into useful information and concurrently supplied to front offices for the management of customer relationships.

2. Customer-based Performance

Chang and Wong (2010) mentioned that CRM enhances a company's competitive capabilities such as cost reduction and market share enlargement, within the environment of a web based value chain integrated by internal operations, suppliers and customer relationships. This study applies customer-centric performance measures: customer-based relational performance and customer-based profit performance (Ramani & Kumar, 2008). Customer-based relational performance assesses performance on attitudinal parameters, whereas customer-based profit performance assesses performance on behavioral parameters.

2.1 Customer-based Relational Performance

The measurement of customer-based relational performance stresses the evaluation of the relationship between firms and customers, which presents customer attitudes toward a given firm. Ramani and Kumar (2008) identified the measure of customer-based relational



performance in terms of three indicators: customer satisfaction, customer ownership, and positive word of mouth. Customer-based performance is a different way to measure information processes and also bring benefits to firms. This study focuses on customer relationships to develop the dimension of customer-based relational performance. The dimensions include customer satisfaction, customer ownership and positive word-of-mouth, which cultivate customer loyalty and sustain long term relationships.

The completion of CRM relational information processes includes information reciprocity, information capture, information integration, information access, and information use. The implementation of entire processes certainly requires collaboration among all of the various functions. This results in a complete realization of customer needs and an adequate utilization of customer information to design marketing activities. Customers can obtain what they want, and firms can gain profit from customer satisfaction; meanwhile customer satisfaction can bring positive word-of-mouth communication to firms. According to the above description, this study develops a hypothesis as follows:

H1: CRM relational information processes positively affect customer-based relational performance.

2.2 Customer-based Profit Performance

Customer-based profit performance includes three dimensions: identifying profitable customers, acquiring and retaining profitable customers, and converting unprofitable customers to profitable ones. These three dimensions are applied to measure customer value, and based on this; firms can assign resources and develop marketing strategies.

Firms that invest in information processes that enhance their interaction response capacity and implement their customer value management practices are in a position to distinguish between the characteristics of profitable customers and those of unprofitable customers and can use this information to identify potentially profitable customers (e.g., Reinartz & Kumar, 2003). Firms that have well-built information processes and provide customized and personalized offerings can evoke customer intention to maintain long-term relationships. According to the above description, this study develops a hypothesis as follows:

H2: CRM relational information processes positively affect customer-based profit performance.

2.3 Customer-based Relational Performance to Customer-based Profit Performance

Customer-based relational performance assesses performance on attitudinal variables, whereas customer-based profit performance measures performance on behavioral variables. In accordance with the theory of planned behavior, Ajzen (1991) determined that customer attitude (e.g., satisfaction, ownership, and word of mouth) influences firm behavior (e.g., identifying profitable customers, acquiring and retaining profitable customers, and converting unprofitable customers to profitable ones). A higher level of customer-based relational performance has direct effects on customer-based profit performance. As long as customers are satisfied with firm offerings, they exhibit repurchase behavior (Spiller, Vlastic, & Yetton, 2007). Additionally, firms can understand customer requirements through information processes designed to analyze customer purchase history and preferences, thus helping sales managers to identify and target their most valuable customers. According to the above description, this study develops a hypothesis as follows:

H3: Customer-based relational performance positively affects customer-based profit performance.

3. Interaction Orientation

Firm-customer interaction is two-way; firms not only obtain customer data, but customers also receive up to date information about firms. This two-way interaction allows firms and customers to understand each other completely. Moreover, firms analyze customer data at the individual level, which can allow firms to provide customized products/services to fulfill customer demands. The market success of service organizations is crucially dependent on the interaction between frontline employees and customers (Ramani & Kumar, 2008; Chang & Ku, 2009).

Jaramillo and Grisaffe (2009) noted that customer orientation should have positive effects on performance. Customer-oriented selling should also increase customer satisfaction, which leads to overall better performance when satisfied customers reward salespersons by continuing to place repeat orders (Poddar, Donthu, & Wei, 2008). Salespersons with high levels of interaction orientation truly are concerned about customers and thus engage in actions related to customer value such as listening to customer feedback and solving customer problems. Together, interaction orientation and adaptive selling lead to win-win outcomes because customers are served in better and more individually relevant ways,

producing higher levels of success for the sales force and the organization (Jaramillo & Grisaffe, 2009). By CRM relational information processes, firms are able to gather and utilize complete customer data to design customized products/service to meet their requirements. According to the above description, this study develops a hypothesis as follows:

H4a: Interaction Orientation has a moderating effect on the relationship between CRM relational information processes and customer-based relational performance.

CRM applications automate the customer-facing interactions between an enterprise and a customer based on an acknowledged fact that it costs three times as much to acquire a new customer as it takes to retain an existing customer (Vinod, 2007). Bradshaw and Brash (2001) suggested that CRM is a management approach that involves identifying, attracting, developing and maintaining successful customer relationships over time in order to increase retention of profitable customers. According to the above description, this study develops Hypothesis 4b as follows:

H4b: Interaction Orientation has a moderating effect on the relationship between CRM relational information processes and customer-based profit performance.

4. CRM System Readiness

CRM system readiness means that firms collaborate with CRM infrastructure, software, departments, and employees in order to implement CRM relational information processes effectively. These success factors for CRM implementation belong partly to organizational attributes and partly to technological attributes (Ramani & Kumar, 2008). CRM readiness consists of two dimensions, which are organizational readiness and technological readiness.

4.1 Organizational Readiness

Firms can not succeed in implementing CRM without internal function cooperation and adequate financial resources. Therefore, cross departments must be working together and supporting to each other, and in the meantime, senior managers also have to support the adoption of a CRM system. A customer-oriented culture is essential for the quality and extension of customer-knowledge creation and dissemination, as well as the implementation of a relationship-management strategy (Su, Tsai and Hsu, 2009). The appropriate collaboration of internal departments has positive effects on the implementation of CRM systems. Organizational readiness is assessed by financial and technological resources which

reflect whether or not a company has the capability to deal with the compatibility and consistency of a CRM system regarding firm culture, value, and preferred work practices (Grandon & Pearson, 2004). Moreover, Chan and Ngai (2007) stated that IT adoption includes the level of IT knowledge among top management, the level knowledge of individual learners, the level of IT use within the organization, the size of an organization, and its financial resources.

4.2 Technology Readiness

The use of CRM technology is expected to boost the ability of an organization to sustain profitable customer relationships by enabling information to be integrated and shared smoothly, thus facilitating more efficient and effective on firm-customer interaction, analysis of customer data, and customization of responses (Day, 2003).

A high level of technology readiness fosters the capturing of customer data, the analysis of customer information, and provides a coherent view of customers. Firms understand each customer's individual demands and adopt differentiation marketing based on these demands. Similarly, technology readiness supports the development of capabilities that result in a potential for competitive advantage.

At the heart of CRM is an organization's ability to leverage customer data creatively, effectively, efficiently, and based on these elements, to design and implement customer-focused strategies (Chang and Ku, 2009). Companies that are equipped with customer IT and knowledge have greater potential to make correct decisions, produce desirable products, services, and deliver value for customers. Reinartz et al. (2004) stated that firms that use technology in their organizations regard technology as a resource that supports the implementation of information processes. According to the above description, this study develops Hypothesis 5a as follows:

H5a: CRM system readiness has a moderating effect on the relationship between CRM relational information processes and customer-based relational performance.

CRM information relates not only to current customers, but also to future potential customers to anticipate and to respond to their needs. As a management tool, CRM manages a company's relationship with its customers, thereby enabling the former to identify and attract customers and initiate appropriate steps towards the retention and identification of those customers that are profitable (Ryals, Knox, & Maklan, 2001). In order to obtain precise

information on targets or market segments and micro-segments, CRM enables organizations to reach high levels of profitability by using databases, data warehouses, data mining, one-to-one marketing, automated call centers and sales force automation (Maleki & Anand, 2008). According to the above description, this study develops Hypothesis 5b as follows:

H5b: CRM system readiness has a moderating effect on the relationship between CRM relational information processes and customer-based profit performance.

5. Conceptual Framework

The conceptual framework is shown in Figure 1. This study employed the CRM system relational information processes to discuss customer-based relationship performance and customer-based profits performance.

— Figure 1 is about here —

RESEARCH DESIGN

A qualitative approach consisting of individual in-depth interviews was adopted for the purpose of this study in order to understand the detailed operational processes and results of a CRM system within the firms being considered. Meanwhile, a confirmation of each dimension of the constructs in this study matched empirical practice and was, as a result, reasonable. After collecting abundant information from case studies, a questionnaire survey was adopted in order to further obtain the quantitative data for analysis. Eisenhardt (1989) and Yin (2003) addressed the idea of combinations of the qualitative and quantitative approach and suggested that it is precise and reliable.

Three companies participate in the case study. The first is 3C product retailer with extensive branches, Tsann Kuen Enterprise Co., Ltd. (TKE). The selected interviewee is the director of the Yung Hua branch, Mr. Daniel Yeh. The second one is a financial services company, Shin Kong Financial Holding Co., Ltd. (SKFH), which provides a variety of financial products. The chosen interviewee is a training lecturer of the firm, Mr. Kao. The third company is an insurance company, Kuo Hua Life (KHL), which focuses on life insurance. The selected interviewee is the sales manager in Southern Taiwan, Ms. Yang. In order to be concurrent with interview content, past literature, Internet data, and theory, this study is comprised of revised constructs and a questionnaire designed in terms of customer relational information processes, customer-based relational performance, customer-based profit performance,



interaction orientation, and CRM system readiness.

After conducting the interviews, questionnaires were delivered to firms that were in service industries with business-to-customer markets. The respondents were required to be either marketing or sales managers.

CASE ORGANIZATIONS

1. Case Studies Summary

From the findings that result from the interviews, this study found out that there were several common viewpoints. These interviewees were all in agreement with the adoption of sales representatives, call centers, and the other methods used to collect customer data. The collected data is all stored in a central database, analyzed by separate departments, and integrated to turn to useful information. Hence customer information remains stored in the databases, the front office is able to use the information to develop adequate marketing activities. Moreover, the three interviewees all considered customer satisfaction to be a very important evaluation criteria for their companies. A high level of customer satisfaction is equal to the willing of customers to sustain a long term relationship with firms. Satisfied customers communicate with positive word-of-mouth to their friends and relatives. These interviewees also indicated that the companies use customer information to segment the markets depending on customer value. Developing potential customers is also a main concern for all of the interviewees because new customers can expand the market size of firms.

The CRM system of the three companies was built in-house. In-house CRM systems can really match to the organizational structure and business model of each company. As a result, the companies prefer to develop CRM system in-house. The three companies have all applied their in-house CRM systems for over ten years. Thus, each company's CRM system has a user-friendly interface, and it is also compatible with their organizational structures.

Different perspectives from the interviewees were customer ownership which is the dimension of customer-based relational performance. Customers who purchase financial products such as insurance, funds, and other monetary related items are concerned about the financial statements of firms. However customers are rarely concerned about the financial well-being of firms when they purchase consumer products.



2. Revised Model: Based on Case Organizations

According to the findings from interview, this study discovered CRM system was regarded as a tool to assist daily business operations in chain stores. For instance, they adopted POS to record transactions of each customer such as amount of purchase, number of purchases, item purchased and so on. However, financial organizations interact with their customers through CRM system and sales representatives. Financial organizations collect each customer's up-to-dated information and provide individual customer with customized products/services. Although the chain stores and financial service are classified in service industry, the purpose of CRM system for two of them is different. The chain stores deem CRM system as a facilitator, whereas CRM system for financial organization is a medium for communicating with customers. However, customer ownership in customer-based relational performance was not supported in the case study. For example, customers visit to 3C outlets and purchase 3C products are not necessarily actively concern about the financial well-being of firms. The results of the case analysis reveal that not all customers are highly concerned about firms' financial conditions in every industry. Therefore, the study excluded the dimension of customer ownership from the conceptual framework.

DATA ANALYSIS

As discussed previously and following the case study, a questionnaire was designed consisting of six parts as follows: CRM relational information processes, customer-based relational performance, customer-based profit performance, interaction orientation, CRM system readiness, and background information. The questionnaire was based on seven-point Likert-scale response format that ranged from 1 (strongly disagree) to 7 (strongly agree). There were 48 items, including the background information items listed in the questionnaire. After that, a pilot test was conducted to evaluate reliability (Cronbach's alpha and an item-to-total correlation) and validity, and the aim was to ensure the readability and understandability of the questionnaire. Questionnaire items were revised based on the results of the pretest prior to conducting the formal survey.

Sample Characteristics

Paper-based questionnaires were distributed to eligible subjects in service industries such as retail, finance, and technology, among others. Meanwhile, 1000 questionnaires were distributed; there were 250 survey responses, and the response rates were about 25%. 209 surveys were considered valid for further analysis. The majority of the respondents were aged between 20 and 29 (49%). Most of them had a Bachelors degree or above (98%), and their

working experience ranged between one to five years (46%). The largest employment sample was from the financial industry (52%), and the most frequent position was (56%). Moreover, the majority of the respondents were working in the marketing department of their company (44.0%).

Data Analysis

The data was analyzed using SPSS 12.0 and AMOS 5.0. A CFA examines the adequacy of the measurement component of the proposed model and evaluates the discriminate validity of the constructs. Hierarchical regression was used to test the moderating effects. Item-to-total correlations were above 0.5 (0.57~0.877) except in the case of IC5, so IC5 was deleted. All of the remainder of the items had standardized factor loadings above the criteria of 0.5 (0.57~0.89).

In assessing reliability, although customer-based relational performance showed Cronbach's α and CR values slightly lower than 0.7, the value was still considered in the acceptable range ($\alpha= 0.680$, $CR= 0.657$). Overall, all of the measures in this study can be regarded as having a satisfactory level of reliability. Convergent validity, the t -value of factor loading is commonly used to establish convergent validity. In this study, the fact that all factor loadings were relatively high and significant also provided strong evidence of convergent validity. Support for convergent validity was also demonstrated by the high average variance extracted (AVE) for all constructs. The AVEs of the five constructs in this study ranged from 0.465 (IC) to 0.743 (CBPP).

In Table 1, the change in chi-square of the constrained model is larger than 3.85 ($p < 0.05$). "A significantly lower χ^2 value for the model in which the trait correlations are not constrained to unity would indicate that the traits are not perfectly correlated and that discriminate validity is achieved."

— Table 1 is about here —

The standardized coefficients and significances for the hypothesized paths of the structural models and model fit indices are shown in Figure 2. The overall fit of model was excellent (chi-square, $p= 0.003$) and significant. The comparative fit index (CFI), the goodness of fit index (GFI), the adjusted goodness of fit index (AGFI) and the normed fit index (NFI) were 0.974, 0.95, 0.914, and 0.944, respectively. The root mean square error of approximation (RMSEA) was 0.063 (> 0.05), which fell in an acceptable range. The CRIP was positively

associated with the CBRP ($\gamma = 0.652, p < 0.001$) in support of H1. H2 predicted that the CRIP would lead to CBPP, was not significant ($\gamma = 0.013, p > 0.05$). H3 predicted that superior CBRP would lead to superior CBPP, was supported ($\gamma = 1.028, p < 0.001$). Table 2 exhibits the results of path analysis and hypotheses testing.

— Figure 2 is about here —

— Table 2 is about here —

To test the hypotheses of the moderating effects (H4a and H5a), hierarchical regression analysis was executed in this study to determine whether a significant interaction effect existed among CRM relational information processes (CRIP), interaction orientation (IO), and CRM system readiness (CSR) with customer-based relational performance (CBRP) as the dependent variable. To test H4b and H5b, hierarchical moderated regression was also used for analysis to determine whether a significant interaction effect existed among the CRIP, IO, and CSR, with customer-based profit performance (CBPP) as the dependent variable.

The results of hierarchical regression analysis are reported in Table 5. In the main effects-only model, the main effect of CRIP on CBRP was significant ($\beta = 0.48, p < 0.001$). The main effects of IO and CSR on CBRP ($\beta = 0.292, p < 0.001$; $\beta = 0.356, p < 0.001$) were all significant. The interaction orientation has a positive and significant effect on the relationship between CRIP and CBRP ($\beta = 0.146, p < 0.05$). Therefore, H4a is supported.

Customer-based profit performance as the dependent variable was used to examine Hypotheses 4b and 5b. The main effect of CRIP on CBPP was significant ($\beta = 0.545, p < 0.001$). The interaction terms of CRIP and IO had a non-significant effect on CBRP ($\beta = -0.02, p > 0.05$). Therefore, H4b was not supported. The interaction terms for CRIP and CSR had a non-significant effect on CBRP ($\beta = -0.02, p > 0.05$). Therefore, H5b was not supported.

— Table 3 is about here —

CONCLUSION AND SUGGESTIONS

Discussion

The results of this study refer to indications that CRM relational information processes directly affect customer-based relational performance, and then customer-based relational performance directly affects customer-based profit performance. Through the gathering, sifting, and analyzing of information regarding their customers, firms gain knowledge about the characteristics and behavior of every customer. Then, according to this knowledge about their customers, firms can develop customized actions oriented toward customers to meet the requirements of each customer on an individual basis. Therefore, well-collaborated CRM relational information processes facilitate an increase in customer satisfaction levels and positive word of mouth. Favorable customer satisfaction raises the level of return to extend and increase their amount of purchases, and the positive word of mouth attracts more new customers. The promotion of the value of customers therefore increases the sales and profit of firms.

However, it was found in this study that CRM relational information processes do not directly affect customer-based profit performance. This result does not seem to correspond to the research of Jayachandran et al. (2005), who investigated the association between relational information processes and customer relationship performance. This is because the concept of customer relationship performance in their study only explored customer satisfaction and customer retention. However, the definition of customer relationship performance in this study was more extensive. Not only was customer-based relational performance, which consists of customer satisfaction and word-of-mouth, investigated, but also customer-based profit performance was included. Additionally, the above results mean that CRM relational information processes must, through their influence on customer-based relation performance, also affect customer-based profit performance. CRM relational information processes stress the collecting and applying of information which is obtained from customers, so they only focus on the customer relationship levels. Through the operation of CRM relational information processes, the most direct influence toward firms is the customer's feelings and then their relationship with their customers. In other words, the more smoothly the CRM relational information processes are, the more the customer-based relation performance is promoted. Therefore, the levels of quality of CRM relational information processes are not so directly translated into financial outcome. After building favorable customer relationships, firms can retain more original customers, acquire more new customers and increase customer value and then realize the effects in profit performance. Therefore, the CRM relational information processes must through the mediator mechanism of relation-related performance

influence the ultimate financial-related performance.

Additionally, the effects of the two moderator constructs were partially significant. Interaction orientation had moderating effects on the influence of CRM relational information processes on customer-based relational performance. Interaction orientation is based on a customer-centric philosophy that includes information observed at the individual customer level, is recorded from each customer's transactions, opinions shared with customers, and predicted profitability. The adoption of interaction orientation on information management could foster the process of CRM information reciprocity, capture, integration, access and use more easily and more efficiently. Further, through an understanding of customers that corresponds to their preferences, firms establish favorable relationships with their customers. Retaining favorable relationships can be transformed into an improvement of higher levels of customer satisfaction and positive word of mouth.

As for CRM system readiness, although it had moderating effects on the influence of CRM relational information processes on customer-based relational performance, the effect was shown to be negative. CRM system readiness is the foundation of the accomplishment of the CRM information process. Complete technology infrastructure and specific mechanisms and rules for the implementation of tasks can assist with the collection and application of the information about customers and smooth the CRM information process. However, if the development and renewal of CRM system readiness is over complicated and fast, the steps of information processes must be updated continuously, so both the employees and organizations involved cannot correspond to the rapid growth of IT in real time. Therefore, CRM system readiness cannot be brought into full play to promote the establishment of favorable customer relationships and satisfaction. On the contrary, if the CRM system technology infrastructure is not complete, and the organizations do not provide the necessary support for executing CRM tasks, the building of relationships between a firm and its customers requires the assistance of complete CRM relational information processes. Therefore, when CRM system readiness is not so complete, the importance and influence of CRM relational information processes on customer-based relational performance are stronger.

However, the results in this study suggested that interaction orientation and CRM system readiness do not moderate the effect of CRM relational information processes on customer-based profit performance. The major reason for this was that the direct effect of CRM relational information processes on customer-based profit performance was not significant, so the moderating effects of interaction orientation and CRM system readiness on the relationship between them were also insignificant. Additionally, interaction orientation is



an intangible concept of interaction with customers. Customer-based profit performance is used to measure customer profitability, which is defined as tangible CRM benefits; moreover, customer-based relation performance is used to measure customer satisfaction and word-of-mouth, which is defined as intangible CRM benefits. Therefore, interaction orientation moderates the relationship between CRM relational information processes and customer-based relation performance but does not moderate the relationship between CRM relational information processes and customer-based profit performance, whose measurement character is different from interaction orientation.

Theoretical Implications

This study adopted more exact criteria to evaluate the performance of CRM. In the past, most research has employed financial indexes to measure CRM performance (Kumar and Reinartz, 2006); however financial outcomes can not entirely reflect customer attitude and behavior. Therefore, in order to actually explore customer value, customer-based performance, which is customer-centric, was adopted in this study. Further, this study found that CRM relational information processes first affect customer-based relational performance and then influence the customer-based profits performance. Past research only has investigated the influencing factors on the general performance of CRM; however, this study further divided the performance dimensions and showed that the completeness of CRM relational information processes must, through customer satisfaction and word of mouth, affect final profit performance. Therefore, CRM performance measures in this study were more comprehensive with regard to presenting customer value and more precisely pointing out the path of the quality of a CRM information system's influence on performance.

The role of the moderation of interaction orientation and CRM system readiness on the influence of the level of completeness of CRM relational information processes on the customer-based performance, which have been ignored in past research, were investigated in this study. The results of this study indicated that if the reciprocity, capture, integration, access and use of information are implemented at an individual level, firms provide customized products or services according to the needs and preferences of customers more easily. Fulfilling the requirements of customers improves customer satisfaction and word of mouth. Therefore, interaction orientation can foster the function of CRM relational information processes to enhance customer-based relational performance.

The results of this study suggested that higher CRM system readiness requires higher CRM



information processes. Overly complex and fast development of a CRM system make the CRM information processes hard to address, so firms cannot provide favorable and customized service to customers and cannot further strengthen their long-term relationships with their customers. On the contrary, when the CRM system infrastructure is not high quality, and the organizations do not provide training, rewards and rules corresponding to the CRM system, the influence of the completeness of CRM information processes with regard to retention and promotion of the relationship between the firms and its customers is higher. Therefore, a moderating effect of interaction orientation and CRM system readiness on the relationship between CRM relational information processes and customer-based relational performance was found.

Managerial Implications

There are several implications in this study for managers. This study showed that well-built information processes strengthen customer-based relational performance. Therefore, firms should develop information processes systemically to make firm collection, analysis, and use of customer information more precise. According to customer information that includes buying history, personal preferences, and other personal history, firms can offer customized products/services for each customer. In addition, firms can distribute resources adequately to profitable customers and reduce marketing costs spent on unprofitable ones. Through CRM relational information processes, firms can establish customer value management and then use resources more effectively and efficiently.

In addition, managers should thoroughly strengthen customer-based relational performance to promote the customer-based profit performance. When customers are satisfied with firm products/services, they tend to spread good word-of-mouth and further maintain long term relationships with firms. As a result of having a quality relationship with customers, firms can segment customers efficiently as well. Market segmentation can identify profitable and unprofitable customers. As different value driven from customers, firms can customize and personalize marketing activities and then exploit the full value of each customer to promote their profit performance.

This study showed that if there is a high level of CRM system readiness, it will not necessarily have a positive effect on the association between information processes and customer-based performance. When a firm that depends on its CRM system excessively, there is a negative effect, and the result is a case in which the CRM system is not user friendly or in which employees misunderstand the role that CRM plays in their organization. Therefore,

managers should build appropriate CRM technology systems and create complete rules, rewards and mechanisms to meet the developmental level of the CRM relational information processes and further promote customer-based performance.

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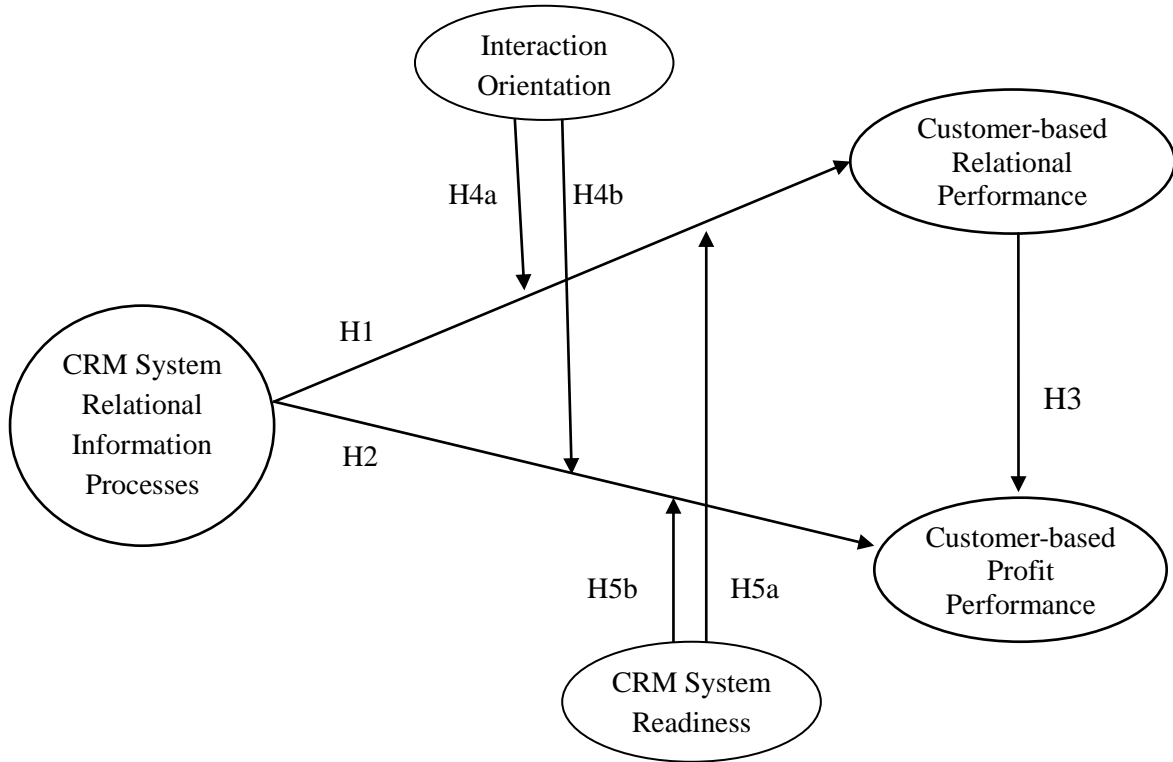


Figure 1 Conceptual Framework

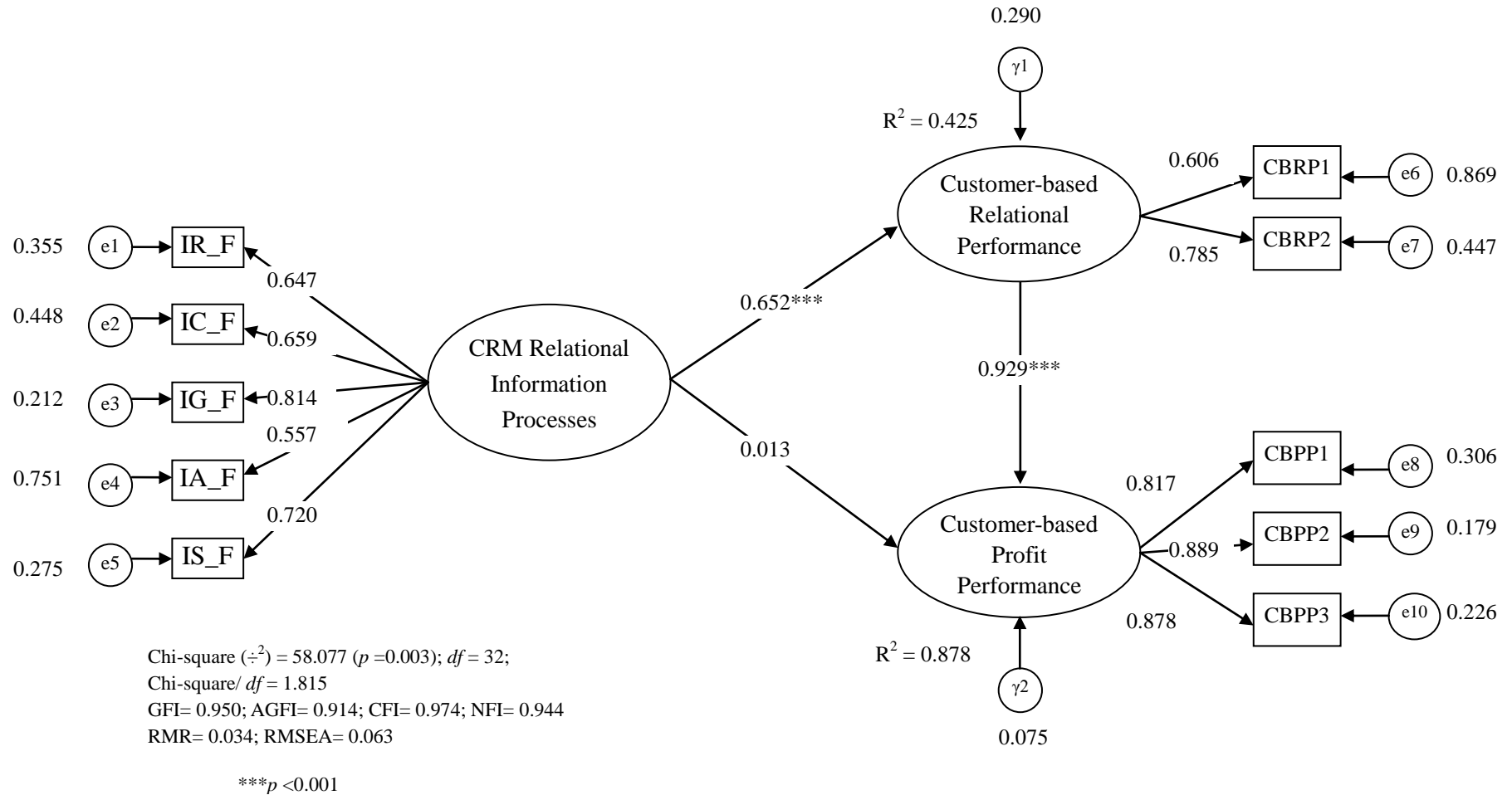


Figure 2 Results of Structural Equation Modeling (Main Effects)

Table 1 Results of Chi-square Difference Tests

Latent Factor 1	Latent Factor 2	Chi-Square ^a		Change in Chi-Square ^b
CRIP	CBRP	248.061	190.883	57.178
CRIP	CBPP	260.404	190.883	69.521
CRIP	Interaction Orientation	244.974	190.883	54.091
CRIP	CRM System Readiness	267.757	190.883	76.874
CBRP	CBRP	201.929	190.883	11.046
CBRP	Interaction Orientation	206.426	190.883	15.543
CBRP	CRM System Readiness	221.163	190.883	30.280
CBPP	Interaction Orientation	215.011	190.883	24.128
CBPP	CRM System Readiness	234.669	190.883	43.786
Interaction Orientation	CRM System Readiness	227.214	190.883	36.331

CRM Relational Information Processes (CRIP), Customer-based Relational Performance (CBRP), Customer-based Profit Performance (CBPP)

a. The chi-square for each latent factor 1 is on the left ($df = 95$), and the chi-square for each latent factor 2 ($df = 94$) is in the middle. On the left χ^2 value is constrained model, and on the right is unconstrained model.

b. For changes in chi-square greater than 3.85, $df = 1$.

Table 2 Path Analysis and Hypotheses Test

Hypothesis	Paths	Standard Coefficients	Results
H1	CRIP → CBRP	0.652***	Supported
H2	CRIP → CBPP	0.013	Not Supported
H3	CBRP → CBPP	0.929***	Supported

*** $p < 0.001$

Table 3 Results of Hierarchical Regression

Dependent variable	CBRP (H4a and H5a)			CBPP (H4b and H5b)		
	Model 1 (β)	Model 2 (β)	Model 3 (β)	Model 1 (β)	Model 2 (β)	Model 3 (β)
Main effects						
CRIP	0.480***	0.108	0.11	0.545***	0.189**	0.193**
IO		0.292***	0.294***		0.307***	0.31***
CSR		0.356***	0.359***		0.313***	0.314***
Interactions						
CRIP \times IO			0.146*			-0.02
CRIP \times CSR			-0.222**			-0.032
R ²	0.231	0.424	0.458	0.297	0.474	0.476
Adjusted R ²	0.227	0.416	0.444	0.293	0.466	0.463
F	62.106***	50.384***	34.279***	87.245***	61.504***	36.884***
ΔR^2	0.231	0.194	0.033	0.297	0.177	0.002
ΔF	62.106***	34.479***	6.25**	87.245***	34.51***	0.397
VIF	1	1.693~1.781	1.498~1.782		1.693~1.781	1.498~1.782

Interaction orientation (IO), CRM system readiness (CSR)

β is standardized coefficient, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$,

Note: This study estimated the following equations using least squares regression to test hypotheses.

Model 1: $CBRP = \beta_0 + \beta_1 CRIP + \epsilon_1$

Model 2: $CBRP = \beta_0 + \beta_1 CRIP + \beta_2 IO + \beta_3 CSR + \epsilon_2$

Model 3: $CBRP = \beta_0 + \beta_1 CRIP + \beta_2 IO + \beta_3 CSR + \beta_4 CRIP \times IO + \beta_5 CRIP \times CSR + \epsilon_3$